Faculty Development Retreat AGENDA

Robinson Technology Center

May 12, 2009

8:00 – 8:30 a.m.	**Continental Breakfast**
8:30 – 9:45 a.m.	**Plenary Session: *Retention and Advising*** Dr. Sandra DeLoatch, Dean, College of Science, Engineering and Technology
9:45 – 11:15 a.m.	**General Session I: *Learning Communities for Student Engagement*** Dr. Phyllis Worthy-Dawkins, Director of Faculty Development and Dean of the College of Professional Studies, Johnson C. Smith College
11:15 – 11:30 a.m.	**Break**
11:30 – 1:45 p.m.	**Departmental Work Session and Working Lunch I** (See Breakout Session Room List)
1:45 – 2:45 p.m.	**General Session II - *Classroom Engagement*** Dr. Lawrence Dotolo, President, Virginia Tidewater Consortium for Higher Education
2:45 – 3:00 p.m.	**Break**
3:00 – 4:00 p.m.	**Concurrent Workshop Sessions I - *Faculty Engagement*** • ***Interdepartmental Engagement*** Mr. Ed Sykes, Founder and CEO, The Sykes Group • ***Grant Writing*** Dr. Joseph Hall, Professor and Director, Center for Biotechnology and Biomedical Sciences; Interim Vice President for Research and Economic Development

Faculty Development Retreat AGENDA

Robinson Technology Center

May 13, 2009

8:00 – 8:30 a.m.	**Continental Breakfast**
8:30 – 9:30 a.m.	**General Session III: *Evidenced-Based Practices*** Dr. William Owings, Professor of Educational Leadership, Old Dominion University
9:30 – 10:30 a.m.	**General Session IV: *Best Practices in Action*** Participants in the 2008 Summer Institute on College Teaching Title III Curriculum Developers
10:30 – 10:45 a.m.	**Break**
10:45 – 11:45 a.m.	**General Session V: *Best Practices in Action*** Participants in the North Carolina Science Summit - Best Practices in STEM Education
12:00 – 1:30 p.m.	**Departmental Work Session and Working Lunch II** (See Breakout Session Room List)
1:45 – 2:45 p.m.	**General Session VI - *Effective Online Learning*** Dr. Danny Adams, Director of the Office of eLearning Mr. Murat Cinar, Instructional Designer, Office of eLearning
2:45 – 3:00 p.m.	**Break**
3:00 – 4:00 p.m.	**Concurrent Workshop Sessions II - *Faculty Strategies*** • ***Student Perceptions of Academic Dishonesty***, Dr. Afua Arhin, School of Nursing, Grambling University • ***Advising for Retention,*** Dr. Sheila Ward, Professor, Physical Education and Exercise Science

Faculty Development Retreat AGENDA

Robinson Technology Center

May 14, 2009

8:00 – 8:30 a.m.	**Continental Breakfast**
8:30 – 9:45 a.m.	**General Session VII: *The Teacher Scholar Model*** Dr. Rasha Morsi, Associate Professor of Engineering, Facilitator
9:45 – 10:15 a.m.	**Honors College Update** Dr. Page Laws, Dean, Honors College
10:15 – 1:30 p.m.	**Departmental Work Session and Working Lunch III** (See Breakout Session Room List)
1:30 – 2:30 p.m.	**General Session VIII: *Student Retention Models*** Dr. Patricia Ramsey, Professor of Biology, Bowie State University
2:30 – 2:45 p.m.	**Break**
2:45 – 4:00 p.m.	**Plenary Session II: *Departmental Reports/Closing Session***

Breakout Session Room List

Allied Health	RTC 126	**Mathematics**	RTC 124
Biology	RTC 127	**Nursing**	RTC 410A
Chemistry	RTC 128	**Physics**	RTC 310A
Computer Science	RTC 108	**Technology**	RTC 212
Engineering	RTC 213		

NORFOLK STATE UNIVERSITY

2009 Faculty Development Workshop
Evaluation Form

I. Please keep this form handy during the workshop to evaluate each session. The ratings scale range is four (4) - excellent to one (1) - poor. Shade the rating that reflects your response.

General Sessions

General Session Code	Topic
I	Learning Communities for Student Engagement
II	Classroom Engagement
III	Evidence-Based Practices
IV & V	Best Practices in Action
VI	Effective Online Learning
VII	The Teacher Scholar Model
VIII	Student Retention Models

CODE **Ratings: Excellent - 4 Good - 3 Acceptable - 2 Poor - 1**

	VALUE OF INFORMATION	METHOD OF PRESENTATION	CLARITY OF SESSION OBJECTIVE	OPPORTUNITY FOR DISCUSSION	PRACTICALITY OF IDEAS	COMMENTS
I	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
II	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
III	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
IV	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
V	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
VI	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
VII	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
VIII	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	

Concurrent Workshop Sessions

Concurrent Workshop Code	Topic
I	Interdepartmental Engagement
II	Grant Writing
III	Student Perceptions of Academic Dishonesty
IV	Advising for Retention

CODE **Ratings: Excellent - 4 Good - 3 Acceptable - 2 Poor - 1**

	VALUE OF INFORMATION	METHOD OF PRESENTATION	CLARITY OF SESSION OBJECTIVE	OPPORTUNITY FOR DISCUSSION	PRACTICALITY OF IDEAS	COMMENTS
I	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
II	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
III	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
IV	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	

Plenary and Departmental Work Sessions

Session Code	Topic
I	Plenary Session I – Retention and Advising
II	Departmental Work Session I
III	Departmental Work Session II
IV	Departmental Work Session III
V	Plenary Session II – Departmental Reports/Closing Session

CODE **Ratings: Excellent - 4 Good - 3 Acceptable - 2 Poor - 1**

	VALUE OF INFORMATION	METHOD OF PRESENTATION	CLARITY OF SESSION OBJECTIVE	OPPORTUNITY FOR DISCUSSION	PRACTICALITY OF IDEAS	COMMENTS
I	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
II	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
III	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
IV	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	
V	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	④ ③ ② ①	

II. Please rate the items in this section.

1. Overall quality of the Retreat

   ④ ③ ② ①

2. Scheduling of Retreat activities

   ④ ③ ② ①

3. Organization of workshops and sessions

   ④ ③ ② ①

4. Evaluation procedures

   ④ ③ ② ①

5. Opportunity to interact with speakers

   ④ ③ ② ①

6. Usefulness of resources issued

   ④ ③ ② ①

7. Helpfulness of exercises presented

   ④ ③ ② ①

8. What did you like about this Retreat?

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9. How could the Retreat be improved?

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10. Comments

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The Vision

Norfolk State University will be the institution of choice for all resolute learners.

Five Point Plan for 2008-2013

Point 1

Enhance the Collegial Environment

– Identify correct Rules of Engagement

Strategies

- Increase effectiveness of Faculty Senate to represent the voice of the faculty
- Identify the correct rules of engagement for shared governance
- Identify and implement transparent processes for collegial environment
- Implement appropriate checks and balances in the decision making process
- Build stronger commitment to promote NSU at all levels of engagement

Point 2

Enrollment Growth in Quality and Quantity

– Increase student enrollment from 6,000 to 9,000 with improved quality during 2008-2013

Strategies

- Improve applications and yield for freshman enrollment
- Increase transfer agreements with community colleges and four year institutions
- Improve quality of incoming students through development of honors college
- Expand satellite programs using IT Technology
- Expand certificate programs, continuing education programs and selected masters degree programs

Point 3

Improve freshman to sophomore retention rate by at least 15% and increase six-year Graduation Rate from 31% to 60%

Strategies

- Improve retention through carefully monitored freshman and sophomore year experiences
- Enhance programs for under prepared students
- Create innovative educational programs in honors college
- Create innovative curricula and emphasize co-curricular activities
- Improve advising and financial aid process

Point 4

Implement Teacher/Scholar Model for the faculty

– Improve sponsored research and NSU role in economic development

Strategies

- Enhance role of scholarship in faculty hiring, promotion, and tenure processes as well as in workload management
- Promote, facilitate and support sponsored research activities – Increase sponsored research approximately two fold in five years
- Enhance NSU's role in economic development
- Enhance interdisciplinary activities and research collaboration with other universities, industry and government agencies
- Create incentive policies to promote and support scholarships

Point 5

Implement Performance Based Management Model

– Ensure Accountability at all levels

Strategies

- Create performance based transparent budgeting processes
- Create incentives to promote excellence
- Create processes to achieve market competitive salary structure and reward high performance
- Build processes to eliminate poor performance and respond to new market opportunities
- Build entrepreneurial culture

NSU
NORFOLK STATE UNIVERSITY

RESEARCH ARTICLES

Faculty Development Retreat AGENDA

Robinson Technology Center

CRITICAL THINKING

Education Tech Research Dev (2009) 57:169–192
DOI 10.1007/s11423-008-9104-7

RESEARCH ARTICLE

Cognitive and social help giving in online teaching: an exploratory study

Joan L. Whipp · R. A. Lorentz

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Abstract While literature suggests that college students may be less reluctant to seek help in online rather than traditional courses, little is known about how online instructors give help in ways that lead to increased student help seeking and academic success. In this study, we used theories and research on learning assistance and scaffolding, teacher immediacy, social presence, and academic help seeking to explore through a cross-case study design how three online instructors differed in their use of cognitive and social supports and how those differences related to student perceptions of support, help seeking, and performance. Primary data sources included all course postings by the instructors, interviews with the instructors, observational field notes on course discussions, student interviews, and final student grades. Archived course documents and student discussion postings were secondary data sources. Data analysis revealed that while all instructors provided cognitive and social support, they varied in their level of questioning, use of direct instruction, support for task structuring, and attention to group dynamics. This variation in teaching presence related to differences across the courses in student perceptions of support, student help seeking in course discussions, and final course grades. Implications for online teaching and suggestions for further research are offered.

Keywords Online teaching · Instructional scaffolding · Cognitive learning support · Social learning support · Teaching presence · Social presence · Academic help seeking

Introduction

Many students in higher education are reluctant to seek academic help for reasons that include low self-efficacy and threat to self-esteem, a competitive classroom climate, and teachers who appear to be unresponsive or inflexible (Karabenick 2003, 2004; Kozanitis et al. 2008). Recent studies of student help seeking in courses where all or most of the class is conducted online, however, suggest that students are less reluctant to seek academic help

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in these environments and, in fact, do so more frequently than in face-to-face courses (Kitsantas and Chow 2007; Kumrow 2007). In a study of 472 students enrolled in undergraduate and graduate face-to-face classes in educational psychology and geography and distance courses in information studies, Kitsantas and Chow (2007) found that students in the distance courses sought help more often and reported less reluctance to seek help than students in traditional learning environments. In a similar study of 38 graduate nursing students, Kumrow (2007) found that students in a health care economics course (with 50% of the class online) engaged in more help seeking and had higher final grades than students in a lecture section of the same course.

Although promising, these studies have only begun to explore relationships between online teaching, student help seeking, and academic performance. In particular, they do not address how differences in instructors' methods of giving help might relate to student help seeking or academic success. With the persistence of high drop out rates and achievement problems in online courses (Morris et al. 2005; Tyler-Smith 2006), such study is needed so that instructors can understand how to strategically support students in online and blended environments. The study reported in this article was designed to be a first step in that direction.

Theoretical and research perspectives

The study was grounded in theories of learning assistance and scaffolding (Collins et al. 1990; Rogoff 1991; Tharp and Gallimore 1991; Vygotsky 1986). It also drew from theories and research on teacher immediacy and presence (Anderson et al. 2001; Christophel 1990; LaRose and Whitten 2000; Shea 2006; Shea et al. 2002); social presence in online discussions and classes (Gunawardena and Zittle 1997; Richardson and Swan 2003; Swan and Shih 2005), and academic help seeking (Karabenick 1998, 2004; Karabenick and Newman 2006; Ryan and Pintrich 1998).

Learning assistance and scaffolding

Based on Vygotsky's theory of learning development, Tharp and Gallimore (1991) and Collins et al. (1990) offer frameworks for thinking not only about how students learn and construct knowledge in social contexts but how teachers (and peers) can scaffold that learning. Teachers assist learners in their zones of proximal development through modeling, feedback, reinforcement, questioning, task structuring, and direct instruction. These supports are continually adjusted, faded, and eventually withdrawn as students move toward expertise.

For more than a decade, these theories of learning assistance and instructional scaffolding have influenced conceptions of teaching in online learning environments (Bonk and Cunningham 1998; Dzubian et al. 2005; Harasim et al. 1995; Roblyer et al. 1997). Three recent reviews (Swan and Shea 2005; Tallen-Runnels et al. 2006; Wallace 2003), however, argue that empirical research on online teaching is still limited and has only begun to identify specific teaching methods that assist learners in online discussions. Bonk and his colleagues (1998, 2000), for example, identified a number of cognitive help giving behaviors they observed instructors and mentors using in computer conferences for preservice teachers taking an introductory educational psychology course. These behaviors included: acknowledgement, questioning, direct instruction, use of examples, praise, task structuring, elaboration seeking, pushing for exploration, and dialogue prompting.

Teacher immediacy, social presence, and teaching presence

Communication studies of teacher immediacy and media theories and research on social presence and teaching presence offer additional insight into how teachers can support learning in online courses. Teacher immediacy originally referred to verbal and nonverbal teaching behaviors in face-to-face classrooms that lessen both the physical and psychological distance between teacher and students. A number of studies have shown that these behaviors (e.g., praise, using humor, maintaining physical proximity, making eye contact) are related positively to student learning (Christophel 1990; Weiner and Mehrabian 1968). More recently, LaRose and Whitten (2000) identified how instructors in online classes can use a variety of immediacy behaviors to make up for their lack of physical closeness to students. In a study of instructors in three different types of media settings (text-based, audio, and video), they found that instructors in each of these settings used immediacy behaviors that were appropriate to their particular medium. The text-based instructors, for example, used praise, personal examples, first names, questioning, humor, and digressions; instructors on video used gestures, smiles, a relaxed posture, and movement around the classroom.

Social presence theory (Rice 1992; Short et al. 1976) originally focused on how students could connect socially and emotionally with their instructors and peers in an electronically mediated course despite physical distance. A number of recent studies, however, have looked at specific methods (similar to teacher immediacy behaviors) that students use to successfully project social presence in online discussions. These studies have also found that student perception of social presence is a strong predictor of their satisfaction in online courses (Gunawardena and Zittle 1997; Swan 2003). In a study of 50 graduate students across five universities who participated in an online computer conference on distance education, Gunawardena and Zittle (1997) found that students who experienced higher levels of social presence were also more inclined to use emoticons (e.g., ☺ and ☹) and paralanguage in written form (e.g., "Hmm," "Yuk") to make up for the lack of social and nonverbal cues that help create social presence and immediacy in traditional face-to-face communication. Swan (2003) extended these findings in a study of all of the discussion threads in a graduate online educational computing class. Drawing from a framework developed by Rourke et al. (1999), she found that course participants projected social presence in online discussions by using significant amounts of affective, cohesive and interactive language indicators that included not only paralanguage, but also humor, self-disclosure, praise, acknowledgements, greetings, group references, social sharing, agreement/disagreement, invitations, and personal advice.

Many studies on social presence in online courses have pointed to the critical importance of the online course instructor who not only projects and models social presence behaviors but creates a class culture that encourages students to use them as well (Jung et al. 2002; Richardson and Swan 2003; Shea et al. 2002; Swan and Shih 2005). In a study of three classes of Korean undergraduates taking a career development course with three different support conditions, Jung et al. (2002) found that student online discussion participation and achievement on course assignments were higher when they were supported socially and academically by instructors in contrast to students who did not or who only interacted with peers on academic tasks. In a study of 97 adult students taking online undergraduate courses at Emporia State College, Richardson and Swan (2003) found a high correlation among students' sense of social presence, perceived learning, and satisfaction with course instructors. In another study of graduate

students in four online educational technology courses, Swan and Shih (2005) discovered that students who were most satisfied with online discussions had the highest perceptions of social presence and attributed that satisfaction more to instructors than peers.

Anderson et al. (2001) bring together these cognitive and social perspectives of online teaching in their conception of "teaching presence," which they define as "the design, facilitation and direction" of both cognitive and social processes. They have developed lists of support behaviors that can be observed in online discussions. These behaviors are grouped under what they see as the primary roles of the online teacher: instructional design and administration (e.g., setting curriculum, setting deadlines, establishing netiquette); discussion facilitation (e.g., identifying areas of agreement/disagreement, seeking consensus, climate setting); and direct instruction (e.g., question posing, discussion focusing, summarizing, providing explanations).

Academic help seeking

Strategic/adaptive help seeking or getting "only the assistance necessary to accomplish tasks independently" (Karabenick 1998) is an important self-regulation strategy that has been linked to high academic achievement and learner satisfaction in higher education (Karabenick 2003, 2004; Karabenick and Newman 2006; Kitsantas 2002; Zusho et al. 2007). Researchers distinguish between formal help seeking from instructors and informal help seeking from peers and family members. They also distinguish strategic help seeking from expedient help seeking, which centers on using others to avoid work (e.g., getting the right answer on a problem). Studies have found that many college students in face-to-face classes avoid formal help seeking by trying to solve academic problems on their own (studying harder, dropping a class) or seeking expedient rather than strategic help (Karabenick 2003, 2004).

Earlier literature on academic help seeking focused on the relationship of strategic help seeking to individual characteristics in learners like achievement goals, self-regulation, self-esteem, and self-efficacy beliefs. Studies found that learners who sought help most efficiently were learners who were highly motivated to achieve, self-regulatory, and had high self-esteem and self-efficacy. Those more reluctant to seek help tended to be learners who set low performance-oriented goals, did not strategically use self-regulation strategies, and had lower self-esteem and self-efficacy. While not disagreeing with these earlier findings, more recent studies on help seeking have been interested in the importance of contextual factors, especially classroom achievement goals that support autonomous help seeking. These studies suggest that students are more inclined to seek help in classrooms where rules and norms promote strategic help seeking (Ryan and Pintrich 1998); where classroom goals are perceived as mastery rather than performance-oriented (Karabenick 2004); and in classrooms that students perceive as socially supportive (Karabenick 2004; Kozanitis et al. 2008; Ryan and Pintrich 1998). The teacher plays a particularly important role in these perceptions. In their study of contextual influences on student motivation and help seeking, Ryan and Pintrich (1998) found that middle school students' positive perceptions of teacher support for both student-teacher and student-student interactions influenced their help seeking. In a more recent study, Kozanitis et al. (2008) found that college students were more likely to use autonomous help seeking strategies when they perceived support and positive responses to their questions from their instructors.

Research questions

Although previous research has identified a number of cognitive and social strategies that online instructors can use to assist students, there has been little investigation on how online instructors can vary in their use of these strategies. Furthermore, there has been even less study on how such variation might relate to student help seeking and academic success in online courses. For this reason, the present study used the literature on learning support, teacher immediacy and presence, social presence, and help seeking to frame the following three questions: (a) What cognitive and social help-giving behaviors can be observed in online instructors as they teach a course? (b) What similarities and differences in cognitive and social assistance can be observed in these online instructors? (c) What relationships can be seen among these help giving behaviors, student perceptions of support, formal student help seeking, and student performance in online courses?

Context for study

For the past 12 years, a mid-sized, private Midwestern university has been offering blended graduate courses (primarily online with two face-to-face meetings) in education and instructional technology. The courses are designed to be highly interactive with frequent, required asynchronous discussions, availability of instant e-mail, online chats, paging, and a variety of interactive tutorials on course topics and technical skills needed for course navigation and assignments. At the time of this study (Spring of 2006), all courses were using *Desire to Learn* as a platform for delivery; the instruction was largely text-based although some instructors were incorporating some video and audio in their courses.

The courses attract students in education, business, and the health sciences who present a wide range of technology proficiency and experience. Instructors are a mix of full time and adjunct professors who are both experienced and novice online teachers. All first-time online instructors are required to participate in an orientation workshop that covers current online technologies and pedagogy. Additional assistance for faculty includes a technical help desk and a faculty mentor who helps with course design and conducts an ongoing support forum for online instructors.

Method

Because the study was intended to develop a rich description of teaching methods that support student help seeking and academic performance as well as differences in teaching across courses, a comparative cross-case study design using naturalistic and descriptive methods of inquiry was used (Lincoln and Guba 1985).

Participants

Three adjunct online instructors teaching graduate education courses agreed to provide access to all of their course discussions and postings, and also participate in an interview at the end of the semester. All three of the courses were conducted primarily online with face-to-face sessions at the beginning and end of the semester. Two instructors, Karen and Robin (names of instructors were changed to protect privacy), had been teaching online

Table 1 Online instructors

Name	Age	Online course	Years teaching in higher education	Prior online teaching
Karen	46	Theories of learning	25	8 courses (5 years)
Robin	54	Introduction to instructional technology	15	15 courses (8 years)
Robert	50	Introduction to instructional design	17	1 course

courses for several years and also had considerable experience teaching at both the K-12 and college level. The other instructor, Robert, had 17 years of college teaching experience but previously had only taught one online course. Table 1 offers a fuller profile of these instructors:

Data collection

Primary data sources were: (a) all instructor course postings, (b) interviews with course instructors, (c) weekly field notes taken by the authors while observing course discussions, (d) student interviews, and (e) final student grades. Archived course documents (course syllabus, assignment descriptions, discussion prompts, and student discussion postings) were secondary data sources.

Instructor postings

All 916 of the instructors' postings in course discussions and on the instructors' announcement pages were copied (392 written by Robert, 333 written by Karen and 189 written by Robin).

Instructor interviews

Within a month after the courses ended and grades were submitted, the second author interviewed each of the course instructors on student problems in the course, their methods for supporting students, their perceptions of the course's learning climate, and their perceptions of how students sought and received help. (See Appendix for interview protocol.) The interviews were audio-taped and transcribed.

Observational field notes of course discussions

Independently, we each read all asynchronous discussion postings in each course on a weekly basis. We kept field notes of our observations, met weekly to discuss them, and kept a journal of our emergent questions, hunches, and tentative understandings. We also made charts to record communication patterns in the discussions (who spoke to whom, frequency of student-student and student-teacher interactions, and timing of student and instructor postings). All instances in the postings of formal help seeking by students were isolated, charted, and copied with an indication of to whom and why the request for assistance was made as well as who responded. All comments in the course by both students and instructors about the academic and social climate were also noted and copied.

Student interviews

The first author recruited 21 of the 29 students enrolled in the three courses (nine in Robert's course, six in Karen's course and six in Robin's course) to participate in a 45-minute interview at the end of the semester. All interviews were conducted face-to-face either at the student's place of employment or on campus by one of the two authors. Students were asked to describe problems they encountered in the course, how they got help, their perceptions of the instructor's support, and their perceptions of the course's learning climate. (See Appendix for interview protocol.) All interviews were tape recorded and transcribed.

Final student grades

With the permission of students and instructors, copies of final grade reports were obtained from the university registrar.

Course documents

Course syllabi, assignment descriptions, discussion prompts, and student discussion postings and threads were used to contextualize the instructors' postings. They were also used to elaborate understanding of some cognitive supports like task structuring, content presentation, and discussion facilitation strategies (prompting, focusing, summarizing). In addition, they were used to check for any evidence that would confirm or disconfirm emerging understanding of how these instructors were supporting their students.

Data analysis

To carefully examine instructor help giving in these courses, we used both individual and cross-case analytic techniques (Patton 2002; Stake 1995; Yin 2003) to analyze the instructor and student data. Using literature on learning support in online learning environments (Bonk et al. 2000), teaching presence indicators (Anderson et al. 2001) and social presence indicators in online discussions (Rourke et al. 1999; Swan and Shih 2005), we developed a preliminary list of coding categories. We then independently read through each instructor's discussion postings, announcements, and interviews to isolate instances of instructor help giving in the postings and references to help giving in the interviews. We met to agree on thematic coding units in the texts as well as additional coding categories that emerged from our reading of the data. We independently tried the coding categories on several of each instructor's postings and then met to reach consensus on coding units and to refine coding categories. We continued this process of coding and refinement with each of the instructor's postings and interviews until consensus was reached on all coding units and codes. We then completed frequency counts for both cognitive and social supports in each of the instructor's discussion and announcement postings. (See Tables 2 and 3 for final coding categories and frequency counts.) We used the coded instructors' interviews to confirm and elaborate on findings from the coded postings and also to make comparisons across the cases.

We used similar techniques to analyze student interviews. First, using the research questions as well as the coding categories on cognitive and social supports that emerged in our analysis of the instructors' postings, we searched for patterns in the interviews of each student in each of the courses and then across all the students in each course using a

Table 2 Instructors' cognitive supports in discussions and announcements

Cognitive support	Examples from instructor postings	References	Robert (392 postings)	Karen (333 postings)	Robin (189 postings)
Acknowledgement, encouragement	"You state that…" "Thanks for sharing…" "I agree that…" "You need to be less concerned about getting the right answer."	Bonk et al. (2000); Anderson et al. (2001); Swan and Shih (2005)	117 (30%)	189 (58%)	39 (21%)
Praise, approval, confirming feedback	"What a powerful insight!" "Great illustration!" "Nice summary." "Absolutely!"	Bonk et al. (2000); Anderson et al. (2001); Swan and Shih (2005); LaRose and Whitten (2000)	36 (9%)	105 (31.5%)	51 (27%)
Probing, challenging questioning	"How would you design a democratic school?" "Vygotsky would disagree with you!"	Bonk et al. (2000); LaRose and Whitten (2000); Tharp and Gallimore (1991)	24 (6%)	120 (36%)	15 (8%)
Request for elaboration, explanation, evidence	"What examples can you give?" "What support can you offer from ….?"	Bonk et al. (2000)	9 (2%)	30 (9%)	3 (1.5%)
Presentation of content, examples	"Our readings suggest…." "There are two ways to go about… "	Bonk et al. (2000); Tharp and Gallimore (1991); Anderson et al. (2001)	72 (18%)	29 (8%)	46 (25%)
Scaffolding exploration of content from diverse sources	"For more information check out this website…" You might want to contact… "	Bonk et al. (2000); Anderson et al. (2001)	24 (6%)	54 (16%)	66 (36%)
General advice	"Ask the teacher what she wants her students to know and be able to do."	Bonk et al. (2000); Rourke et al. (1999); Swan and Shih (2005)	9 (2%)	30 (9%)	21 (11%)
Focusing discussion on specific issues	"In the discussions stay focused on our prompt question which is…." "Connect this week's readings to the definition of instructional design we discussed earlier…"	Anderson et al. (2001); Bonk et al. (2000)	6 (1.5%)	15 (4.5%)	0
Summarizing discussion	"Our discussion this week centered on three important issues…"	Anderson et al. (2001)	2 (.005%)	20 (6%)	12 (6%)
Task structuring	"Use the rubric to guide your planning."	Tharp and Gallimore (1991); Bonk et al. (2000)	33 (8%)	71 (21%)	12 (6%)

Percentages in Tables 2 and 3 indicate proportions of each instructor's postings that included various cognitive and social supports. Most postings included more than one category of support, so on both tables the sum total of percentages for each instructor does not equal 100%

Table 3 Instructors' social supports in discussions and announcements

Social support	Examples from the instructor postings	References	Robert (392 postings)	Karen (333 postings)	Robin (189 postings)
Greetings and salutations	"Hello" "Wow, Annie!" "Good Luck!"	Rourke et al. (1999); Swan and Shih (2005)	10 (2.5%)	309 (93%)	168 (89%)
Use of first names	"Hi Jim" "Check out Catherine's project!" "Thanks to Roger!"	Rourke et al. (1999); Swan and Shih (2005); LaRose and Whitten (2000)	314 (80%)	252 (76%)	153 (81%)
Group reference	"We as teachers…" "our learning community"	Rourke et al. (1999); Swan and Shih (2005)	72 (18%)	32 (9%)	23 (12%)
Social sharing unrelated to course/digressions	"Have a restful spring break!" "Hope you are enjoying the sunshine!" "Great news for our basketball team!"	Rourke et al. (1999); Swan and Shih (2005); LaRose and Whitten (2000)	41 (10%)	18 (5%)	9 (5%)
Conventional expressions of emotion/empathy	"I can relate to your joy…" "I would like to give you on online hug." "Don't worry about the quiz…"	Rourke et al. (1999); Swan and Shih (2005)	71 (18%)	149 (45%)	4 (2%)
Un-conventional expressions of emotion, empathy	☺ "Whheeewww!" Wow!" !!! "Hmmm…."	Gunwardena and Zittle (1997); Rourke et al. (1999); Swan and Shih (2005)	260 (66%)	54 (16%)	56 (30%)
Invitations, personal offers of help	"Maybe we should meet to narrow your topic." "Please e-mail me with any questions or concerns."	LaRose and Whitten (2000); Rourke et al. (1999)	58 (15%)	79 (24%)	16 (8%)
Humor	"Is this too much for a Friday morning?" "I am hoping for a lively debate in this modDUEL."	Rourke et al. (1999); Swan and Shih (2005); LaRose and Whitten (2000)	121 (31%)	4 (1%)	4 (2%)
Self-disclosure/personal examples	"Your story reminds me of my son…" "I've made the same mistake."	Rourke et al. (1999); Swan and Shih (2005); LaRose and Whitten (2000)	69 (18%)	22 (6%)	14 (7%)

Table 3 continued

Social support	Examples from the instructor postings	References	Robert (392 postings)	Karen (333 postings)	Robin (189 postings)
Assessing and advising on group process	"We will learn much more from one another if we can agree to disagree." "Read each other's homepages and consider…How might you help each other?"	Anderson et al. (2001)	34 (9%)	37 (11%)	8 (4%)
Discussion prompting to draw in participants	"How might this play out in your classrooms?" "Anyone out there want to respond?"	Anderson et al. (2001)	54 (14%)	37 (11%)	12 (6%)

Percentages in Tables 2 and 3 indicate proportions of each instructor's postings that included various cognitive and social supports. Most postings included more than one category of support, so on both tables the sum total of percentages for each instructor does not equal 100%

constant comparative method (Glaser and Strauss 1967). We read the student interview transcripts independently several times and then independently marked the texts to capture main ideas. We subsequently revised the coding categories on one of the student interviews and met again to reach consensus on a final resolution of coding units and codes for the student interviews. We continued this process of coding and refinement with all of the other student interviews until consensus was reached. We then used the coded student interviews for each course to confirm and elaborate on findings from the instructor data for each course and to make additional comparisons across cases.

Drawing from all of the data (coded instructor postings, announcements and interviews; student-student and teacher-student interaction and help seeking charts; field notes; coded student interviews; and grade reports), we wrote detailed case reports for each course that summarized instructor help giving (cognitive and social), level of student formal help seeking, level of student participation in discussions, student perceptions of support, and final grades.

Results

Cognitive supports

As indicated in Table 2, all three instructors offered a variety of the cognitive supports to students that have been mentioned in the literature. Most frequently all made use of acknowledgements and praise. There was, however, variation in their (a) level of questioning; (b) amount and consistency of direct instruction; and (c) task structuring.

Acknowledgement and praise

Social and cognitive acknowledgement is an important learning support that often serves to keep students focused and motivated (Bonk and Cunningham 1998; Tharp and Gallimore 1991). This kind of support was evident in 73% of Karen's, 40% of Robin's, and 38% of Robert's postings. Some examples include:

- You have expressed your definition of learning as acquisition of knowledge that is permanent and that can be accessed when needed. (Paraphrase of a student's position)
- As you implement the online tutorials, would you consider training your more savvy students as tech coaches who can help other students? Check out this website showing how one teacher successfully did that. (Acknowledgement with a push for further exploration)
- You write that 'some sort of test may be performed to verify that any learning has occurred.' But how do you know if the test is reliable or valid? (Direct quoting of a student posting combined with questioning)

Level of questioning

Literature on teaching in higher education in both face-to-face and online environments has paid considerable attention to the importance of discussion prompting that moves student discussion beyond mere information sharing to higher levels of critical response and knowledge construction (Tharp and Gallimore 1991; Gerber et al. 2005; Kanuka and Anderson 1998; Rourke et al. 1999). Gerber et al. (2005) make a distinction between a

challenging and unchallenging "stance" that an online instructor can take in discussions. Unchallenging postings, while supportive, simply provide additional information or ask for clarification. Instructors who adopt a "challenging" stance are supportive and informative but also ask students to use data or theory to defend and elaborate arguments; they highlight student disagreements and present counter-positions to challenge student postings.

As Table 2 indicates, Robin and Robert rarely used probing questions or questions that challenged their students to elaborate on or defend their positions, while Karen more frequently posed counter arguments and challenged students to apply and evaluate educational theories with questions like these:

- Is there really no solution or are there many possible solutions? How, for example, might the cognitive information processing theorists approach this issue?
- Although the action and your reaction can be explained from a behaviorist point of view, I wonder if it was planned and intended that way. My guess is that it was not intended to create a change in your behavior….
- You state that the most important mediating factors in learning are interest and relevance. Have you considered how physical or emotional factors might come into play as mediating variables? Have you ever studied Maslow's Hierarchy?

In contrast, Robin's questions typically asked for information, e.g.,

- Do you have any other suggestions on what to do about resistant faculty or staff?
- Do most of these kids get over their fear after a couple of weeks in your [kindergarten] class?
- Do your school parents ever ask for a more traditional ABCD-F report card?

Robert's questions, although thought-provoking, tended to be broader and open-ended rather than targeted and probing, e.g.,

- How far have your schools come with technology integration?
- What do you think about the move toward virtual schools in K-12 education?
- Do you ever find it difficult to empathize with any of your students?

Amount and consistency of direct instruction

Anderson et al. (2001) and Bonk et al. (2000) both include direct instruction as an important cognitive support used by online teachers. Their research offers these indicators of direct instruction: (a) presentation of content and examples, (b) bringing in knowledge from diverse sources and personal experience, (c) assessing student ideas, (d) diagnosing misconceptions, (e) prompting, (f) focusing, and (g) summarizing.

Table 2 shows how all three instructors frequently presented and encouraged student exploration of content with links to additional resources. Robert presented his own thinking about course readings and topics (e.g., informal learning environments, instructional design paradigms, distributed cognition), and he suggested books and articles that students might pursue as they researched project topics. Karen summarized current research and raised questions on topics that came up in course discussions, such as test anxiety, student misconceptions in science, learned helplessness, online learning environments; and she often provided links to websites and articles. In more than a third of her postings, Robin provided information and links to websites and online tutorials on topics related to instructional technology, such as electronic portfolios, archiving web resources, and Web Quests.

However, Table 2 indicates variation in these instructors' facilitation of course discussions. While all three made some effort to offer discussion prompts that would keep the discussion going and draw in participants, Karen was more systematic in her efforts to focus course discussions. At the beginning of every module, she used Power Point and occasional videos to provide a mini-lecture overview of the module and offer explicit instructions to focus the week's discussions on specific issues. She regularly used her announcement pages to preview upcoming modules, share general assessments of student projects, and summarize discussions. In addition, she periodically offered advice to students on how to improve discussion postings. Early, for example, she noted,

> The tendency has been to affirm what others have said and react emotionally to the topic of learning in general. I would like us all to stretch ourselves by staying focused on the prompt question, using the text to support your positions, and raising critical questions.

Discussion focusing and guidance were less apparent in Robert's postings; and students in Robert's discussions frequently digressed from the central topic of the course (instructional design) to topics like child rearing, television watching, medicine, and sports. As one of Robert's students explained, "In this class we were just sort of rambling, and if there was a tangent to grab, we'd grab it and run with it."

Task structuring

Tharp and Gallimore (1991) emphasize the need for teachers to structure cognitive tasks within a student's zone of proximal development. They argue that students need help in breaking large tasks down into clear, achievable goals and procedures. In response to students having difficulty keeping track of deadlines, for example, both Karen and Robin created timelines and calendars that they posted on their announcement pages. In addition, in discussion postings, on announcement pages, and also privately on e-mail, all three instructors helped students narrow project topics and tackle extensive readings assignments:

- Pick any one of your ideas and do some preliminary searching for information. (Karen)
- After you immerse yourself in your readings on situated cognition, think about how to use the language and framework of the theory to analyze what's going on in your classroom. (Robert)
- Use the rubric to help you plan this project. (Robin).

However, while Karen's and Robin's students commented on the helpfulness of step-by-step project instructions and clear rubrics that made it clear "exactly what I needed to do," six of Robert's students complained about his lack of explicit directions for course projects with comments like "You had to wade through a lot of information to figure out what the core assignments were and what was expected" and "The project deadlines were never clear."

Social supports

Table 3 shows that in addition to cognitive supports, these instructors frequently used many social supports that are mentioned in the literature. While all of the instructors took care to consistently use language in their postings that helped to create an inviting learning climate, they varied in their (a) consistency of public and private interactions with students and (b) attention to group dynamics and processes.

Use of welcoming language

To make their largely text-based courses more welcoming and help lessen the physical and psychological distance between themselves and their students, all three instructors frequently used linguistic techniques in their postings that have been identified by Rourke et al. (1999) as those which help project social presence. For example, all three addressed most postings to students by their first names. Robin and Karen signed their postings and some of their announcements with their own first names as well. In addition, Robin and Karen typically began postings with a "Hi" or "Thanks for your response."

All of the instructors also found ways to project emotion into their postings. In almost a third of her postings, Robin used emoticons, exaggerated punctuation or spelling (e.g., "Whheeeww!" "Here gooeesss…. "). Robert frequently emphasized ideas with words written in capital letters. He also projected emotion by naming his feelings (e.g., "I'm excited…" "Sorry if I sound angry here.") Karen invited student response by inserting "Hmmmm…" or using exaggerated punctuation after raising a question or presenting possible ways to look at an issue. Also, in almost half of her postings, she projected emotion with empathetic responses ("I hear your frustration."), reassurances ("That feeling of panic can be productive."), and enthusiasm for student ideas ("I love your tardy slip story." "You got me thinking!").

In addition to welcoming language, all instructors on occasion included direct invitations and personal offers to help in their postings. Robin invited students within driving distance to events at her school. She offered to set up a videoconference for one of her students; and she offered to come to a teacher's class to show students how to use *The Geometer's Sketchpad*. Karen and Robert invited students to contact them by e-mail or to meet face-to-face ("Would it be helpful to meet and talk over options?" "If you are having difficulty, just let me know what's going on").

Only Robert made frequent use of personal disclosures and humor (in almost half of his postings) to illustrate points and create an inviting climate. He described his unmotivated seventh-grade son, his teaching experiences at a college in Illinois, and watching horror movies when he was a child. He was open about his technical and pedagogical vulnerabilities (e.g., how he lost "a brilliant response" that he had written by not saving it and how some of his discussion postings might "ramble"). He used humor through his frequent play with words or with a sudden light comment at the end of a more serious posting ("Is this too much for a Friday morning?").

Public and private interaction with students

As Table 4 illustrates, with 18–28% of the total number of postings in their courses, including more than weekly use of their announcement pages, all three instructors appeared to have a strong course presence.

With an average of 31 postings to each student in her class (at least two per week) and an average of 14 postings from each student directed to her, Karen frequently and consistently interacted with all of her students. With a similar average of 32 postings to each student and an average of 21 postings from each student directed to him, Robert also appeared to be highly interactive with his students. However, observations of the interaction patterns and interviews with his students indicated that his presence was inconsistent. He was absent during one module and late with his postings in two others. In the weeks where he posted, his number of postings varied between 29 and 5. In contrast, while Robin's 18 postings per student were less than Robert's and Karen's, they were

Table 4 Student/Teacher postings

Teacher	Course and number of students	Total number of posts	Student posts	Teacher posts[a]	Posts from teacher to students	Average number of teacher posts to students	Posts from students to teacher	Average number of student posts to teacher
Robert	Introduction to instructional design (11)	1579	1187	392 (25% of course posts)	347	32	233	21
Robin	Introduction to instructional technology (9)	1026	837	189 (18% of course posts)	161	18	76	8.5
Karen	Psychology of learning (9)	1200	867	333 (28% of course posts)	275	31	126	14

[a] Includes discussion postings and general announcements

consistently made each week. Interviews with Robin and her students and observations also revealed that she projected her presence on her announcement page where she posted reminders, notes, and web links at least twice per week. She also frequently directed students to her personal website where she posted additional resources including project examples, tutorials, and videos.

Although all three instructors invited students to contact them if they needed help in postings and on announcement pages, only Robin and Karen attempted to interact with students who were absent in the discussions. They e-mailed, phoned, and paged their students with suggestions and encouragement, which Robert admitted that he rarely did. They also held regular office hours for private communication.

Attention to group dynamics and processes

Much has been written about the importance of a supportive climate in online courses (Palloff and Pratt 1999; Swan and Shea 2005). Both Karen and Robin indicated that they tried to create a supportive class climate through their welcome letters, announcement page encouragements, and a face-to-face orientation class. They made an effort to know their students and connect those with similar interests. Early in Robin's discussions, for example, she encouraged two public health educators and two adult educators who were students in her class to talk to each other; later, she paired them up for a class project. When one student was having difficulty coming up with an idea for a project, she directed him to ask his peers for feedback in her Cyber Café (informal chat area).

Karen, too, often assessed the group process, reinforcing positive behaviors and attempting to head off potential problems. Early in the discussions, for example, she could see that her course had a group of experienced online learners who had taken several courses together and a group of new online learners. She stated, "There was an in-group and a new group, and we had to bring those groups together." She consistently reassured the new online learners that their contributions in the discussions were valuable. To one of them, in response to a posting where a student apologized for disagreeing with someone, she responded: "No apologies in our discussion !!! We're sharing perspectives, beliefs, and feelings. I value your statements…. We do not need to agree." Mid-term, she also addressed a problem that had emerged about the timeliness of discussion postings by adjusting her discussion evaluation rubric so that late postings did not receive full credit. She explained her decision to students: "If postings are not made on time, the richness of our discussions can be diminished." She also asked that students always respond to all who have written to them so that no one feels "ignored." Later in the course, when two students developed a misunderstanding, Karen thanked one of the students for her "thoughtful response" to the other student [which] "exemplifies the benefits of the learning community [that] we have established here."

This consistent attention to group process was less evident in Robert's class. On his announcement page, for example, he more typically offered suggestions on assignments rather than group development. On one occasion, he suggested that students respond to all who wrote to them in the discussions but backed off from requiring them to do so. His lower attention to group process may have been why, in contrast to the collaborative climates that emerged in Robin's and Karen's classes, a more competitive climate prevailed in Robert's class which made some students feel isolated. Three students who did not successfully complete the course mentioned that they felt outside of a "clique" of early responders who knew each other and rarely responded to their postings. One student said that he "didn't feel connected," that he often felt that he was "looking at" and

"monitoring" the discussions. Another student described how the "people that were first with their discussion postings…were really sticklers for 'on this page it says this and on this page it says that.'" The competitive class atmosphere made her "kind of scared to put [her] discussions in" because she didn't think it would "sound as good as theirs." Instead of addressing this divide between early and late responders, Robert encouraged it when in a class discussion he compared students in an online class to marathon runners: "Some race to the head of the pack and others fall behind," he wrote. His metaphor vindicated the "fast group," giving them permission to race ahead of the others. One student in that "fast group" commented that this "diversity of the abilities… made it difficult to keep up any sense of community" and that he was glad that he had the "luxury" of simply ignoring the slower group.

Final grades, student help seeking, and student perceptions of support

As Table 5 illustrates, on average, final grades were high in Karen's and Robin's classes but unusually low in Robert's class, with five of the 11 students either not completing or failing the course. All five of these students had lower participation rates in the course discussions (an average of 66 total postings) than the six students who successfully completed the course with an average of 141 postings in the discussions. All five also had fewer responses to their discussion postings from the instructor (an average of 19 postings) and other students (an average of 29 postings) in contrast to the average number of postings that the six successful students received from the instructor (42) and other students (84).

Students in these courses formally sought help for a variety of reasons: feedback on course assignment topics, time management, clarification on assignment expectations, questions on course readings and concepts, technical problems, emotional support, how to access course materials, and advice on non-course related issues. As Table 5 indicates, instances of formal help seeking on these issues in the class discussions were highest in Karen's class (in 10% of the student postings) and lowest in Robert's class (in 4% of the postings). In addition, interviews with Karen and her students indicated that students frequently sought private help from her and several students in the class by phone, e-mail, and instant messaging. Although there was less evidence of formal help seeking in Robin's class discussions than in Karen's, Robin's students indicated that they, like Karen's students, frequently sought and received help from her privately through e-mail, instant messaging, online chats, phone, and face-to-face visits. Interviews with Robert's students and Robert, on the other hand, indicated that while three students occasionally sought help from him on e-mail and one student had several face-to-face meetings with him, most of his students had little private interaction with him.

Student perceptions of academic and social support in Karen's and Robin's classes were unanimously high, whereas student perceptions of support were mixed in Robert's class.

Table 5 Student help seeking and final grades

Teacher	Number of students	Average final grade[a]	Number of student posts	Number of student help seeking posts	Percentage of help seeking posts (%)
Robert	11	2.2	1187	47	4
Karen	9	3.4	837	85	10
Robin	9	3.5	867	54	6

[a] Based on 4-point scale with 4 = A, 3 = B, 2 = C, 1 = D, 0 = F

Interviews with Karen's students confirmed how much they valued her support: "She bent over backwards to help…. She even advised me on personal issues." "She looked at all of us as individuals." "She pushed me to the upper level with her questions." "She was always quick to respond within twenty-four hours." When asked about Karen's class climate, students described it as "friendly," "comfortable," and "respectful." "It wasn't mean or competitive like 'I'm going to do better than you…. It was more collaborative, like 'Prove it to me. I want to hear more.'"

Robin was praised for being "very helpful." "She gave lots of feedback." "She responded to everybody." "Her questions would get us to thinking and also then make us go out and do a little more research." When asked about Robin's class climate, students described it as "comfortable," "laid back," "cooperative," and "warm." "People were not hesitant at all to e-mail each other if they had problems even though we had dental hygienists, a grad student from philosophy and classroom teachers. These [different] cliques of people work[ed] together." Several students remarked how "you felt like you were actually in a class" because even though you "hadn't met these people… you felt like you knew them."

Perceptions of Robert's support, however, were mixed. While three students felt that "contact with [him] was so easy" and that his detailed feedback on assignments "would help you clarify," six students mentioned his inconsistent feedback. One student explained, "We did not get feedback in a timely fashion on the stuff we were posting. So, for instance, we were in Module 6, and he hadn't posted any grades for Module 1 yet." Another student said, "I never knew if he was there." She explained that at times the students in the class "would e-mail each other" with their questions but admitted, "I'm not sure how helpful we were to each other." When asked about Robert's class climate, students described it as "unorganized," "rambling," and "competitive." While one student compared the class discussions to "intense conversations" on a variety of topics, another student questioned their depth: "I missed the argument, the face to face debates where you're really getting at something."

Several also spoke about the division mentioned earlier between the group of five early responders and others in the class: "There was definitely a pack kind of mentality there." One student suggested that race may have had something to do with this division. The five early responders, who were White, tended to interact more often with each other in the discussions than with the four African American students in the class. One of the African American students said, "I felt kind of like the little dog nipping on the heels of the bigger dogs." A female student suggested that perhaps gender played a role in the class climate: "There were more men in that class than [usual]. Some of the guys would say 'Oh, here you go again' or they would… banter back and forth and try to out-debate or out-theorize each other."

Discussion and implications

Although limited by its small sample size and generalizability, this study adds support to a growing body of literature that affirms the importance of the instructor in supporting student satisfaction and learning in online courses (Garrison and Cleveland-Innes 2005; Jung et al. 2002; Picciano 2002; Swan and Shih 2005). While all of these instructors provided both cognitive and social supports, they varied most in their level of questioning, use of direct instruction, task structuring, and attention to group dynamics. This variation in what Anderson et al. (2001) call "teaching presence" related to differences across the courses in

student perceptions of support, student help seeking, and final grades. In addition to this finding, by drawing from diverse literatures on learning assistance and scaffolding, teacher immediacy and presence, social presence, and help seeking, this study brings together a number of cognitive and social support strategies (Tables 2 and 3) that can be useful frameworks for online teaching practice and future research.

Suggestions for online instructors

Online instructors can use these lists of help-giving strategies to evaluate and improve their teaching. As a starting point for self-analysis, instructors might consider how Karen used an effective combination of these supports. She frequently asked challenging questions, probed for elaboration and explanation, and shared her knowledge from research, professional experience, and Web-based resources. She consistently provided timely, clear, and concise responses to student help seeking. She offered firm direction and guidance in the discussions that included efforts to prompt all students to participate, discussion focusing on specific issues, and weekly summaries. She projected a strong social presence with her frequent acknowledgements, affirming feedback, friendly greetings, use of first names, and expressions of emotion and empathy. She maintained a supportive class climate by monitoring and addressing group dynamics, inviting students to seek help, and contacting non-participants.

In addition to incorporating such strategies in their discussion postings, online instructors may want to consider how a variety of technological tools might assist them in providing some of these supports. We noted, for example, that Karen and Robin, in addition to their discussion postings and announcements, used online tutorials, e-mail, paging, the phone, and an informal chat room to support students. Instructors may want to investigate the help-giving potential of newer technological tools like audio conferencing (Ice et al. 2007; Ice et al. 2008); mobile computing (Attewell 2005; Shih and Mills 2007); social networking media like Weblogs and wikis (Cameron and Anderson 2006; Du and Wagner 2007; Nickens et al. 2008); virtual reality environments (Hodge et al. 2006) and collaborative knowledge-building learning environments like CaMILE and Knowledge Forum (Jonassen and Remidez 2005).

Suggestions for further research

This study also suggests several topics for future research: (a) student use of instructional assistance; (b) use of instructional supports in varied content areas, educational levels, and contexts; (c) personal factors influencing instructor help giving; and (d) peer help giving.

Student use of instructional assistance

To gain a full understanding of instructor help giving, we will need to know how online students use or do not use the help that is offered to them. How, for example, do various supports lead to greater or lesser critical thinking or knowledge construction? How might particular combinations of cognitive and social teaching supports like task structuring or targeted questioning and teacher immediacy behaviors relate to learning outcomes on particular kinds of online course activities, such as projects, exams, written assignments, and course discussions? Gerber et al. (2005), for example, studied how one course

instructor's use of challenging questions and higher-order topics influenced student use of reasoned arguments in their online discussion postings. In a survey of 75 students taking four distance education courses with varied levels of instructional support, Garrison and Cleveland-Innes (2005) found that students in the course with the highest level of instructor involvement, critical questioning, and reflective assignment requirements were most inclined to take a deep rather than a surface approach to their learning activities. More targeted interpretive studies like these are needed along with experimental studies that include larger groups of students and numbers of courses.

Use of instructional supports in varied content areas, educational levels, and contexts

In this study, we only looked at graduate education courses at a private university, and the sample size was very small. Larger comparative studies of online instructors' cognitive and social assistance strategies in varied content areas, educational levels (e.g., undergraduate, secondary), and educational settings (e.g., small community college, large university) might shed light on how various contextual factors can interact with and affect instructor help giving, student help seeking and academic performance. A recent study, for example, of student help seeking in an online quantum physics class at the Open University in the United Kingdom suggests that course difficulty might influence student help seeking and, in particular, to whom they turn for help (Gorsky et al. 2007).

Personal factors influencing instructor help giving

The present findings surfaced some personal factors that might influence instructor help giving: online teaching experience, gender, and pedagogical beliefs. Future studies with larger samples of online instructors and courses should investigate to what extent these factors influence the quality of support for student learning in online learning environments. Robert was fairly new to online teaching, and this was also his first time teaching the course content in any delivery format. In contrast, Robin and Karen were experienced online teachers who had also previously taught their course content many times. Gender could have been a factor in the more competitive climate that emerged in Robert's class and may have influenced the quality of learning support and student help seeking. Discourse analysis methods developed by Fahy (2002) or Herring (2004) could be used to explore this possibility.

Despite the fact that all three of the instructors referred to themselves as "facilitators" in their interviews, there was great variation in the way they enacted their facilitation and, consequently, the way they supported students. Morris et al. (2005) found a similar result in a study of how 13 online instructors perceived and enacted their roles in online undergraduate courses. Were there differences across these courses, for example, in how responsible the teachers felt for assisting students, in the type of assistance offered, or in their motives for helping students, as Butler (2006) speculates in a discussion of instructor help giving?

Peer help giving

The data suggested that, in addition to instructors, students often helped each other in these courses and that more collaborative class climates encouraged peer help giving along with instructor help giving. Recent studies on student help giving and achievement in

cooperative learning groups (Kempler and Linnenbrink 2006; Oortwign et al. 2008; Webb and Mastergeorge 2003) could be used to guide studies on how online instructors might more effectively enlist peer help giving in online courses. Such study might profitably explore questions such as, "What differences can be seen between the quality of peer and instructor help giving or in the ways that students use help from peers and instructors?" "How do peer help giving and group dynamics in online courses influence student help giving, help seeking, and achievement?" "How can online instructors influence student help giving behavior?"

With the proliferation of online and blended courses at all levels of education and the increased understanding of the critical role that the instructor plays in these courses, it is surprising that we know so little about the teacher as help giver in these courses. Hopefully, this study will encourage more research on the critical cognitive and social roles that online instructors play in student help seeking, self-regulation, persistence, and academic achievement and how instructors might more intentionally, strategically, and consistently enact those roles.

Appendix

Interview questions

Student

1. As you look back on your work in this course, what were your biggest problems or challenges?
2. When you needed help with any of these problems, how did you typically get it?
3. Did you ever find yourself not getting the help you needed? Please explain.
4. How helpful was the instructor to you in this course?
5. Can you give examples of how the instructor supported your learning in this course?
6. What role did your instructor play in the course discussions? What did you think about the instructor's role in these discussions?
7. Compared to a traditional face to face class, how would you describe the learning climate or atmosphere in this course?
8. How would you describe the social atmosphere in this class?
9. How connected did you feel to other students in the class?
10. How connected did you feel to the instructor in this class?
11. What, if anything, did the instructor do to create the learning and social atmosphere that you have described?
12. To what extent were other students in the course helpful to you? (If so, give examples)
13. How helpful to you was the way the course was designed? (e.g., technical aspects, organization, assignments, activities, discussions, assessments).

Instructor

1. What problems or challenges did students face in this course?
2. From your observation, how did your students typically cope with these problems or challenges?

3. How often did your students in this course seek help from you privately and for what reasons?
4. How did you feel that you supported your student's learning in this course (i.e., what specific teaching strategies did you use to support them cognitively?)
5. What specific teaching strategies did you use to support your students socially in this course?
6. Describe how you viewed your role in the course discussions. What are some strategies that you used to fulfill your role in these discussions?
7. Compared to a traditional face to face class, how would you describe the learning climate or atmosphere in this course?
8. Compared to a traditional face to face class, how would you describe the social atmosphere in this class?
9. How connected did you feel to your students in this class?
10. What are some strategies that you used in this class to connect with your students?

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Common misconceptions of critical thinking

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In this paper, the first of two, we analyse three widely-held conceptions of critical thinking: as one or more skills, as mental processes, and as sets of procedures. Each view is, we contend, wrong-headed, misleading or, at best, unhelpful. Some who write about critical thinking seem to muddle all three views in an unenlightening mélange. Apart from the errors or inadequacies of the conceptions themselves, they promote or abet misconceived practices for teaching critical thinking. Together, they have led to the view that critical thinking is best taught by practising it. We offer alternative proposals for the teaching of critical thinking.

Critical thinking is a subject of considerable current interest, both in terms of theory and pedagogy. A great deal is written about critical thinking, conferences on the subject abound, and educational initiatives aimed at fostering critical thinking proliferate.[1] It is our view that much of the theoretical work and many of the pedagogical endeavours in this area are misdirected because they are based on faulty conceptions of critical thinking. Critical thinking is frequently conceptualized in terms of skills, processes, procedures and practice. Much of the educational literature either refers to cognitive or thinking skills or equates critical thinking with certain mental processes or procedural moves that can be improved through practice. In this paper we attempt to explain the misconceptions inherent in such ways of conceptualizing critical thinking. It is important to note that much of the literature contains a pervasive miasma of overlapping uses of such terms as skill, process, procedure, behaviour, mental operations,

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etc. We thus find similar kinds of error and confusion about critical thinking under superficially different ways of talking. We have tried to focus on plausibly distinct uses of skill, process and procedure in our critiques. Our arguments will lay the groundwork for offering a new conception based on different foundational assumptions in the following paper on this theme.

Critical thinking as skill

Many educators and theorists appear to view the task of teaching critical thinking as primarily a matter of developing thinking skills. Indeed, the discourse on thinking is suffused with skill talk. Courses and conferences focus on the development of thinking skills and references to skills appear in much of the literature.[2] Even leading theorists in the area of critical thinking conceptualize critical thinking largely in terms of skill. Thus, for example, Siegel (1988: 39, 41) writes of the critical thinker as possessing 'a certain *character* as well as certain skills', and makes reference to 'a wide variety of reasoning skills'. Similarly, Paul (1984: 5) refers to critical thinking skills and describes them as 'a set of integrated macro-logical skills'. The Delphi Report on critical thinking (Facione 1990), which purports to be based on expert consensus in the field, views critical thinking in terms of cognitive skills in interpretation, analysis, evaluation, inference, explanation and self-regulation.

It is important to note that the term 'skill' can be used in a variety of senses and that, as a consequence, some of the discussion of skills in critical thinking is relatively unproblematic. In some instances 'skill' is used to indicate that an individual is proficient at the task in question. It is used, in this context, in an achievement sense. A skilled reasoner is one who is able to reason well and to meet the relevant criteria for good reasoning. The use of skill in this context focuses attention on students being capable of intelligent performance as opposed to merely having propositional knowledge *about* intelligent performance. Thus, someone who is thinking critically can do more than cite a definition for *ad hominem.* He or she will notice inappropriate appeals to an arguer's character in particular argumentative contexts. Clearly, being a critical thinker involves, among other things, having a certain amount of 'know-how'. Such thinkers are skilled, then, in the sense that they must be able to fulfill relevant standards of good thinking. Conceptualizing critical thinking as involving skill in this achievement sense is relatively benign.

However, some of the discussion of skills in the context of critical thinking is more problematic. There is a strong tendency among educators to divide educational goals or objectives into three distinct kinds: knowledge, skills (i.e. abilities), and attitudes (i.e. values), and to assign critical thinking to the category of skills.[3] Conceiving of critical thinking as a skill in this sense implies more than simply that an individual is a competent or proficient thinker. It is based on a conception of skill as an identifiable operation which is generic and discrete. There are difficulties with both of these notions. We will begin with the problems entailed in viewing skills as

generic, i.e. once learned, they can be applied in any field of endeavour; the problems involved in viewing skills as discrete will be dealt with later.

Skills as generic

The identification of critical thinking with skill in the tripartite division of educational goals separates critical thinking from the development of knowledge, understanding and attitudes. Critical thinking is seen to involve generic operations that can be learned in themselves, apart from any particular knowledge domains, and then transferred to or applied in different contexts. Thus, for example, Worsham and Stockton (1986: 11, 12) claim that 'there are some skills that are basic and common to most curriculum tasks (for example, gathering information, finding the main idea, determining meaning)'. They further state that:

> Most curriculum materials at the high school level require that students analyze, synthesize, and evaluate as well as to [*sic*] create new 'products', such as original oral and written pieces and artistic creations. Students are expected to apply the appropriate thinking skills to accomplish these tasks.

In a similar vein, Beyer (1987: 163) makes reference to discrete thinking skills and claims that:

> To be proficient in a thinking skill or strategy means to be able to use that operation effectively and efficiently on one's own in a variety of appropriate contexts.

The separation of knowledge and critical thinking is fraught with difficulties however. If the claim that critical thinking skills are generic is taken to mean that these skills can be applied in any context regardless of background knowledge, then the claim seems clearly false. Background knowledge in the particular area is a precondition for critical thinking to take place. A person cannot analyse a particular chemical compound if he or she does not know something about chemistry, and without an understanding of certain historical events a person will be unable to evaluate competing theories regarding the causes of World War I.

Many theorists acknowledge the necessity of background knowledge for critical thinking but still maintain a separation between knowledge and the skill or skills of thinking critically. For example, Nickerson *et al.* (1985: 49) contend that:

> recognizing the interdependence of thinking and knowledge does not deny the reality of the distinction. It is at least conceivable that people possessing the same knowledge might differ significantly in how skillfully they apply what they know.

We argue, however, that the distinction is itself untenable. Skilled performance at thinking tasks cannot be separated from knowledge. The kinds of acts, such as predicting and interpreting, which are put forth as generic skills will, in fact, vary greatly depending on the context, and this difference is connected with the different kinds of knowledge and under-

standing necessary for successful completion of the particular task. Interpreting a graph is a very different sort of enterprise from interpreting a play. The former involves coming to an understanding of the relationships among the plotted entities based on understanding certain geometric conventions; the latter involves constructing a plausible meaning for the play based on textual evidence. Both of these differ again from the case of interpreting someone's motives, which involves imputing certain beliefs or attitudes to an individual based on reading verbal and bodily cues as well as on past knowledge of the person. Similarly, predicting how a story will end calls upon very different understanding than does predicting the weather. It makes little sense, then, to think in terms of generic skills, which are simply applied or transferred to different domains of knowledge.

Becoming proficient at critical thinking itself involves, among other things, the acquisition of certain sorts of knowledge. For example, the knowledge of certain critical concepts which enable one to make distinctions is central to critical thinking. Understanding the difference between a necessary and a sufficient condition is not just background knowledge but is very much a part of what is involved in thinking critically.

Similarly, proficiency in critical thinking involves an understanding of the various principles which govern good thinking in particular areas, and many of these are domain specific, as McPeck (1981) has pointed out. Barrow (1991: 12) makes the point in this way:

> What is clear, what is contradictory, what is logical, and so forth, depends upon the particular context. ... To be logical in discussion about art is not a matter of combining logical ability with information about art. It is a matter of understanding the logic of art, of being on the inside of aesthetic concepts and aesthetic theory. The capacity to be critical about art is inextricably intertwined with understanding aesthetic discourse.

Facione (1990: 10) sums up well this general point:

> This domain-specific knowledge includes understanding methodological principles and competence to engage in norm-regulated practices that are at the core of reasonable judgements in those specific contexts. ... Too much of value is lost if CT [critical thinking] is conceived of simply as a list of logical operations and domain-specific knowledge is conceived of simply as an aggregation of information.

An additional difficulty with the identification of critical thinking solely with skills to the exclusion of knowledge and attitudes is that it fails to recognize the central role played by attitudes in thinking critically. Critical thinking involves more than the ability to engage in good thinking. It also involves the willingness or disposition to do so. Siegel (1988) refers to this aspect of critical thinking as the critical spirit and sees it as of equal importance to the reason-assessment component. Ennis (1987) includes a list of dispositions in his conception of critical thinking, and dispositions, and values and traits of character are central to Paul's (1982) notion of a 'strong sense' of critical thinking.

Skills as discrete

Another major difficulty with the equation of critical thinking with skill is that it assumes the existence of certain discrete processes, procedures or operations. It is assumed that acquiring a skill involves becoming proficient at these processes. Thus, Chuska (1986: 25) distinguishes between the 'ways of thinking (the processes involved)' and 'thinking skills (the proficiency a person demonstrates in using the processes)'. In some cases these processes are thought to involve certain mental processes or operations, and in others these processes are conceived of in terms of procedures or steps. The difficulties with both these conceptualizations are dealt with below.

Critical thinking as mental processes

It is a common assumption in discourse about critical thinking that being good at critical thinking is basically a matter of being proficient at certain mental processes.[4] These processes are generally thought to include such things as classifying, inferring, observing, evaluating, synthesizing and hypothesizing. Kirby and Kuykendall (1991: 7, 11), for example, hold that 'thinking is a holistic process in which different mental operations work in concert' and allude to 'intellectual skills training'. It is our view that a purely 'processes' conception of critical thinking is logically misleading and pedagogically mischievous.[5]

In medicine, talking about processes as outcomes makes some sense. An obstetrician may give a newborn infant an appropriately sound smack to start up certain vital processes. May we not suggest that teachers should seek to do something analogous? If we do, we are presumably not suggesting that they should seek the occurrence of *physical* processes such as synapse-firing in the brain, but that they should seek the occurrence of such *mental* processes as analysing or translating. Should they not, then, seek to invoke mental processes?

Talk about mental processes has a logic very different from the logic of talk about physical processes. Physical processes, such as baking or synapse-firing, can, at least in principle, be observed and identified *independently* of any product they may have. Mental processes can be identified only via their products; observing them directly is a logical impossibility. For example, we suppose that a translating 'process' has occurred in some person only because the person has succeeded in producing a translation.

Descriptions of translating and classifying 'behaviours' are not descriptions of behaviours at all, but descriptions of upshots or accomplishments such as converting poetry to prose. When someone succeeds in such a conversion there is no doubt that *something* must have gone on 'in' that person which enabled him or her to succeed. To identify this 'something' as a particular mental process is to assume that the *same* sort of thing goes on within a person in every case in which he or she translates something. There is no reason to suppose this is the case. The so-called 'processes' are hypothesized, and then reified *after the fact* of these upshots.

Mental processes are differentiated from one another not by observing features of the processes, but by distinguishing among kinds of upshots or accomplishments. The number of different kinds of processes we identify depends upon how we decide to differentiate upshots. For some purposes we may wish to lump them all together. For instance, we may lump together all of the upshots that represent successful application of conventional meaning rules and standards, and then we might talk of 'the process' of translation that all have in common. We may, on the other hand, want to subdivide student successes on the basis of the different kinds of meaning conventions they fulfil. In either case, we will be less inclined to reify and confound categories if we talk about enabling students to fulfil the conventions and standards rather than about their exercising mysterious processes presumed to lie behind such accomplishments. No useful pedagogical aim is served by postulating such processes.

Regardless of the conceptual hazards, people interested in critical thinking, and in education in general, are prone to talk about processes—the thinking process, the reading process, the creative process. What makes this way of characterizing teaching and learning so attractive? In part, the attraction may arise from the ambiguity of the term 'process'. In part, it may also occur because it seems to offer a promising answer to the question, 'Are critical thinking abilities transferable?'

Broadly speaking, a process may be any course of events that has an upshot or a result of some sort. However, there are at least three distinct ways that courses of events relate to their upshots. In the first instance, they may relate as that course of events people now call 'natural selection' relates to its upshot, the evolution of a species. In the second, they may relate as running a race relates to finishing the race. In the third, they may relate as facing an object relates to noticing it. We may characterize these, for the sake of convenience, as: (1) process-product, (2) task-achievement, and (3) orient-reception relations. Process-product pairs are used to pick out situations in which a series of changes or a particular relation produces an identifiable upshot. Task-achievement pairs are used to talk about what people *do* to bring about upshots. Tasks differ from other 'processes' in that tasks are things people do on purpose in an effort to succeed at something. There are doubtless thousands of task words in most natural languages. Words like 'look', 'search', 'race' and 'teach' can all be used as task words. Their use in this way reflects the fact that many things people seek to accomplish are difficult to bring off. They can try and fail.

Ambiguity in the term 'process' lends a spurious sort of plausibility to the processes conception of critical thinking because it makes it plausible to suppose that all upshots of human activity have the same relation to the activity as products of combustion have to the process of combustion. Because processes are routinely named after their products, it is natural to suppose that achievements and receptions must also have corresponding processes. The result, of course, is unwarranted reification—reading back from outcomes to mysterious antecedent processes.

The process conception is also bolstered by the fact that the same happening may be spoken of as both a process and a task. When one bakes a loaf of bread the changes in the loaf may be seen either as a natural function

of heating and of the chemistry of its constituents, or as what the cook does—heating the oven to the proper temperature and so on. The same happenings are, thus, characterized differently. Baking, the chemical process, is a causal occurrence; baking, the task, is a procedure (or an art) intended to bring about the chemical process in proper degree, so that the result is not pasty, or charred, or leaden. Because such words as 'baking' may be ambiguous, it is easy to neglect the difference between the process and the task.

Such reception verbs, as 'see', 'notice' and 'realize' refer to upshots of a special kind. First, they involve either (or both) our literal perception apparatuses (eyes, ears, etc.) or our mental abilities. Secondly, although there are tasks we can carry out to position ourselves to see (e.g. sit where we can watch the horizon) or prepare ourselves conceptually (e.g. acquire the concepts of truth and validity), these tasks cannot guarantee that we will have the desired upshot. As White (1967: 69) puts it:

> We can ask someone how he [*sic*] 'would' discover or cure, but not how he 'would' notice, although it is as legitimate to ask how he 'did' notice as it is to ask how he 'did' discover or cure. For the former 'how' question asks for the method, but the latter for the opportunity. Although appropriate schooling and practice can put us in a condition to notice what we used to miss, people cannot be taught nor can they learn how to notice, as they can be taught or can learn how to detect. Noticing, unlike solving, is not the exercise of a skill.

For those interested in teaching students to become better at critical thinking, the moral is clear. We cannot teach students the process of noticing fallacies, for we have no grounds for believing there is such a process. The most we can do is *orient* them, and this, it seems, we do in at least three ways.

- We teach the person certain concepts—for instance, the concept of a valid argument. This enables them to notice fallacies they would otherwise have overlooked—but does not, of course, guarantee they will notice them.
- We motivate the person to care that arguments are valid and to be on the lookout for invalid arguments.
- We teach procedures that enable the person to orient himself or herself where certain kinds of reception are sought.

The second reason why people become advocates of critical thinking processes is that they want schools to provide curricula such that students learn to do certain things across the curriculum—and into their non-school lives—abstract, analyse, classify, evaluate, sequence, synthesize, translate, etc. These 'processes' are believed to be common to all critical thinking situations and to a range of activities beyond. To educators this means that in teaching them they can economize on instruction because there will be transfer of training. Someone who learns the forehand smash in tennis is likely to learn the forehand smash in squash with less difficulty than a person novice to both. Are we then to suggest that someone who learns, for example, to *abstract* in the writing of a précis will be able, *because of that prior learning*, to *abstract* in depicting a house, or that one who is able to

evaluate cars will *thereby* be able to evaluate hypotheses? What else can we make of talk of processes as general abilities? Critical thinking situations may well have common features, but speaking of processes is of no value; it is, indeed, either otiose or misleading, and we almost certainly risk losing more than we gain. We risk falling into a monochromatic and wholly misleading view of the teaching of critical thinking.

Critical thinking as procedures

Another common misconception of critical thinking sees it as basically a matter of following a general procedure, described usually in terms of a set of steps, stages or phases. We contend that developing students' competence in thinking is not, at heart, dependent on teaching them steps or procedures to follow. We begin by clarifying what we believe is implied by those who characterize critical thinking as following step-by-step procedures. Next, we compare this view with an account of thinking as the exercise of judgement.

Thinking as procedure

Although there is no consensus about the general procedures that constitute thinking, the three most frequently discussed are inquiry (i.e. 'the scientific method'), problem solving, and decision making (Wright 1993). Some writers refer to critical thinking and creative thinking as separate procedures (Marzano *et al.* 1988: 32, Overgaard 1989: 9). By some accounts, there are as many as eight general thinking procedures: concept formation, principle formation, comprehension, problem solving, decision making, research, composition, and oral discourse (Marzano *et al.* 1988: 32–33). Each of these is distinguished by the type of conclusion or result produced (e.g. clarification of a concept, a decision about what course of action to take). Proponents of thinking as procedure, by definition, believe that procedures are at the heart of promoting thinking.

An important variable in this view of thinking is the formality of the sequence of steps involved in these general procedures. There is a range of opinion on this matter, spanning what we will call the algorithmic and the heuristic views of thinking as procedure. According to Nickerson *et al.* (1985: 74), algorithms and heuristics are two types of procedures: an algorithm is a step-by-step prescription that is guaranteed to accomplish a particular goal; an heuristic is a procedure that is merely reasonably likely to yield a solution. Proponents of an algorithmic view of thinking as procedure hold that: (1) there is a manageable number of highly reliable procedures that, taken as a whole, can address the range of situations that students need to resolve, (2) the steps in these procedures form a fixed order, and (3) mastery of these steps is the central challenge in learning to think. Supporters of the heuristic view hold a less stringent set of assumptions: (1) there is a potentially large number of procedures helpful across the range of situations that students need to resolve, (2) the order of the

steps in these is not fixed, and (3) mastery of these steps is a pre-eminent, but not necessarily the only, challenge in learning to think.

Although it is difficult to find much support for the algorithmic view of critical thinking, many academics, particularly psychologists, appear to accept the heuristic view. Thus, after reviewing a representative range of programmes to promote thinking, Glaser (1984: 96) notes that 'most of these programs place emphasis on the teaching of general processes, general heuristics and rules for reasoning and problem solving, that might be acquired as transferable habits of thinking'. Marzano *et al.* (1988: 34) suggest that the procedures should not be taught as 'prescribed procedures' but rather as 'repertoires or arrays of alternatives' that are 'semi-ordered' or are 'working hypotheses about the best way to accomplish a goal, general procedures to be used flexibly by teachers and adapted by students'. For others, however, the sequence of steps to be followed is more significant (e.g. Beach 1987: 146–147).

It is intuitively appealing to describe critical thinking in terms of how an individual is to go about it. The procedure approach, by reducing critical thinking to steps, seeks to provide operational or task descriptions of the building blocks of such thinking. Consider the following example—the 'Decide Model' by E. Daniel Eckberg.[6] This conception holds or assumes that critical thinking comprises a set of steps characterized as follows:

D. *Define the dilemma*
   What's the problem?
   Why does it concern me?
   What's the basic issue?
E. *Examine electives*
   What are all sorts of possible ways of solving the problem?
   What choices do we have?
   What are our alternative courses of action?
   What hypothesis can we make?
C. *Consider consequences*
   What happens if we try each choice?
   If we do this, *then* what?
   How will things change if I choose this one?
   What data can I collect and consider in considering these consequences?
I. *Investigate importance*
   What principles are important to me here?
   What things do I most value?
   How will these values influence my choice?
   What am I assuming to be true?
   What are my preferences and biases?
D. *Decide direction*
   In the light of the data, what's my choice?
   Which choice should now be chosen?
   Which hypothesis seems to be the best?
   Based on the evidence, what course of action should I take?

E. *Evaluate ends*
How can I test my hypothesis?
Was my course of action correct?
What are the consequences of my choice?
Has a tentative hypothesis been proven or disproved?
What are my conclusions?

As one can see, the model attempts to characterize critical thinking as a set of procedures to be carried out. None of the steps directly raises the underlying normative questions. Even in asking, 'Was my course of action correct?', the schema refers to what has been completed—a reflection back. Thus, the fundamentally normative and ongoing nature of critical thinking is ignored or masked. Critical thinking is not simply a retrospective undertaking.

It might be suggested that a more appropriate description of the 'decide direction' step is 'make an informed, fair-minded decision'. We agree, but this no longer describes a procedure to be performed, rather it identifies norms to be fulfilled. As such, it is not characteristic of the procedure view. Although some educators may use the term 'step' to refer to achievement of standards, the focus is overwhelmingly on strategies and heuristics. We do not wish to quibble over conceptual territory; rather we draw attention to the dominant (possibly, paradigmatic) use of the term 'step' so as to expose the inadequacies of this view of critical thinking as following general procedures.

Concerns with 'thinking as general procedures'

Although we believe that heuristics serve a useful role in learning to think critically, we do not regard them as the central feature of good thinking: there are two basic reasons why the general procedures view is an inadequate way of conceiving of critical thinking. We believe it misrepresents the major obstacle to good thinking, and grossly understates the significance of contextual factors in deciding how to proceed in any particular case of critical thinking

On the general procedures view, the performance of certain tasks is seen to be a highly reliable means of achieving the desired results of thinking. The educational challenge is, therefore, to equip students with repertoires of procedures they can employ across the range of thinking situations. In our view, the mere performance of certain procedures identified in descriptive terms is insufficient to ensure that what has happened counts as critical thinking.

The performance of tasks such as thinking of reasons for and against a position, or of brainstorming alternatives, does not guarantee that an individual is thinking critically. The pro and con reasons that the individual comes up with may address only the most trivial aspects of the issue; so, too, the brainstorming of alternatives may miss the most sensible alternatives. Learning to engage in such activities has little educational merit unless these things are done in such a way as to fulfil relevant standards of

adequacy. Students have, after all, performed these sorts of tasks for much of their lives. The educational goal must be to teach them to do such tasks *well* by increasing their capacity and inclination to make judgements by reference to criteria and standards that distinguish thoughtful evaluations from sloppy ones, fruitful classification schemes from trivial ones, and so on. A general procedures approach that does not teach standards of good thinking is unlikely to sharpen students' critical judgement. It is for this reason we have suggested that critical thinking should be characterized not in terms of procedures to be carried out, but in terms of the standards a performance must fulfil to count as successful.

Critical thinking is a polymorphous or multi-form enterprise; there are numerous activities that may be helpful in solving a problem or reaching a decision. What steps are appropriate is determined both by the nature of the problem and its context. They are context-bound. For example, in deciding whether any particular government should support international military intervention in 'civil' wars, it is hard to imagine how one set of steps, or any limited set of procedures, could be appropriate for all such circumstances. Nor could the same sequence of problem-solving steps usefully be applied both to fixing a failing relationship and to fixing a civil war. Identifying both these situations as 'problems' masks the very different factors that need to be considered in deciding what should be done in each case.[7] Given the diversity of problems and problem contexts, we believe that any account of the steps involved in problem solving or decision making will either be so vague as to be largely unhelpful, or they will be so specific that they will have little generalizability beyond a specific class of problems or decisions.

To a considerable extent, what we should do in solving a problem is determined by the standards that must be met for the solution in the particular case to be successful. In the case of a failing relationship, it may be lack of honesty with oneself that is the problem. In deciding whether a government should participate in an international intervention may involve honesty, but it often involves considering the effect on the lives of many innocents—and very large economic effects. Following the decision-making model listed above may simply be an occasion to rationalize the self-deception that gave rise to the personal problem in the first place—or the international problem in the first place. Nurturing open-mindedness may be the only 'step' needed to repair this situation

We are not claiming that teaching about general procedures is a completely inappropriate way to promote critical thinking. Rather, we emphasize that the effectiveness of any procedure depends on its efficacy in helping students meet the relevant standards for good thinking: there are no inherent or highly reliable connections between learning to think well and performing particular operations. Put another way, what drives increased competence in thinking is greater mastery of the standards for judging an appropriate tack to take in a particular context, not learning pre-programmed, supposedly generalizable, procedures.

Critical thinking and the pedagogy of practice

We have reviewed three conceptions of critical thinking: skills, processes, and procedures. All three have been used to promote the idea that competence in thinking critically is gained primarily through practice. Thus, although we will focus in this section on the skills-conception as a source of the pedagogy of practice, we could just as well focus on either the process or the procedures view. Nickerson *et al.* (1985) discuss learning thinking skills as analogous to two ways of learning physical skills—one when a person practises a particular skill to strengthen it; the other where, by appropriately directing intellectual energy, teachers replace the novice's inefficient movements with more efficient ones. Practice is seen as exercising the skills of critical thinking so that improvement will take place. Students may, for example, be given frequent opportunities to make comparisons in a variety of domains so that the 'skill of comparing' will be exercised, and this aspect of critical thinking improved. We contend, however, that critical thinking is not promoted simply through the repetition of 'skills' of thinking, but rather by developing the relevant knowledge, commitments and strategies and, above all, by coming to understand what criteria and standards are relevant. Repetition does indeed have some role to play, but only if it takes place in the context of the development of such knowledge, criteria, commitments and strategies.

The main assumption underpinning the practice view is that critical thinking consists of a variety of discrete skills that can be improved through repetition. On this view critical thinking skills are analogous to skills in an athletic endeavour such as soccer, where it is possible to practise kicking, heading the ball, passing, etc., and to develop skill at each of these constituent activities independently of ever playing a football game. One repeats the skill until it has become routinized and one no longer needs to apply conscious attention to its execution.

However, this is not an appropriate model for what is involved in becoming better at critical thinking. Unlike athletic skill, skill in critical thinking cannot be separated from understanding the nature and purpose of the task one is attempting to accomplish.[8] Becoming better at comparing, for example, involves learning to make comparisons according to relevant criteria, making comparisons which are appropriate to the particular circumstances, comparing with a view to the reason the comparison is being made, and so on.

We argued earlier that critical thinking cannot be characterized in terms of specific mental processes, and that there are no good grounds for supposing that terms like comparing, classifying and inferring denote generic mental processes which one can improve through repetition. Here, we emphasize that all aspects of critical thinking centrally involve judgement, and judgement cannot be made routine. Scheffler (1965: 103) makes this point with reference to chess:

> critical skills call for strategic judgement and cannot be rendered automatic. To construe the learning of chess as a matter of drill would thus be quite wrong-headed in suggesting that the same game be played over and over

> again, or intimating that going through the motions of playing repeatedly somehow improves one's game. What is rather supposed, at least in the case of chess, is that improvement comes about through development of strategic judgement, which requires that such judgement be allowed opportunity to guide choices in a wide variety of games, with maximal opportunity for evaluating relevant outcomes and reflecting upon alternative principles and strategy in the light of such evaluation.

An examination of those areas where practice is helpful—for example artistic performance—makes evident that useful practice involves far more than mere repetition. Practising the piano is not simply a matter of continually repeating a piece in the same manner, but rather of being alert to and attempting to correct errors and continually striving for improvement according to the standards of quality performance. Dewey (1964: 201) makes the point that simply sawing a bow across violin strings will not make a violinist.

> It is a certain quality of practice, not mere practice, which produces the expert and the artist. Unless the practice is based upon rational principles, upon insights into facts and their meaning, 'experience' simply fixes incorrect acts into wrong habits.

Howard (1982: 161, 162) also maintains that practice is not mere repetition, but claims that it is, rather, repetition which is 'guided by specific aims such as solving various kinds of problems' or 'improving acquired skills', and 'in accord with some … criteria of performance' which enable one to judge the level of mastery of the activity. Thus, he states:

> Rather than mechanically duplicating a passage, one strives for particular goals, say, of fluency, contrast, or balance. Successive repeats reflect a drive toward such goals rather than passive absorption of a sequence of motor acts.

The question arises at this point as to how critical thinking can best be developed and what role practice plays in this development. We have argued that what characterizes thinking which is critical is the *quality* of the reasoning. Thus, in order to become a (more) critical thinker one must understand what constitutes quality reasoning, and have the commitments relevant to employing and seeking quality reasoning. The knowledge necessary for such understanding includes background knowledge relevant to the context in question, knowledge of the principles and standards of argumentation and inquiry, both in general and in specialized areas, knowledge of critical concepts, and knowledge of relevant strategies and heuristics. The kinds of habits of mind, commitments or sensitivities necessary for being a critical thinker include such things as open-mindedness, fair-mindedness, the desire for truth, an inquiring attitude and a respect for high-quality products and performances. Thus, fostering critical thinking would involve the development of such knowledge and commitments.

A variety of means may be employed to promote such development, including direct instruction, teacher modelling, creation of an educational environment where critical inquiry is valued and nurtured, and provision for students of frequent opportunities to think critically about meaningful

challenges with appropriate feedback. Practice may also have a role to play, but it must be understood that it is not practice in the sense of a simple repetition of a skill, process or procedure. Rather such practice presupposes the kind of knowledge outlined above, and involves the development of critical judgement through applying this knowledge in a variety of contexts. It also involves attempts on the part of the learner to improve according to specific criteria of performance, and frequent feedback and evaluation with respect to the quality of thinking demonstrated.

Notes

1. See, for example, Presseisen (1986).
2. Some examples are Worsham and Stockton (1986) and Beyer (1991).
3. One fairly recent example of the use of this tripartite division of goals is to be found in British Columbia Ministry of Education (1991a, b).
4. It is, of course, a category mistake to talk about 'doing' processes; processes happen; people do not do them.
5. One which comes close to this is found in a document produced by a Canadian Ministry of Education (British Columbia Ministry of Education 1991b: 15) which refers to 'thirteen thinking operations: observation, comparing, classifying, making hypotheses, imagining . . . '.
6. The 'Decide Model' is used in an introductory text on economic reasoning (described in Mackey 1977: 410).
7. According to Mackey (1977: 408) problem solving is 'the application of an organized method of reasoning to a difficult, perplexing or bewildering situation'.
8. This is not to deny that many activities, such as football, deeply involve—in addition to skills—critical thinking.

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10 ACADEMY AWARD NOMINATIONS

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OP-ED CONTRIBUTOR

Education Is All in Your Mind

By RICHARD E. NISBETT

Ann Arbor, Mich.

AS Department of Education officials consider how best to spend billions from the economic stimulus plan, they would be wise to pay attention to which programs actually help children's achievement — and keep in mind that sometimes very small influences in children's lives can have very big effects.

Consider, for example, what the social psychologists Claude Steele and Joshua Aronson have described as "stereotype threat," which hampers the performance of African-American students. Simply reminding blacks of their race before they take an exam leads them to perform worse, their research shows.

Fortunately, stereotype threat for blacks and other minorities can be reduced in many ways. Just telling students that their intelligence is under their own control improves their effort on school work and performance. In two separate studies, Mr. Aronson and others taught black and Hispanic junior high school students how the brain works, explaining that the students possessed the ability, if they worked hard, to make themselves smarter. This erased up to half of the difference between minority and white achievement levels.

Black students also perform better on an exam when it is presented as a puzzle rather than as a test of academic achievement or ability, another study has shown. These are small interventions that have big effects.

Here's another example: Daphna Oyserman, a social psychologist at the University of Michigan, asked inner-city junior-high children in Detroit what kind of future they would like to have, what difficulties they anticipated along the way, how they might deal with them and which of their friends would be most helpful in coping. After only a few such exercises in life planning, the children improved their performance on standardized academic tests, and the number who were required to repeat a grade dropped by more than half.

Geoffrey Cohen, a psychologist at the University of Colorado, found still another way to improve black students' test performance. He asked teachers at a suburban middle school, at the beginning of a school year, to give their seventh graders a series of assignments to write about their most important values. Afterward, the black students did well enough in all their courses to obliterate 30 percent of the difference that had existed between black and white students' grades in previous years.

Small interventions can make a big difference even as late as the college years. Dr. Cohen and another psychologist, Gregory Walton, who is now at Stanford, hypothesized that worries about social acceptance —

which are common among all college students — would be especially great among black students on majority-white campuses.

So the researchers gave a group of students at a Northeastern university a detailed report of a survey showing that most upperclassmen had once worried about feeling accepted but had ultimately come to feel at home on campus. Black students who were given this information reported that they worked harder on their schoolwork than others did, and contacted their professors more. The payoff in grade-point average erased most of the usual difference between blacks and whites at the university.

These experiments may help explain the "Obama effect" on the test performance of African-Americans. Adult subjects in a study (still unpublished) answered comprehension questions from the verbal sections of the Graduate Record Examinations before and just after the presidential election. The black participants who were tested before the vote performed worse than whites; those tested immediately afterward scored almost as well as whites.

If simple interventions can have big effects, one might assume that bigger interventions would always be even better. But the truth is that some big interventions in education have had only minimal effects. Head Start, which places 3- and 4-year-olds in supposedly enriched classroom settings, and Early Head Start, which works with 1- to 3-year-olds, for example, have been found to have only modest effects on the children's academic achievement, and these often fade by early elementary school. Likewise, "whole-school interventions," in which teams of education engineers descend on a school and change its curriculum, introduce new textbooks and train teachers — often at great expense — typically produce little in the way of educational gain.

Some bigger programs have worked well, however. The Perry Preschool, which was set up in Ypsilanti, Mich., in the early 1960s, is a good example. In this school, highly trained and motivated teachers worked with groups of only six black preschoolers in educationally intensive sessions intended to help the severely disadvantaged children develop both cognitively and socially, and the teachers visited the children's families for 90 minutes every week.

By the time these students reached high school, almost half of them scored above the 10th percentile on the California Achievement Test, compared with only 14 percent of students in a control group. Almost two-thirds of the students who had been in the program graduated from high school, compared with only 43 percent of control students. And by age 27, one-third of the Perry children owned their own home; only 11 percent of the control students did.

James Heckman, a Nobel Prize-winning economist at the University of Chicago, has estimated that for every dollar spent on a prekindergarten like Perry, $8 has been gained in higher incomes for participants and in savings on the costs of extra schooling, crime and welfare.

Similarly, a program called KIPP (for Knowledge Is Power Program) is having remarkable success with poor minority children in middle schools. KIPP students attend school from 7:30 a.m. to 5 p.m., their term is three weeks longer than normal, and every other Saturday they have classes for half a day. The curriculum includes sports, visits to museums and instruction in dance, art, music, theater and photography. During one academic year, the percentage of fifth-graders at KIPP schools in the San Francisco Bay Area who scored at or above the national average on the reading portion of the Stanford Achievement Test rose to 44 percent

from 25 percent. And while only 37 percent started the year at or above the national average in math, 65 percent reached that level by spring.

Such creative programs must be tested to ensure that they work as they are meant to. The United States Department of Education's What Works Clearinghouse, which was established by the Bush administration, has the job of making public all significant evaluations of educational interventions. The Obama administration should heed the Clearinghouse's reports. Stimulus money should be spent only on programs that work well — and on creating new programs, which in turn should be properly tested for effectiveness.

President Obama is in a position to not only inspire black youngsters by his example, but also make an enormous difference in their schooling — as long as he supports successful educational interventions, from the smallest to the most ambitious.

Richard E. Nisbett, a professor of psychology at the University of Michigan, is the author of "Intelligence and How to Get It: Why Schools and Cultures Count."

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FACULTY FOCUS

Special Report

Effective Group Work Strategies for the College Classroom.

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A MAGNA PUBLICATION

Effective Group Work Strategies for the College Classroom

Love or hate it, group work can create powerful learning experiences for students. From understanding course content to developing problem solving, teamwork and communication skills, group work is an effective teaching strategy whose lessons may endure well beyond the end of a course. So why is it that so many students (and some faculty) hate it?

Although the students may not state their objections verbally, the nonverbal reactions are truly eloquent. They just sit there; only with much urging do they look at those sitting nearby and move minimally in the direction of getting themselves seated as a group. This lack of enthusiasm is at some level a recognition that it is so much easier to sit there and take notes rather than work in a group and take ownership. The resistance also derives from past experiences in groups where not much happened, or where some members did nothing while other did more than their fair share of the work.

Often very little happens in groups because students don't tackle the tasks with much enthusiasm, but group ineffectiveness also may be the product of poorly designed and uninteresting group tasks.

This special report features 10 insightful articles from *The Teaching Professor* that will help you create more effective group learning activities and grading strategies as well as tips for dealing with group members who are "hitchhiking" (getting a free ride from the group) or "overachieving" (dominating the group effort). Here's a sample of the articles in the report:

- Leaders with Incentives: Groups That Performed Better
- Dealing with Students Who Hate Working in Groups
- Group Work That Inspires Cooperation and Competition
- Better Understanding the Group Exam Experience
- Use the Power of Groups to Help You Teach
- Pairing vs. Small Groups: A Model for Analytical Collaboration

In short, *Effective Group Work Strategies for the College Classroom* will change the way your students think about group work.

Maryellen Weimer
Editor
The Teaching Professor

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THE Teaching PROFESSOR

Class Participation Evaluated by Peers

Most instructors opt to include class participation in their courses. Many seek to promote it. Generally, students are encouraged to participate by some sort of grading scheme. But evaluating individual contributions and promoting a substantive, intriguing discussion at the same time is no small task. Consequently, many instructors end up evaluating participation subjectively, relying on an intuitive sense of who spoke, how often, and saying what. Besides worries about the objectivity of such a system, this approach "forces the instructor to adopt two fundamentally incompatible roles simultaneously: the support role of creating learning opportunities in the classroom, and the evaluative role of grading participation every time a student verbalizes his or her thoughts." (p. 24)

Mainkar, the author of the article referenced below, uses this problem and the work of others to identify two more problems that are frequently a part of participation grading schemes. First, students contribute not because they have something to say, but because they want the points. They craft these contributions in their minds as other students are speaking. As a result, what they say rarely follows from what has just been said, thereby making the discussion disjointed rather than a series of exchanges that flow in the direction of some logical conclusion. And finally, not all students are equally ready to contribute. For some (frequently those from other cultures or of ethnic minority backgrounds), having to participate in class may cause much stress and anxiety.

Mainkar has developed (and used successfully for four years now) a system that tackles these problems. "Students are the primary evaluators of discussion participation on a daily basis." (p. 24) Here's how the system works. Every day one or two (usually two) students evaluate the contributions of the rest of class (between 20 and 30 other students). They do so using a sheet (a sample of which is included in the article's appendix) that lists all students by name and differentiates contributions into three categories: attendance (awarded for listening and not engaging in disruptive behaviors), straightforward comments (adequate contributions), and insightful comments (superior thinking). One point is awarded for attending but not participating in class, two points for one or two straightforward comments, and three points for three or more straightforward comments. Insightful comments are worth more, but students cannot earn more than three points per day. Evaluators earn three points on the day they evaluate their classmates. Each student evaluates only once during the course. Mainkar has found that the two evaluators' scores agree to a high degree. (Data documenting the extent of agreement is included in the article.) Daily participation scores are averaged and converted into a number between 0 and 100. If a student never participated but attended four of the 100 points.

Individual differences are accommodated by letting students decide whether their participation grade counts for 10, 15, or 20 percent of their total course grade. Students make this determination about halfway through the semester after they have received adequate feedback, which is provided every few weeks. The system itself is not launched until the third or fourth week of the semester, giving students a chance to feel comfortable in this particular class setting and with the participation system itself.

Mainkar admits that the system does involve more administrative work for the instructor. Students' participation is recorded daily, and those scores must be recorded, averaged, and shared with the students; but given the system's effectiveness at overcoming some fundamental problems associated with the grading of participation, the extra effort seems justified. The article also contains some useful suggestions on how the system can be streamlined and used in smaller classes. It is an interesting approach with many potential adaptations.

Reference: Mainkar, A.V. (2008). A student-empowered system for measuring and weighing participation in class discussion. *Journal of Management Education, 32* (1), 23-37.

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A MAGNA PUBLICATION

Group Quizzes: More Positive Outcomes

By Maryellen Weimer

There often are dissenting opinions on whether it's a good idea to have students do quizzes in groups. The study referenced below adds to the growing number of evidence-based reasons for doing so. Here's how group quizzes were used in this study. In an introductory sociology course (which was compared with a control section of the same course), students took eight unannounced quizzes that covered reading assigned for that day. After answering the three to five open-ended questions, students joined a group (formed by the teacher and with similar ability levels) in which they discussed their answers. After the discussion, they could revisit their individual answers. One quiz was randomly selected from each group and the score on that quiz became a group grade assigned to everyone in the group. Individual quizzes were also scored so that students could compare their individual and group grades.

Faculty researchers used quiz, exam, and final grades along with survey data to answer questions in three different areas. First, they wanted to know whether this style of collaborative testing would improve students' learning, which they operationally defined as quizzes, exams, and final grades. Students in the experimental group did score significantly higher on the quizzes, but they did not score higher on exams or receive higher final grades than students in the control group.

Researchers think the lack of impact on tests and grades might have occurred because these quizzes only counted for 14 percent of students' grades. They also thought, based on recommendations in previous research, that perhaps these students needed some instruction in group processing issues.

"If collaborative testing motivates students to complete assignments and to develop positive attitudes about both their peers and the course material, it may also help to foster student retention."

The second pragmatic question of interest involved whether or not this approach to group quizzes would improve students' preparation for class. Would it more effectively motivate them to keep up with the reading? The answer to this question was yes. Students reported that they were more likely to come to class having already completed the assigned reading. Their comments illustrate what a powerful influence peers can have on each other's learning. Many reported not wanting to let the group down. Here's a comment that illustrates this feeling.

"I have been forced to keep up with the readings so I don't hurt others in my group with poor grades." (p. 259)

Finally, researchers were interested in the effects of this kind of collaborative quizzing on several different student attitudes. Would students be more positive about quizzing in this format? Would they think taking quizzes this way would positively influence exam scores and final grades? Would they be more positive about the field of sociology? And, would their initial skepticism about this approach to testing diminish as they experienced the process? Each of these questions was answered positively by the study's results. The researchers wonder whether these positive findings might be indicative of an even larger impact. "If collaborative testing motivates students to complete assignments and to develop positive attitudes about both their peers and the course material, it may also help to foster student retention." (p. 260)

Of their findings overall, these researchers conclude, "These results provide further empirical support to those instructors and researchers who have championed the use of collaborative learning strategies and should suggest to others that they might be well worth considering." (p. 261)

Reference: Slusser, S. R., and Erickson, R. J. 2006. Group quizzes: An extension of the collaborative learning process. *Teaching Sociology* 34: 249–62.

Pairing vs. Small Groups: A Model for Analytical Collaboration

By Denise D. Knight

Although the use of small groups can provide a welcome change to the regular classroom routine, the results are rarely all positive. Invariably, one or two students in each group, because they are shy or lack self-confidence, are reluctant to share their input. These are often the same students who have to be coaxed to participate in large class discussions. Because of group dynamics, the student who usually emerges as the group leader, either by default or proclamation, is often not sensitive to the need to engage the quieter students in the conversation. As a result, the more outspoken students may unwittingly extinguish the very dialogue that the small group is intended to promote.

I have found that paired collaboration consistently produces better results than small group discussions do. Having students engage a question in a one-on-one exchange encourages stronger participation by both parties. Rarely do small groups generate equal contributions to the dialogue or problem solving, while pairing creates an intellectual partnership that encourages teamwork.

Paired collaboration can easily be modified to work in a number of disciplines. In my literature classroom, the following model, which I use about once every three weeks, seems to be particularly effective. At the beginning of class, I ask each student to place his or her name on a sheet of paper and to write a question about the work that we will be discussing that day. I then collect all of the questions and redistribute them so that each student has someone else's question. Students then break into pairs and together formulate a response to one or both of the questions, depending on the time allotted for the exercise. They are required to cite textual evidence in support of their arguments.

I have found that paired collaboration consistently produces better results than small group discussions do.

After a period of time, usually 15 or 20 minutes, each pair reports its findings to the larger group. Even if some of the pairs end up answering similar questions, they rarely have similar answers. And, if by chance each member of the pair has radically different interpretations, they are invited to share their individual responses. The exercise can actually be helpful in illustrating the variety of critical readings that one literary work can engender. And, depending on the direction that discussion takes, it can provide the foundation for discourse on a number of theoretical approaches to the text.

Experience has convinced me that the benefits of pairing are numerous. Working together provides an opportunity for problem-solving on a more intimate scale than small groups allow. Students tend to form an alliance as they work together to compare—and share—their interpretations. They are more likely to come to class prepared to engage the reading, as they know that they might be called upon at any time to share their knowledge. Finally, a paired model not only allows quiet students to find—and use—their voices, but it also teaches mutual respect and cooperation. Paired collaboration is a small adjustment to the typical group discussion that can yield big results.

Leaders with Incentives: Groups That Performed Better

By Maryellen Weimer

Faculty who regularly use group work are always on the lookout for new and better ways of handling those behaviors that compromise group effectiveness—group members who don't carry their weight and the negative attitudes students frequently bring with them to group work. A faculty team at the U.S. Air Force Academy reports positive results from a unique approach that involved making group leaders partially accountable for their group's success while at the same time giving those leaders some power to reward or penalize individual members based on what those members contributed.

The rationale for this approach comes from how groups function in the "real world." In most professional contexts, leaders are to some extent responsible for how their groups perform, and those leaders also have some control over those who serve on teams with them.

Using a couple of different measures of academic ability, teams with four to six members were formed. In the experimental teams, members were told to choose a formal leader. The control groups had no formally designated leaders. The task involved selection of a publicly traded company and analysis of that firm's financial report. Findings were presented by the teams to a panel of three financial accounting instructors. Points on this assignment represented 25 percent of the final course grade.

In addition to the 150 points possible for the assignment, leaders received a 25-point incentive if their teams ranked in the top third of all these projects. Leaders received 15 points if their groups ranked in the middle third and 5 points if their groups ranked in the bottom third. Leaders were also given 25 points per group member to distribute to individual members based on what those individuals contributed to the group. "This structure allowed the incentivized team leader to function as a leader with limited control over team members while maintaining responsibility for the end product." (p. 793)

Scores showed that the teams with leaders who had these incentives performed significantly better than did the control groups. Results also documented a decrease in social loafing and improved attitudes about group work for those in teams with leaders with incentives. It's an approach that might be worth trying in other courses where group work is being used to prepare students for collaboration in professional contexts.

Reference: Ferrante, C. J., Green, S. G., and Forster, W. R. (2006). Getting more out of team projects: Incentivizing leadership to enhance performance. *Journal of Management Education*, 30 (6), 788-797.

Dealing with Students Who Hate Working in Groups

By Joseph F. Byrnes and MaryAnn Byrnes

Some students tell us they hate groups—as in really hate groups. Why do faculty love groups so much, they ask. I work hard, I'm smart, I can get good grades by myself, these students insist. Other students are a waste. I end up doing all the work and they get the good grade I earned for the group. Why do you, Professor Byrnes, make me work in a group. I hate groups!

Sound familiar? We call these bright, motivated, annoyed students our lone wolves. They demand learning activities where they know they can excel and are fearful that our emphasis on group work will mean lower grades for them. The least of the students will drag down the best, seems to be their constant refrain. Get me out of these groups and let me show you what I can really do.

We have developed an unusual

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way to deal with these bright, motivated lone wolves—we form groups of lone wolves! On the first day of class, we have students fill out a data sheet. Here is the question that deals with groups:

Think about your experience working in groups. Please select the one response that best suits your experience.

A. _____I enjoy working in groups because my group members usually help me understand the material and tasks and therefore I can perform better.
B. _____I question the value of group work for me, because I usually end up doing more than my fair share of the work.
C. _____I have little or no experience working in groups.
D. _____I have a different experience than the choices given above. Please describe.

When we form groups, we place the students who have selected B (our lone wolves) in the same group. There are usually sufficient numbers to form one or even two groups of these lone wolves.

The result is delightful to observe. Often for the first time, the lone wolves are challenged by groupmates. They must learn to negotiate, trust, and share with others who are equally driven and equally intelligent. Another positive outcome is that students in other groups have the opportunity to develop and demonstrate leadership capacity, without the interference of these lone wolves who tend to control others in groups.

At the end of the semester, many of our lone wolves make a point of telling us this is the best group they have ever had. They are shocked about their experience and they ask us for our secrets about forming groups. When we tell them we placed them in a group where every student hated groups, they inevitably smile and thank us.

Group Work That Inspires Cooperation and Competition

By Maryellen Weimer

Successful professionals need to be able to both cooperate and compete. Educational experiences need to help students develop both skills. Attle and Baker, authors of an article on the subject, cite survey data from employers indicating that 80 percent of all employees in America work in teams or groups. But competition continues to be the way to succeed in the global economy.

Attle and Baker have developed learning experiences that combine the two. They outline an instructional strategy that brings together "components of cooperative learning with the positive aspects of motivational competition through inter-group competition between collaborative teams" in sport management, the field in which they teach. (p. 79) Specifically, they assign students to groups; within those groups, students participate in a grant development project. The instructors work to make the project as "real-world" as possible. They contact a local organization and find out what that organization might need. The groups then develop grant proposals that seek funding for the project. Each group presents its proposal to a panel, and that panel "funds" the proposal of only one group. The article also contains other examples of courses and content where these faculty members have used this cooperative-competitive model.

The authors make a number of important points about activities that combine cooperative and competitive elements. They note that cooperation and competition are neither "inherently good or bad in supporting the learning process how instructors employ these strategies in order to enhance student learning determines their value in preparing well-educated soon-to-be professionals." (p. 77) They say that the exercises' design must be undertaken carefully, with the instructor attending to how the groups will be formed, their composition, the dynamics that affect

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how they will interact, and how work completed by the groups will be assessed. In the case of this project, the authors recommend that the instructor form the groups and that, even though the panel awards the grant, the instructor retain control over the grading process.

In an exercise like this, students can learn much about their own performance from the other groups. To level the competitive playing field, in this example each group presents to the panel privately. However, every presentation is videotaped and played back to the class as a whole. This helps students see differences between the groups and enables the class to discuss why the panel awarded the grant to a particular group.

The instructors also note that the competitive aspect of the assignment motivates student performance. Students' performances frequently exceed instructor expectations. There is a caveat here, though: "Our experience in using this type of assignment suggests that students will spend inordinate amounts of time on this type of project unless limits are set by the instructor." (p. 82) The amount of time students are given to work on the project should be commensurate with the project's value. But here as well are important lessons for students to learn—lessons about using time efficiently, delegating tasks, and asserting leadership to help a group pull it all together.

In recent years, interest in group work and learning within social contexts has been widespread in higher education. That is appropriate given the prior lack of emphasis on teamwork. But as this article wisely points out, students need to know how to cooperate and how to compete. For tomorrow's professionals, both skills are essential. This article offers some creative ways of integrating both elements in a single, carefully designed learning activity.

Reference: Attle, S., and Baker, B. (2007). Cooperative learning in a competitive environment: classroom applications. *International Journal of Teaching and Learning in Higher Education*, 19 (1), 77–83. [Note: This is an online journal. Find it at www.isetl.org/ijtlhe.]

Better Understanding the Group Exam Experience

By Maryellen Weimer

The debate continues: is it fair and appropriate to give individual students a group grade based on the performance of the whole group? Experts stand on both sides of the issue. For individuals considering the use of group grades, that decision needs to take into account how students perceive the group exam experience. The study referenced below explores a number of relevant student perceptions.

The purpose of this qualitative study was to "elicit the reflections" of students (140 undergrads and 202 grads) who participated in a fairly lengthy group exam experience. Their three-member groups worked together on a variety of tasks for three weeks prior to taking a written exam in their group. Researchers used a "hermeneutic phenomenological" approach that had students respond to this query: "You have just completed your first cooperative examination. Please describe how you felt preparing for the examination, and how you feel now that you have completed the examination." (p. 84) This qualitative method also prescribes how data are to be examined and organized. In this case, comments clustered around eight different themes, which are highlighted and briefly discussed below.

- *Feeling support and or reinforcement*—Every undergraduate and almost 50 percent of the graduate students felt supported and reinforced by the experience. One undergraduate explained, "We learned how to rely upon one another to achieve a goal." (p. 85)
- *Feeling relaxed and confident*—A significant number of undergrads and graduate students reported experiencing less of the anxiety and stress usually associated with taking exams. They felt less alone, and that added to their feelings of confidence, even when they faced the exam's most difficult questions.
- *Everyone knowing the material*

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and doing his or her part—Almost 40 percent of the undergrads and 67 percent of the grads made comments about how their group members stepped up to the plate. Fellow group members prepared, contributed, and helped complete the exam.

- *Gaining a deeper understanding of the information*—Confirming what previous research has documented, a significant number of these students made comments about how working on the material in their group provided them with a deeper understanding of the content.
- *Not wanting to let the group down*—A smaller percentage (15 for the undergrads and 13 for the grads) commented on how they were motivated to study more because they didn't want to let the group down. In the words of one student, "This forced me to study. I didn't want to be a weak link." (p. 88)
- *Feeling stressed*—Only 13 percent of the undergraduates and 6 percent of the graduate students expressed that they found the group exam experience stressful.
- *Being concerned about group members' preparation*—Also surprising was the fact that only 13 percent of the undergraduates and 5 percent of the graduate students worried about how their group members would perform. And among those expressing this concern, the experience proved that their concerns were unfounded. As one student remarked, "We could have made our lives simpler by trusting each other." (p. 89)
- *Forming positive opinions about the group*—Six percent of the undergrads and 22 percent of the grad students wrote positively about their specific group. They reported that their group worked well together, that they were part of a good team, and that group members treated each other well.

Many of the feelings and experiences reported by the students in this study do not confirm some of the fears that faculty have about using group experiences: that the bright, grade-motivated students will do the work for the rest of the group and that the pressure of having to perform collectively for a grade will cause groups to implode. The reactions of these students to an open-ended query that did not direct their responses reaffirms the learning potential inherent in collaborative experiences. The analysis of their responses does not answer the question of the propriety of group grades for individuals, but what these students report certainly relates to that question.

Reference: Morgan, B. M. (2005). Cooperative learning in higher education: A comparison of undergraduate and graduate students' reflections on group exams for group grades. *Journal on Excellence in College Teaching*, 16(1), 79–95.

Use the Power of Groups to Help You Teach

By Robert Loser

Reading a textbook and listening to a lecture may be useful learning activities, but for most students, when used alone, they are insufficient for long-term retention and transfer of learning. Activities like group work, discussion, and other forms of collaboration have great potential for helping students process new information, ideas, and procedures so that learning is expedited. Here are five research-based reasons for using activities that involve students in class.

1. New knowledge must be anchored to existing knowledge for long-term retention; the more anchors, the better the chances for recall. In a discussion, ask students to compare and contrast new information or ideas with what they already know, or ask them to give examples or analogies. Each elaboration is a potential memory anchor for some learners, and, together, the class will generate many more elaborations than could be thought of individually. Chances are good that someone will suggest a viable elaboration that never crossed your mind.

2. Short-term memory can hold only about seven pieces of information at a time. New knowledge must be organized in chunks to fit through this bottleneck during

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learning and recall. Ask students to organize new information, summarize it, suggest mnemonics for it, and then share their strategies with the class. Again, the class is likely to generate more strategies collectively than individuals would on their own, and the weaker students will learn better strategies from the stronger ones.

3. Knowledge is recalled best when it is learned in the context in which it will be used. Ask students to relate what they are learning to their lives, their work, their families, and society with activities such as role-plays, case studies, and application papers. Once again, groups are going to envision more relevant contexts than individuals are likely to.

4. Skills are learned by practice with guidance and immediate feedback. Since you can't provide immediate feedback to everyone at the same time, enlist your students to help each other in the early learning stages when basic feedback is sufficient, but still vital. Offer clear examples of excellent performance, and then provide students with a rubric for critiquing each other's work. The greater the number of critiques, the greater the likelihood that the average of the critiques will be reasonably accurate. Besides benefiting from feedback, students are learning something about providing it constructively.

5. Problem-solving expertise requires relevant basic skills and conceptual knowledge, along with being able to decide which basic skills and knowledge to apply in any given situation. Assign problems to heterogeneous groups of five to seven students and facilitate collaboration to solve the problems. Members of the group will have different knowledge and skills to contribute, so the groups will tend to solve problems better than the individual members can on their own. In the process, students will learn knowledge, skills, and strategies from each other, especially if you have them discuss the processes they used.

Group strategies help you teach more efficiently by harnessing the parallel processing power of all of the minds in your classroom and open the possibility that you just might learn something from your students!

If you are interested in references that explore the research that stands behind these principles, let me recommend two sources.

References:

Clark, R., and Mayer, R. (2003). *E-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning*. San Francisco: John Wiley & Sons.

Gagne, E., Yekovich, C., and Yekovich, F. (1993). *The Cognitive Psychology of School Learning, Second Edition*. New York: HarperCollins.

Feedback Forms for Peer Assessment in Groups

By Maryellen Weimer

Many faculty incorporate a peer-assessment component in team projects. Because faculty aren't present when the groups interact and therefore don't know who's doing what in the group, they let students provide feedback on the contributions of their groupmates. In addition to giving the teacher accurate information on which to base individual grades, the process gives students the opportunity to learn the value of constructive peer feedback. It's a skill applicable in many professional contexts.

Most faculty have discovered that the quality of peer feedback improves if students use a form that articulates assessment criteria. Otherwise, given a form that asks them to rate or describe the contributions of other members, students tend to avoid giving negative feedback and to fall back on the "everybody contributed equally" mantra.

A group of faculty (mostly in engineering) looked at the inter-rater reliability of three short peer-evaluation forms. Inter-rater reliability is a statistical measure of the extent of agreement among evaluators. It's an important feature of good assessment instruments. One of the forms used was a single-item instrument without any behavioral anchors or specific assessment criteria, similar to what's described in the previous paragraph.

The second form used a five-point

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rating scale and asked students to assess team members across 10 categories that included various behaviors, e.g., attended group meetings regularly, contributed to discussions, listened effectively, performed significant tasks, and completed tasks on time.

The final form included these kinds of behavioral anchors in its instructions and elaborated descriptions of the rating words (excellent, for example, was defined as "consistently went above and beyond, tutored teammates, carried more than his or her fair share of the load"). However, on this form group members gave peers a single rating assessment. Researchers found that both behaviorally anchored forms had about the same high inter-rater reliability when they were used by four raters in the same group.

The value, of course, is the economy of the shorter form. It considerably expedites the grading process, which benefits instructors who may have large classes and homework and other assignments to grade. Researchers also hypothesize that students will complete shorter forms more conscientiously. However, they do recommend using the longer form to accomplish formative goals. They have their students complete it at the end of a first project so that group members can use the feedback to identify areas for improvement. If the feedback indicates that a group has some members who are "hitchhiking" (as in getting a free ride from the group) or "overachieving" (as in dominating and overdirecting the group effort), the instructor meets with those groups to explore better ways to distribute the workload and leadership within the group.

Reference: Ohland, M. W., Layton, R. A., Loughry, M. L., and Yuhasz, A. G. (2005). Effects of behavioral anchors on peer evaluation reliability. *Journal of Engineering Education*, 94(3), July, 319–325

Using Collaborative Groups to Teach Literature and Theory

By Penny Dahlen

I have used collaborative groups in a graduate counseling theories class to increase dialogue on theoretical concepts, integrate current literature, and model lifelong learning. In my teaching, this learning strategy is much more than a technique. It's a systematic, coherent approach to the entire course. Groups meet for one-third of the course time, do group presentations, and participate in a variety of other class activities.

When using groups this extensively, how they are formed is essential. I let students create their own three- to four-member groups using three different criteria: random selection, common interests, or program areas. For example, in a master's-level counseling program, students pursue options in school counseling, marriage and family counseling, or mental health counseling. Students are educated about the group selection process and are encouraged to select group members only after class activities have occurred in which students learn about each other's professional interests and personal belief systems. Self-selection of group members increases peer pressure to be prepared for group dialogues and creates mutual dependence—students come to class so they don't let their group down.

Once groups have formed, students are given the assignment: review the current literature and select an article of interest to discuss in the groups. Each student does his or her own literature search and article review each week. For example, during the week that existential theory is the topic, students need to find current literature on existential theory. School-counseling students might conduct literature searches using the terms "existential theory" and "children."

Early on, groups are instructed to develop ground rules. Here are some examples of ground rules: come prepared for the group meeting; take ownership of your ideas by using "I" statements and "It is my perception…"; wait until others are finished before speaking; present reasons for disagreeing; paraphrase what you hear; ask for clarification; and provide

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constructive feedback. Groups set up written contracts that list their rules and that are signed by all members. This enhances group commitment to preparation and learning.

I believe it is essential that the instructor model effective group collaboration. I do current literature searches and join a group each week. I make sure my article has been published within the last year and join in a different group each week. Students never know which group I will be joining, so this also encourages preparation on their part. In joining the group, I talk with them. I do not take over the discussion; I listen, probe, question, hypothesize, model, and rephrase their comments just as any member committed to group analysis and understanding should do. The groups meet during the last 45 minutes of class, and I do not reconvene the entire class at the end of the period. I have noticed that many times the groups are still talking 15 to 30 minutes past class ending time.

Toward the end of the course, each group does a presentation focused on "deepening the understanding of some theoretical concept." Students are encouraged to be creative and to enjoy the presentation. One group conducted a Jeopardy game on Freud's concepts. Also each group member is required to provide a draft copy of his or her final theory paper to each other group member. Members read and edit each other's papers between group sessions and then meet to discuss content and writing processes. After this feedback session, students have a week to incorporate group feedback before turning in the final paper.

Group members grade each other's participation based on the group rules and how collaboratively the member worked on the group presentation. The final course grade also includes a variety of other assignments, such as large group participation, written case analyses, journals, and a final paper.

This collaborative group strategy could be adapted to any course in which theory and philosophy are major content components. Keeping current on research, joining groups, and modeling dialogue make the course exciting for students and for the instructor. It's also a great model for lifelong learning. It represents how we would hope people would join together at work and in their communities to learn and to solve problems.

Small Group Discussion Tasks

By Maryellen Weimer

Many students don't greet with much enthusiasm teachers' efforts to have them work in groups. They may not state their objections verbally, but the nonverbal reactions are eloquent. They just sit there; only with much urging do they look at those sitting nearby and move minimally in the direction of getting themselves seated together as a group. This lack of enthusiasm is at some level a recognition that it is so much easier to sit there and write down the teacher's answers. The resistance also derives from previous experiences in groups where nothing or very little happened.

Often very little happens in groups because students don't tackle the tasks with much enthusiasm—a kind of vicious cycle develops here—but group ineffectiveness may be the product of poorly designed group tasks as well. A carefully thought out, creative, and purposeful task can impact student passivity and engender much more positive feelings about group work.

A newly published second edition of a book on teaching beginning students, Teaching First-Year College Students, by Bette La Sere Erickson, Calvin B. Peters, and Diane Welter Stommer, contains a great list of group tasks for in-class discussions. These authors propose them for beginning students, but there is no reason they would not work with more advanced learners.

- If the goal is having small groups review content from the previous class, have students compare and discuss their notes in the group and then create a list of the most important ideas contained in them. Sharing some of the lists publicly provides an effective way of linking previous material with new content.
- Before introducing a new topic: have students break into groups, put their heads together, and list

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everything they already know about the topic. Several of these lists can be used to introduce the topic.

- To get students ready for a whole class discussion, let them start by spending a few minutes in a small group where people discuss any aspect of the reading assignment or discussion topic they wish.
- If the goal is to get students to ask more questions, let them generate those questions in groups. If the class is to discuss a reading assignment, let those groups come up with the one or two questions around which they think the whole class discussion should focus.
- To help students develop their problem-solving skills, give them a problem a bit more challenging than one they've just done. Let them work on solving that new problem in groups. If they can't come up with the solution, challenge the group to list the questions they need answered in order to solve the problem.
- If the goal is making sure that students understand a concept, put students in groups and have the groups define the concept in their own words. Also have them identify an example (not one proposed in class or the reading) and be able to explain how it illustrates the concepts.
- To encourage thinking more broadly about a topic, working in groups, have students take one position on an issue and list all the arguments they can think of that support that side. When they've completed that task, have them take a different position on the same topic and list the arguments supportive of that position.
- To help students summarize content as it is being presented, take a short break during which students compare notes with two or three people sitting near them. Have the group agree on the most important ideas presented so far. Encourage everyone to write those ideas in their notes.

Reference: Erickson, B. L., Peters, C. B., & Strommer, D. W. (2006). *Teaching first-year college students* (2nd ed.). San Francisco: Jossey-Bass.

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RETENTION

CSET Fall 2008 to Spring 2009 Retention

			Fall 2008 enrollment	Graduated Fall 2008	Retained Spring 2009		Not retained Spring 2009	
SCTC	ALHE	BS.HSM	71	3	62	91.2%	6	8.8%
		BS.MDT	39	0	36	92.3%	3	7.7%
		Total	110	3	98	91.6%	9	8.4%
	BIOL	BS.BIO	116	8	96	88.9%	12	11.1%
		BS.BIO.DNIMAS	3	0	3	100.0%	0	.0%
		BS.BIO.PP	181	8	156	90.2%	17	9.8%
		BS.BIO.PP.DNIMAS	9	0	9	100.0%	0	.0%
		Total	309	16	264	90.1%	29	9.9%
	CHEM	BS.CHM	50	3	40	85.1%	7	14.9%
		BS.CHM.DNIMAS	7	0	7	100.0%	0	.0%
		BS.CHM.PM	26	0	24	92.3%	2	7.7%
		BS.CHM.PM.DNIMAS	4	0	4	100.0%	0	.0%
		Total	87	3	75	89.3%	9	10.7%
	CSCI	BS.CS.DNIMAS.CE	1	0	1	100.0%	0	.0%
		BS.CSC	127	3	111	89.5%	13	10.5%
		BS.CSC.AC	8	0	8	100.0%	0	.0%
		BS.CSC.CE	51	0	49	96.1%	2	3.9%
		BS.CSC.DNIMAS	4	0	2	50.0%	2	50.0%
		BS.CSC.IS	41	1	36	90.0%	4	10.0%
		MS.CSC	58	3	47	85.5%	8	14.5%
		Total	290	7	254	89.8%	29	10.2%
	ENGR	BS.EEN	78	2	69	90.8%	7	9.2%
		BS.EEN.DNIMAS	3	0	3	100.0%	0	.0%
		BS.MS.OEN.JT	2	0	2	100.0%	0	.0%
		BS.OEN	46	1	42	93.3%	3	6.7%
		BS.OEN.DNIMAS	3	0	3	100.0%	0	.0%
		MS.EEN	12	0	11	91.7%	1	8.3%
		MS.EEN.T	2	0	2	100.0%	0	.0%
		MS.OEN	4	0	4	100.0%	0	.0%
		MS.OEN.T	2	0	2	100.0%	0	.0%
		Total	152	3	138	92.6%	11	7.4%
	MATH	BS.MTH	5	0	4	80.0%	1	20.0%
		BS.MTH.AM	15	2	11	84.6%	2	15.4%
		BS.MTH.AMD	1	0	1	100.0%	0	.0%
		BS.MTH.TC	13	1	12	100.0%	0	.0%
		Total	34	3	28	90.3%	3	9.7%
	NURS	AS.NUR	201	6	173	88.7%	22	11.3%
		AS.NUR.LPN.RN	19	0	18	94.7%	1	5.3%
		AS.NUR.PRE	269	0	233	86.6%	36	13.4%
		BS.NUR	76	14	51	82.3%	11	17.7%
		BS.NUR.2ND	33	2	29	93.5%	2	6.5%
		BS.NUR.BSN	3	0	1	33.3%	2	66.7%
		BS.NUR.PRE	21	0	19	90.5%	2	9.5%
		Total	622	22	524	87.3%	76	12.7%
	PHEE	BS.EEN	3	2	1	100.0%	0	.0%
		BS.PHY	12	0	10	83.3%	2	16.7%
		BS.PHY.DNIMAS	4	0	4	100.0%	0	.0%
		MS.MTS	14	3	9	81.8%	2	18.2%
		PHD.MTS	13	0	10	76.9%	3	23.1%

CSET Enrollment and Retention Goals and Objectives AY 2008 – 2013

Norfolk State University

Goal 1: Increase Student Enrollment from 1,721 to 3,000 with Improved Quality during 2008-2013.

- Objective 1: Improve applications and yield for freshman enrollment
- Objective 2: Increase transfer agreements with community colleges and four year institutions

Goal 1: Increase Student Enrollment from 1,721 to 3,000 with Improved Quality during 2008-2013.

- Objective 3: Improve the quality of incoming students through the DNIMAS Program and the Honors College
- Objective 4: Expand satellite programs using online courses, certificates and programs
- Objective 5: Expand certificate programs, continuing education programs and selected masters degree programs

Goal 1: Increase Student Enrollment from 1,721 to 3,000 with Improved Quality during 2008-2013.

- Objective 6: Upgrade our high school feeder methods to include not only traditional feeder schools but magnet schools and those with strong Science and Technology emphases.
- Objective 7: Work with the Admissions Office so that they can become more proactive in pushing information to us especially regional college fairs, applications to the Computer Science Program.

Goal 1: Increase Student Enrollment from 1,721 to 3,000 with Improved Quality during 2008-2013.

- Objective 8: Strengthen our College/University feeder methods to include more majority institutions. (Graduate Program)
- Objective 9: Build additional outreach efforts to support high and middle school computer science instructors in curriculum development and systemic changes.

Goal 2: Improve Freshmen to Sophomore Retention Rate from 64% to 80%

- Objective 1: Improve retention through carefully monitored freshmen and sophomore year experiences
- Objective 2: Improve freshmen preparation through the use of bridge or transition programs
- Objective 3: Develop the sense of a learning community and instill the importance of scholarship in freshmen

Goal 2: Improve Freshmen to Sophomore Retention Rate from 64% to 80%

- Objective 4: Implement a Computer Science Bridge Program through external funding.

Goal 3: Increase the Graduation Rate from 31% to 60%

- Objective 1: Enhance programs for under prepared students
- Objective 2: Create innovative curricula and emphasize co-curricular activities
- Objective 3: Improve student performance through the use of technology and student-centered pedagogy.

Goal 3: Increase the Graduation Rate from 31% to 60%

- Objective 4: Provide research opportunities and/or clinical experiences for all CSET students
- Objective 5: Provide mentoring to all CSET students
- Objective 6: Seventy percent (70%) of students in CSET will indicate that they are satisfied/highly satisfied with advising.

Goal 3: Increase the Graduation Rate from 31% to 60%

- Objective 7: Build a scholarship program through NSF S-STEM and alumni efforts.
- Objective 8: Reconstitute the Computer Science Advisory Board.
- Objective 9: Set up an alumni relations coordinator to act as a "shadow board" and potential networking partners.

Pass Rates – General Education Core Course

Fall 2006 Pass Rates			
Course	**Enrolled**	**Passed**	**Pass Rate**
BIO 100	454	228	50%
CHM 100	144	82	57%
CSC 150	529	374	71%
MTH 103	400	274	69%
PHY 100	208	82	39%

Fall 2008 Pass Rates					
	Total	**Passed**		**Did Not Pass**	
	Count	**Count**	**Row N %**	**Count**	**Row N %**
BIO-100	579	299	51.6%	280	48.4%
CHM-100	138	76	55.1%	62	44.9%
CSC-150	554	434	78.3%	120	21.7%
MTH-103	275	174	63.3%	101	36.7%
NUR-150	97	60	61.9%	37	38.1%
PHY-100	275	201	73.1%	74	26.9%

		Total	46	5	34	82.9%	7	17.1%
	TECH	AS.ARD	42	1	37	90.2%	4	9.8%
		BS.BCT	44	1	40	93.0%	3	7.0%
		BS.CIT	70	8	56	90.3%	6	9.7%
		BS.DST	3	1	2	100.0%	0	.0%
		BS.ELT	56	5	46	90.2%	5	9.8%
		Total	215	16	181	91.0%	18	9.0%
		CSET Total	1865	78	1596	89.3%	191	10.7%
University Total			6325	321	5357	89.2%	647	10.8%

Program Enrollment and Retention Fall 2007 - Fall 2008
College of Science, Engineering and Technology

Cip Code	Department	Fall 2007 Headcount[1]	Fall 2008 Headcount[1]	Fall 2007 Headcount Returning 2008	% Fall 2007 Headcount Returning in Fall 2008	2007-08 Degrees Granted	Program Attrition	% Program Attrition
	Department of Biology							
26.0101	Biology (B.S.)	295	309	170	57.63%	17	108	36.61%
	Department Total	**295**	**309**	**170**		**17**		
	Department of Chemistry							
40.0501	Chemistry (B.S.)	**72**	87	33	45.83%	8	31	43.06%
	Department Total	**72**	**87**	**33**		**8**		
	Department of Computer Science							
11.0101	Computer Science (B.S.)	188	232	104	55.32%	14	70	37.23%
11.0101	Computer Science (M.S.)	50	58	37	74.00%	5	8	16.00%
	Department Total	**238**	**290**	**141**		**19**		
	Department of Mathematics							
27.0101	Mathematics (B.S.)	38	34	22	57.89%	6	10	26.32%
	Department Total	**38**	**34**	**22**		**6**		
	Department of Physics and Engineering							
14.1001	Electronics Engineering (B.S.)	70	84	46	65.71%	3	21	30.00%
14.1001	Electronics Engineering (M.S.)	12	14	9	75.00%	1	2	16.67%
14.3101	Materials Science and Engineering (Ph.D.)	8	13	8	100.00%	0	0	0.00%
14.9999	Optical Engineering (B.S.)	49	51	38	77.55%	5	6	12.24%
14.9999	Optical Engineering (M.S.)	9	6	2	22.22%	4	3	33.33%
40.0801	Physics (B.S.)	14	16	8	57.14%	4	2	14.29%
40.0802	Materials Science (M.S.)	18	14	10	55.56%	2	6	33.33%
	Department Total	**180**	**198**	**121**		**19**		

[1]As of October Census Date

Program Enrollment and Retention Fall 2007 - Fall 2008
College of Science, Engineering and Technology

Cip Code	Department	Fall 2007 Headcount[1]	Fall 2008 Headcount[1]	Fall 2007 Headcount Returning 2008	% Fall 2007 Headcount Returning in Fall 2008	2007-08 Degrees Granted	Program Attrition	% Program Attrition
	Department of Allied Health							
51.0701	Health Services Management (B.S.)	63	71		0.00%		63	100.00%
51.0706	Health Information Management (B.S.)	1	0	0	0.00%	0	1	100.00%
51.1005	Medical Technology (B.S.)	33	39		0.00%		33	100.00%
	Department Total	**97**	**110**	**0**		**0**		
	Department of Nursing							
51.1601	Nursing (A.S.)	476	489		0.00%		476	100.00%
51.1601	Nursing (B.S.)	110	133		0.00%		110	100.00%
	Department Total	**586**	**622**	**0**		**0**		

[1]As of October Census Date

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From the issue dated June 8, 2007

You Will be Tested on This

Researchers are dusting off an old insight: To maximize classroom learning, quiz early and often

By DAVID GLENN

In the late 1930s, an ambitious graduate student named Herbert F. Spitzer asked thousands of Iowa sixth graders to read a short article about bamboo — an article he later described as "highly factual, authentic, of the proper difficulty, and similar in type to the material that children read in their regular school work."

He divided the students into 10 groups and gave them long multiple-choice quizzes ("What usually happens to a bamboo plant after the flowering period?") at varying intervals. One group, for example, was quizzed immediately after reading the article, then again the next day, and then a final time three weeks later. Another group was quizzed only once, three weeks after reading the article. The students did not know when they would be quizzed, and they did not keep the article, so they had no chance to study on their own.

The results were striking: On tests three or nine weeks later, students performed far better if they had previously been quizzed within 24 hours after first reading the article. When Mr. Spitzer wrote up his work in the *Journal of Educational Psychology* in 1939, he made a recommendation that might have made millions of students — and their teachers — groan: "Immediate recall in the form of a test is an effective method of aiding the retention of learning and should, therefore, be employed more frequently in the elementary school."

Suggestions like Mr. Spitzer's have been made for many decades, but they have never gained much traction. Now, however, a high-profile group of memory researchers at Washington University in St. Louis is working to rekindle interest in the "testing effect," as it is known. If teachers want to maximize their students' long-term learning, these scholars say, they should quiz them during every class session. And that emphatically includes college classes.

The purpose of this quizzing is not to motivate students to pay attention and to study more; if those things happen, the researchers say, they are nice side effects. The real point is that quizzing, if done correctly, is a uniquely powerful method for implanting facts in students' memory.

"In education today, people tend to think of tests as dipstick devices," says Henry L. (Roddy) Roediger III, a professor of psychology at Washington. "You stick it in to measure what people know. But every time you test someone, you *change* what they know."

With the help of a large federal grant, Mr. Roediger and his colleagues are scrutinizing the testing effect

at a middle school in Illinois and in college classrooms at the University of New Mexico. They want to provide practical guidance for educators, and they also hope to shed light on several longstanding questions about how memory operates.

Making an Effort

The basic premise of the testing effect is easy to grasp. Just take the advice that your overbearing 10th-grade French teacher gave — "If you really want to learn the language, stop staring at your textbook and have a conversation in French" — and apply it to every domain of learning.

When a novice student strains to apply her fledgling knowledge of French in a conversation, she engages in what scholars of memory call "effortful retrieval," a process that sharply improves long-term retention of unfamiliar knowledge. But the power of effortful retrieval extends far beyond language learning: A student who has just read a complex article full of unfamiliar facts about 17th-century Poland will retain that information much better if he is quizzed — thus forcing him to retrieve the data from memory — than if he simply rereads the article two or three times.

"The testing effect cuts against the lay understanding of memory," says Jeffrey D. Karpicke, who recently completed a doctorate at Washington University and will become an assistant professor of psychology at Purdue University this fall. "People usually imagine memory as a storage space, as a space where we put things, as if they were books in a library. But the act of retrieval is not neutral. It affects the system."

In a long series of recent studies, Mr. Roediger and his colleagues have examined the testing effect from several different angles: Is it better to use short-answer quizzes or multiple choice? Is it crucial to give students immediate feedback on their quiz performance? Does quizzing improve students' long-term learning of related material?

Andrew C. Butler, a graduate student at Washington, recently designed an experiment in which students watched videotaped lectures on consecutive days about three Impressionist artists: Berthe Morisot, Pierre-Auguste Renoir, and Edgar Degas. (None of the participating students had taken art-history classes, so this was unfamiliar territory.) Immediately after each lecture, a computer screen would train the students in one of three ways: by displaying facts from the lecture, which the students would simply read; by giving the students a multiple-choice quiz; or by giving them a short-answer quiz.

The students were randomly assigned into various sequences, and they all experienced each study method exactly once. For example, a student might see the Renoir lecture on Day 1 and take a short-answer quiz, see the Morisot lecture on Day 2 and simply read the facts, and see the Degas lecture on Day 3 and take a multiple-choice quiz. Another student might see the Morisot lecture on Day 1 and take a quiz, and so on; there were 27 different pathways in all.

A month later, the students were brought back to take a 90-item short-answer test that covered all three artists. This final test included some facts that the students had not reviewed at all. On those items, the students answered only 20 percent correct, on average. On the items that had been studied through rereading or through multiple-choice quizzes, the students averaged 36 percent correct. And on the items that had been studied through short-answer quizzes, the students averaged 47 percent correct.

For Mr. Butler, the implications are clear: Instructors should take a few minutes to give quizzes, preferably in short-answer format, at the beginning or end of each class session. "A lot of educators don't make the connection between their teaching tasks and their evaluation tasks," he says.

When given regular quizzes, Mr. Butler says, students are forced to retrieve facts from memory repeatedly, and they develop much deeper fluency in the material. Instructors might consider it a nuisance to construct and grade the quizzes, he says, but it's far worse to allow students to go 12 weeks between hearing a lecture and coughing up facts on a final exam. Students who wait to cram for a final exam rarely retain the material over the long term, even if they perform reasonably well on the final, Mr. Butler says.

"The way that we typically do things in education," Mr. Butler says, "seems almost reverse-engineered to produce the least possible learning."

Testing Effects

Tightly constructed experiments like Mr. Butler's are one thing. But Mr. Roediger and his colleagues are also looking at the testing effect in real-world classrooms.

A $3-million, five-year grant from the Institute of Education Sciences, an arm of the U.S. Education Department, supports the team's research on social-studies and English classes at a middle school in Columbia, Ill., not far from St. Louis, and in Psychology 101 classes at the University of New Mexico at Albuquerque.

At the middle school, the Washington University researchers have worked with teachers to identify roughly 30 key facts in each of the students' textbook chapters. For half of those facts, the students are given daily quizzes, which the students answer using handheld "clicker" devices manufactured by eInstruction Corporation. The devices allow the students to receive instant feedback on their answers. On the final tests at the end of each unit, the students demonstrate significantly better recall of the quizzed facts than the unquizzed facts.

"We've produced a nice testing effect at Columbia Middle School," says Kathleen B. McDermott, an associate professor of psychology at Washington University. "You can see it very clearly in the data. What we want to do next year is to go back and say, Well, of all of the things that we did, what's crucial? What if they don't get that immediate feedback?" she asks. "What if we don't give them a prequiz at the beginning of the unit, to show them what they don't know?" Tweaking the procedure, Ms. McDermott says, should help to illuminate how the testing effect operates.

At New Mexico, Gordon K. Hodge, an associate professor of psychology, is experimenting with the testing effect in his large introductory courses. Every other week, he requires his students to take daily online quizzes on their own time, as homework. The federally financed study will compare his students' end-of-semester retention of facts from the quizzes with their retention of facts they learned during the nonquiz weeks.

"Several years ago, our dean identified Psychology 101 as a 'killer course,'" Mr. Hodge says. "Some administrators were very concerned about how many students were failing. But we in the department didn't want to mend the problem by just making things easier. So we started to look for ways to help students improve their learning."

Contrary to the general wisdom of testing-effect research, Mr. Hodge's online quizzes are in multiple-choice rather than short-answer format. Creating and scoring short-answer quizzes for such large classes would be too difficult and time-consuming for the instructor, says Mark A. McDaniel, a professor of psychology at Washington who is working closely with Mr. Hodge on the project. "Maybe we're not that far away from the day when computers can score short-answer tests," Mr. McDaniel says,

"but we're not there yet."

At Washington University, Ms. McDermott gives four-question short-answer quizzes at the end of every meeting of her 300-level course on human learning and memory. These classes tend to be small — around 20 students — so it is easy to give quizzes at every meeting, she says.

"Sometimes colleagues here will ask me about the quizzes," Ms. McDermott says, "and I'll explain to them why I do this. The hard part is standing firm when you announce it at the beginning of the course, and dealing with the resistance. But students are always going to complain about something in your course. It might as well be quizzes."

By the end of the semester, Ms. McDermott says, most students have come to appreciate the role the quizzes play in helping them absorb the course material.

Too Narrow?

Ms. McDermott says she tries to persuade her colleagues that writing and grading daily quizzes is really not so bad. But her colleagues sometimes come back with another objection: Don't these quizzes encourage students to concentrate on narrow, isolated facts, as opposed to the broader concepts and themes at the heart of the course?

Researchers still have a good deal to learn about that question, Ms. McDermott says, but they are starting to believe that frequent quizzing actually helps students absorb a broad range of material not directly included in the quizzes. Jason C.K. Chan, a newly minted Ph.D. at Washington who will become an assistant professor of psychology at Iowa State University this fall, recently designed experiments that seem to demonstrate this. "In the process of retrieving Fact A," Ms. McDermott says, "if it takes you a minute to get there, you think, Hmm — what did I learn about this general topic? So in a sense, you're also retrieving Fact B and Fact C, even though that's not what you were directly asked to do."

Mr. Roediger, meanwhile, hopes that teachers and college instructors will take Mr. Spitzer's 68-year-old advice seriously, but he knows that it will be an uphill battle. "What I hear from teachers is, Quizzes would take time away from good learning activities," Mr. Roediger says. "But my point is, this is the best thing that you could be doing if you want them to learn. Give them a quiz, and give them feedback on that quiz."

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Benchmark Research Study Conducted Fall 2008

Mid-Year Retention Indicators Report

Findings From the First Noel-Levitz Survey of Retention Indicators for Four-Year and Two-Year Institutions

- ✓ **Credit Hours Completed Vs. Attempted**
- ✓ **Term-to-Term Persistence Rates for First-Year, Second-Year, and Conditionally Admitted Undergraduates**

Because measuring retention and graduation rates frequently takes years to accomplish, this report from Noel-Levitz offers two mid-year measurements of students' progress toward completing a degree: the ratio of credit hours completed to attempted; and persistence from the first to the second term.

Using these benchmarks, it is now possible to compare the term-to-term persistence rates of first-year, second-year, and conditionally-admitted undergraduates with those of like institutions on the official census day of term two. In addition, institutions can use the benchmarks of credit hours completed to attempted at the end of the first term for an even earlier indicator of likely retention outcomes.

Importantly, **you can use this study's benchmarks as much needed early predictors of retention and eventual graduation rates.** Additionally, you can use the benchmarks to monitor institutional performance, to see how your institution compares with like institutions, and to set realistic goals for improvements. For guidance on using the benchmarks and on strengthening your institution's measurements of retention indicators, please see the concluding recommendations on page 5.

Noel-Levitz anticipates repeating this study every two years to continue to provide early outcomes and to establish outcomes trends in these critical areas.

Questions about this report may be directed to Tim Culver, Noel-Levitz vice president, at tim-culver@noellevitz.com or by calling 1-800-876-1117.

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Credit-hour completion rates: How did yours compare at the end of the first and second terms?

This study began by benchmarking the ratio of the number of credit hours completed to the number of credit hours attempted. Most institutions keep track of this ratio for individual students as a partial measure of the "satisfactory academic progress" required for continued financial aid eligibility. This report extends the ratio to entire freshman classes in individual institutions.

Table 1: Credit Hours Attempted Vs. Credit Hours Completed—First-Year Undergraduates, 2007-2008 Academic Year

Baseline Benchmarks/ Statistical Means:	Four-Year Public Institutions		Four-Year Private Institutions		Two-Year Public Institutions	
	Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
Average credit hours attempted	14.4	14.3	14.9	14.8	13.8	13.2
Average credit hours completed	12.2	12.6	13.6	13.6	10.5	9.9
Ratio of hours completed to attempted	**84.7%**	**88.1%**	**91.3%**	**91.9%**	**76.1%**	**75.0%**

All benchmarks in this study are based on cohorts of entering, first-time, full-time-in-college, degree-seeking freshmen. Note that the average attempted credit hours above are based on the official record of credit hours attempted as of the official census day for each term.

As shown in Table 1 above, **the ratio of credit hours attempted to completed varied considerably by institution type**, with four-year private institutions reporting the highest ratio of 91.9 percent during the second term of the 2007-2008 academic year and two-year public institutions reporting the lowest ratio of 75.0 percent, also during the second term.

Variances in credit-hour completion ratios were also evident from term to term. As shown above, four-year public and private institutions both saw slightly higher ratios in the second term, while two-year public institutions saw a slight decline.

This report is based on a survey conducted by Noel-Levitz in October and November of 2008. For a list of responding institutions, please see page 6.

Use this report at mid-year to see how your campus stacks up with like institutions in areas such as:

- **Persistence of first-year students from their first term to their second term, based on 2007-2008 outcomes**
- **Ratio of average-credits-completed to average-credits-attempted**
- **Persistence of second-year students and conditionally-admitted students**

Why measuring retention and graduation rates isn't enough

Timely student data collected at mid-year and earlier can equip educators to better understand institutional performance and to better identify and address student needs. Instead of waiting for the traditional *lagging* indicators known as retention and graduation rates, which require significant time to pass between measurements, Noel-Levitz encourages the use of *leading* indicators to combat attrition. For an in-depth discussion of retention indicators, please download our white paper, *A New Way to Measure Student Success*, at **www.noellevitz.com/studentsuccessfunnel**.

Term-to-term persistence: How did your persistence rates compare?

For additional early indicators of retention, this study compared enrollment on the official census day of the first term of the 2007-2008 academic year to: 1) enrollment on the official census day of the second term of the 2007-2008 academic year; and 2) to enrollment on the official census day of the first term of the 2008-2009 academic year.

Table 2: Persistence and Retention Rates of First-Year and Second-Year Undergraduates

	Four-Year Public Institutions			Four-Year Private Institutions			Two-Year Public Institutions
Baseline Benchmarks/ Statistical Means:	**All**	Institutions With Lowest Selectivity*	Institutions With Highest Selectivity*	**All**	Institutions With Lowest Selectivity*	Institutions With Highest Selectivity*	**All**
Persistence Rates From Term 1 to Term 2 of 2007-2008 Academic Year							
First-year undergraduates	**88.1%**	82.3%	92.0%	**89.0%**	83.5%	95.1%	**71.3%**
Second-year undergraduates	**92.7%**	90.3%	93.6%	**93.7%**	91.4%	96.5%	**76.2%**
Retention Rates From Term 1 of 2007-2008 Academic Year to Term 1 of 2008-2009 Academic Year							
First-year undergraduates	**78.1%**	77.3%	81.7%	**82.4%**	78.9%	87.2%	**55.8%**
Second-year undergraduates	**82.9%**	82.9%	85.9%	**84.9%**	82.1%	91.2%	**NA**

All benchmarks above are based on enrollments as of the official census day of each term.

* Breakdowns by selectivity are reported in Table 2 for four-year public and private institutions to explain large variations we observed within these sectors in the first-to-second-term persistence rates for first-year students. For each of these sectors, we found the first-to-second-term persistence rates for first-year students to be highly correlated with selectivity. The first-to-second-term persistence rates for second-year students were also correlated with selectivity but to a lesser extent. We defined selectivity using the sample distribution of the composite ACT score of freshman students. Colleges with ACT composite scores (or the equivalent in SAT using a concordance table from the College Board) in the sample fourth quartile were considered highly selective and those in the first quartile were considered less selective.

Term-to-term persistence benchmarks within a given academic year are natural predictors of year-to-year retention rates for a cohort of students. As such, these benchmarks serve as early indicators of attrition, facilitating intervention.

As shown in the first section of Table 2 above, **first-year students persisted from the first to the second term at lower rates than their second-year counterparts** regardless of institution type. For example, at four-year public institutions, 88.1 percent of first-year undergraduates who were enrolled on the official census day of the first term continued to be enrolled on the official census day of the second term, compared with 92.7 percent of second-year undergraduates. This pattern held true regardless of selectivity at four-year public and private institutions.

The second section of Table 2 above shows the first-to-second year retention rates at four-year public (78.1%), four-year private (82.4%) and two-year public institutions (55.8%). **The retention rates are generally consistent with comparable rates published by ACT.** The retention rate for two-year public institutions is very similar to the 53.7 percent rate

reported in the ACT publication, *National Collegiate Retention and Persistence to Degree Rates* available at: www.noellevitz.com/ACTnorms. In addition, the retention rates for four-year institutions are similar to those published in the ACT report. For example, the four-year public institution rate of 78.1 percent falls between the rates observed by ACT for categories of traditional (71.6%) and selective (81.6%) four-year public institutions. Similarly, the rate for four-year private institutions, 82.4 percent, is marginally above the rate observed by ACT for its category of selective (80.8%) four-year private colleges.

The retention rates in the second section of Table 2 lead to an additional observation: **Attrition was greatest during the first term for both first-year and second-year students.** For example, at four-year public institutions, 11.9 percent of first-year students left by the second term (the inverse of 88.1 percent in Table 2) versus a drop of 10 percent that followed, down from 88.1 percent to 78.1 percent.

The second-to-third-year retention rates shown in Table 2 also offer an additional benchmark not available in other studies. At four-year public institutions, 82.9 percent of second-year students persisted to their third year. At four-year private institutions, 84.9 percent of second-year students persisted to their third year.

Term-to-term persistence of conditionally-admitted students: How did your rates compare?

It's no secret that retaining conditionally admitted students is harder. But with these benchmarks, you know what to expect their persistence to be.

For four-year institutions that used a conditional or provisional admissions category, the final benchmarks included in this report are for the percentages of conditionally admitted new students who continued to be enrolled on the official census day of the second term of the 2007-2008 academic year.

Table 3: Persistence Rates of Conditionally Admitted Students Within the First-Year Undergraduate Cohort, From Term 1 to Term 2, 2007-2008 Academic Year

Baseline Benchmarks/ Statistical Means:	Four-Year Public Institutions	Four-Year Private Institutions	Two-Year Public Institutions
Conditionally admitted first-year undergraduates	82.9%	84.1%	NA

All benchmarks above are based on enrollments as of the official census day of each term.

By comparing the benchmarks in Table 3 above with the earlier benchmarks shown on Table 2 on page 3, it is clear that **conditionally admitted students persisted at lower rates** than their peers who were admitted without conditions. For example, Table 3 shows that 82.9 percent of first-year, conditionally admitted students at four-year public institutions persisted from the first term to the second term, whereas Table 2 shows that the comparable persistence rate for first-year students overall was 88.1 percent.

It should be noted that only approximately one-third of four-year respondents reported figures for conditionally admitted students.

Conclusion and next steps

With the mid-year benchmark indicators in this report, institutions of higher education are now in a position to monitor student retention earlier and more effectively, rather than wait for the lagging indicators of retention and graduation rates to be calculated and reported. Here are several recommendations for using the data in this study:

Compare your data to the data in this report. Place the benchmarks in this report alongside your institution's own trend data to identify strengths and challenges/opportunities, and to keep building more efficient and effective programs for student success and retention. For example, in places where you see that your rate is significantly lower than a given benchmark, you may find that you need to initiate new activities aimed at raising your rate. Or, in cases where you see that your rate is above a given benchmark, you may decide to build on that area as a particular strength of your existing retention program.

Set persistence and course completion rate goals. Note that persistence and course completion rate goals do not replace goals for retention and graduation rates. Rather, these goals are designed to support persistence and progress toward course completion for specific populations such as first-year and second-year students, or for subpopulations within these groups. In Noel-Levitz's experience, goals should also be set for retaining students between terms (based on enrollment on the last day of the first term compared to enrollment on the first day of the second term) during both the first and second year.

Four-year institutions, in particular, must focus on raising course completion and term-to-term persistence rates when their institutions aspire to advancing their four-year graduation/completion rates. Two areas that often require attention for raising course completion rates on four-year campuses are: 1) the need to do a better job of helping students with course selection; and 2) providing the support services necessary to ensure course completion.

Focus on the first term especially. The findings of this study underscore the importance of working at retention during the first term of the first year for first-year students, where the greatest loss of students occurs. Before first-year students withdraw from a course, effective processes, systems, and strategies must be in place to aid students in completing courses. In addition, institutions that are losing students during the first term at higher rates may need to: 1) examine admissions practices to ensure that incoming students are an appropriate match for the institution; and 2) identify proactive, non-punitive ways to support and engage entering students who are less prepared or needing remediation early in the first term. As a general rule, it pays to focus institutional resources on intervening early when the potential for addressing attrition issues is the greatest.

With that said, it is important not to overlook the second term of the first year and the second year. For example, even at four-year public campuses with higher selectivity, where some may assume that students do not require supplemental support such as learning communities or first-year experience courses, much more needs to be done to support freshmen throughout their first year. In addition, all institutions, and especially those with lower selectivity, must engage students during the second year to increase overall enrollments and completion rates.

Forecast retention and graduation rates earlier—and their associated revenues. Using course-completion and persistence rates as a base, we encourage institutions to calculate correlations with retention and graduation rates and to identify their expected retention rates earlier for purposes of institutional planning. For assistance in calculating retention revenue, see our Retention Revenue Estimator at www.noellevitz.com/calculator. An important, additional factor worth considering is the cost and course management complications of re-offering courses to students who do not complete them.

In general, almost every institution could be doing more to increase its course completion rates, term-to-term persistence, and year-to-year retention rates.

Questions? Do these conclusions make sense to you? Please contact Tim Culver, Noel-Levitz vice president, at tim-culver@noellevitz.com or by calling 1-800-876-1117.

For additional suggestions and recommendations, please see the related reports and articles on page 8.

A special *thank you* to those who participated in Noel-Levitz's first Survey of Retention Indicators. Please watch for Noel-Levitz's second Survey of Retention Indicators in the fall of 2010.

Sign up to receive additional reports and information updates by e-mail at www.noellevitz.com/subscribe

Who participated in this study?

In the fall of 2008, Noel-Levitz utilized a Web-based platform to survey non-profit, degree-granting U.S. institutions on retention indicator data from the 2007-2008 academic year and fall 2008 census data. Of the 267 institutions that participated in the poll, 70 were four-year public institutions, 131 were four-year private institutions, and 66 were two-year public institutions.

Responding institutions

Four-year public institutions

Arkansas Tech University
Auburn University Main Campus
Bluefield State College
Bowling Green State University-Main Campus
Central Connecticut State University
Central Michigan University
College of Charleston
Columbus State University
Dakota State University
Eastern Washington University
Emporia State University
Florida International University
Fort Lewis College
Grand Valley State University
Indiana University-East
Indiana University-South Bend
Kansas State University
Kean University
Kent State University-Kent Campus
Lake Superior State University
Louisiana State University-Shreveport
Minnesota State University-Mankato
Morehead State University
Nicholls State University
North Dakota State University-Main Campus
Northern State University
Oakland University
Ohio State University-Main Campus
Prairie View A & M University
Rogers State University
SUNY College at Old Westbury
SUNY College at Oswego
Saginaw Valley State University
Saint Cloud State University
Shippensburg University of Pennsylvania
South Dakota School of Mines and Technology
Southeastern Louisiana University
Southeastern Oklahoma State University
Southern Illinois University Carbondale
Southern Polytechnic State University
Texas Tech University
United States Merchant Marine Academy
University of Akron, The
University of Alabama in Huntsville
University of Alaska Southeast
University of Arkansas Main Campus
University of Baltimore
University of Central Missouri
University of Colorado Denver
University of Guam
University of Hawaii at Hilo
University of Hawaii-West Oahu
University of Maine at Presque Isle
University of Memphis
University of Missouri-St Louis
University of Montana, The
University of Nebraska at Kearney
University of Nebraska at Omaha
University of North Carolina at Pembroke
University of North Florida
University of North Texas
University of South Carolina
University of Southern Mississippi
University of Tennessee at Chattanooga, The
University of Tennessee-Martin, The
The University of Texas at Dallas, The
The University of Texas-Pan American, The
University of West Georgia
University of Wisconsin-Green Bay
Wayne State College
Westfield State College

Four-year private institutions

Albertus Magnus College
Alfred University
Alvernia University
Anna Maria College
Ashland University
Assumption College
Aurora University
Bellevue University
Beloit College
Bethune-Cookman University
BryanLGH College of Health Sciences
Burlington College
Butler University
Calvin College
Campbell University
Canisius College
Centenary College of Louisiana
Chatham University
Clarke College
Clear Creek Baptist Bible College
Coe College
College of Idaho, The
College of Saint Scholastica, The
Colorado Christian University
Columbia International University
Cornerstone University
Creighton University
Delaware Valley College
Dominican University of California
Drew University
East Texas Baptist University
Eastern Mennonite University
Eckerd College
Emmanuel College (Georgia)
Emmanuel College (Massachusetts)
Florida Southern College
Free Will Baptist Bible College
Freed-Hardeman University
Gallaudet University
George Fox University
Georgetown College
Grace Bible College
Hannibal-Lagrange College
Harding University
Hope International University
Houston Baptist University
Illinois College
Indiana Wesleyan University
Inter American University of Puerto Rico-San German
Jacksonville University
Jamestown College
Jarvis Christian College
Jefferson College of Health Sciences
Kentucky Wesleyan College
Lee University
Liberty University
Linfield College
Loyola Marymount University
Malone University
Marist College
Marymount Manhattan College
Massachusetts College of Pharmacy & Health Science
Menlo College
MidAmerica Nazarene University
Millikin University
Millsaps College
Milwaukee Institute of Art Design
Milwaukee School of Engineering
Mount Mary College
Mount St Mary's University
Mount Union College
Mount Vernon Nazarene University
Newberry College
Niagara University

Northwestern College (Iowa)
Oak Hills Christian College
Oklahoma Christian University
Oral Roberts University
Ottawa University
Ouachita Baptist University
Our Lady of the Lake University-San Antonio
Penn View Bible Institute
Philadelphia Biblical University
Philadelphia University
Pikeville College
Point Park University
Rochester Institute of Technology
Sacred Heart University
Saint Ambrose University
Saint Francis Medical Center College of Nursing
Saint John Fisher College
Saint Louis University
Saint Mary's College
Saint Thomas Aquinas College
Saint Thomas University
Salve Regina University
Seattle University
Shorter College
Siena College
Silver Lake College
Simpson University
Southeastern University (Florida)
Southern Virginia University
Southwestern University
Spring Arbor University
Stonehill College
Suffolk University
Sweet Briar College
Texas Lutheran University
Thomas More College
Trinity College of Florida
University of Bridgeport
University of Charleston
University of Dayton
University of New England
University of St. Francis
University of the Pacific
Valparaiso University
Vanderbilt University
Villa Maria College
Virginia Wesleyan College
Walsh University
Warner University
Wartburg College
Washington Baptist University
Wayland Baptist University
Webber International University
Webster University
Westminster College
Widener University-Main Campus
Wilkes University

Two-year public institutions

Arizona Western College
Barton County Community College
Bay de Noc Community College
Big Sandy Community and Technical College
Black Hawk College
Blackhawk Technical College
Casper College
Centralia College
Century Community and Technical College
Cincinnati State Technical and Community College
Clark State Community College
Columbia-Greene Community College
Cowley County Community College
Craven Community College
Delaware County Community College
Delgado Community College
East Central College
Eastern Arizona College
Eastfield College
Edison State Community College
El Centro College
Elgin Community College
Fort Scott Community College
Gateway Community and Technical College
Gwinnett Technical College
Heartland Community College
Highland Community College (Illinois)
Hopkinsville Community College
Howard Community College
Illinois Valley Community College
Indian Hills Community College
Jackson Community College
Jamestown Community College
Jefferson Community College (New York)
Kilian Community College
Kirkwood Community College
Landmark College
Lane Community College
Lower Columbia College
Mississippi Gulf Coast Community College
Moberly Area Community College
Moraine Valley Community College
Mt. San Jacinto Community College District
New Mexico State University-Carlsbad
Niagara County Community College
North Lake College
Northwest Arkansas Community College
Northampton Community College
Northwestern Technical College
Nunez Community College
Orange Coast College
Owens State Community College
Pearl River Community College
Richland Community College
Seward County Community College
South Louisiana Community College
Southwest Georgia Technical College
Southwestern Illinois College
Spartanburg Community College
Three Rivers Community College (Connecticut)
Umpqua Community College
Victoria College
Walla Walla Community College
West Kentucky Community and Technical College
Western Nevada College
York Technical College

Noel-Levitz
Iowa
Colorado

Contact us at:
2350 Oakdale Boulevard
Coralville, Iowa 52241-9702

Phone:
800-876-1117
319-626-8380

E-mail:
ContactUs@noellevitz.com

Web:
www.noellevitz.com

Please watch for Noel-Levitz's next Survey of Retention Indicators in the fall 2010.

Questions? Was this report helpful?

We hope you found this report to be helpful and informative. If you have questions or would like more information about the findings, please contact Noel-Levitz at **1-800-876-1117** or **ContactUs@noellevitz.com**.

Related reports, articles, and presentations

Measuring student retention indicators more precisely has been a significant focus of recent Noel-Levitz presentations, articles, and papers. You may download the following resources without charge from www.noellevitz.com for additional insights and recommendations. Also, consider attending an upcoming event listed at www.noellevitz.com/events.

White Paper–A New Way to Measure Student Success
www.noellevitz.com/studentsuccessfunnel
Read why comparing annual retention rates and graduation rates isn't enough—learn about a new paradigm for monitoring student success: the "continuing student funnel."

Inside Enrollment Management Web columns
www.noellevitz.com/IEM
See especially the March 2008 and July 2007 columns on approaches to measuring student success and setting realistic goals.

Retention Revenue Estimator
www.noellevitz.com/calculator
Use our Retention Revenue Estimator to quickly calculate the estimated revenue you can gain by increasing student retention. This estimator is specific to two-year, four-year, and proprietary institutions.

National Collegiate Retention and Persistence to Degree Rates www.noellevitz.com/ACTnorms This is a good starting point for benchmarking year-to-year retention.

About Noel-Levitz and its benchmark reports

A trusted partner to higher education, Noel-Levitz specializes in strategic planning for enrollment and student success. We work side by side with campus executive teams to facilitate planning and to help implement the resulting plans.

Each year, we conduct nationwide polls and surveys to establish comparative, up-to-date benchmarks that assist campuses with strengthening their enrollment management programs. This includes reporting on student success and admissions practices, monitoring student and campus usage of the Web and electronic communications, and benchmarking institutional budgets, policies, and indicators that influence enrollment outcomes.

There is no charge or obligation for participating in our polls and responses to individual survey items are strictly confidential. Participants have the advantage of receiving the findings first, as soon as they become available.

Receive more reports. Visit our Web page:
www.noellevitz.com/subscribe

P001
0109

ADVISING

Advising Case Study

- According to University records, XXXXX initially enrolled fall semester 2004. His major at the time of admission was YYYYY.
- Based on math placement scores, XXXXX had to start with Math 101, rather than Math 184, Calculus 1, as listed for YYYYY majors.
- 04/1 Math 101 Grade – F
- 04/2 Math 101 Grade – Course dropped by student.
- On 5-23-05, XXXXX changed his major to ZZZZZ.
- For fall 2005 semester, 05/1, XXXXX received a grade of F in Math 151.
- For 05/2, XXXXX signed up for Math 153 and dropped the course. He added Math 151, dropped Math 151, and added it again under a different section for 05/2.
- XXXXX's semester grade for Math 151 was D.
- XXXXX signed up for Math 153 for 06/1 and dropped the course to repeat Math 151. His semester grade was C.
- For 06/2, XXXXX registered for Math 153 and dropped the course. He re-registered under a different section for Math 153 and received a grade of F.
- Fall semester 2007, XXXXX registered for Math 184, Calculus. He dropped the course, and registered to repeat Math 153. He dropped Math 153, and re-registered under a different section, receiving a grade of F.
- XXXXX registered for Math 153 again for 07/2, and received a grade of C-.
- Fall 2008, XXXXX registered for Math 184, and received a grade of F.
- He registered for Math 251 for 08/2, and later dropped the course.
- XXXXX is currently enrolled in Math 184, Calculus.

Questions

1. What errors were made?
2. What is the responsibility of the student in this scenario?
3. What about the advisor?
4. How could this situation have been improved?

Retention and Advising Facts[1]

1. Retention is a big problem
   - 25% attrition at four year universities, 50% at two year universities
   - Non-retained students cause substantial loss of revenue

2. Retention is more cost effective to address than recruitment
   - The cost to retain a student is as little as 20% of the cost of recruiting a new student
   - To improve the bottom line, it's easier to focus on retention

3. Advising programs that structure, recruit, train and incentivize outstanding advisors have greater success rates than those that are simply voluntary
   - Good advising improves retention by 25% over "poor advising" and 40% over no advising
   - Contact with faculty outside the classroom is the largest determinant of student satisfaction with their institution

4. Recommendations
   - Provide strong incentives and rewards for advisors to engage in high-quality advising
   - Strengthen advisor orientation, training, and development, and deliver them as essential components of the institution's faculty/staff development program
   - Faculty are probably least prepared when it comes to academic advising; this can be solved by professional development programs before they begin teaching
   - Assess and evaluate the quality of academic advisement
   - Maintain advisee-to-advisor ratios that are small enough to enable the delivery of personalized advising
   - Provide strong incentives for students to meet regularly with their advisors
   - Identify highly effective advisors and "front load" them—i.e., position them at the front (start) of the college experience to work with first-year students, particularly first-year students who may be "at risk" for retention
   - Include advising effectiveness as one criterion for recruiting and selecting new faculty

References

1) Cuseo, Joseph. Fiscal Benefits of Student Retention and First-Year Retention Initiatives, http://www.bioscience.heacademy.ac.uk/ftp/transition/retention%20fiscal%20benefits.pdf

2) Cuseo, Joseph. Academic Advisement and Student Retention: Empirical Connections & System Interventions, http://www.nacada.ksu.edu/Clearinghouse/advisingIssues/retain.htm

[1] http://www.edumorphology.com/2008/10/academic-advising-and-student-retention-summary-of-two-papers-by-joe-cuseo/

Student Advising for Retention

Sheila A. Ward, Ph.D., MPH
Associate Professor, Department of Health, Physical Education and Exercise Science

NSU Faculty Development Retreat
May 13, 2009

Overview

- Participate in an orderly progression through curriculum
- Integrate personal, social, and extracurricular activities successfully with academic college life
- Discuss strategies and available resources that academic advisors may utilize

Questions

- How many students do you currently advise?
  - Hint: You are listed as the advisor on student's EVAL
- Is your current advisee list updated?
  - Who updated your list?
  - Have you removed graduated students from your list?
- How often are you in contact with your advisees?
  - Type: phone, email, face-to-face, other
- Does your department/school have a standard procedure for changing advisors?
  - Does everyone follow this procedure?
- Does your department/school have a standard procedure for advising a student that is not your advisee?
  - Does everyone follow this procedure?

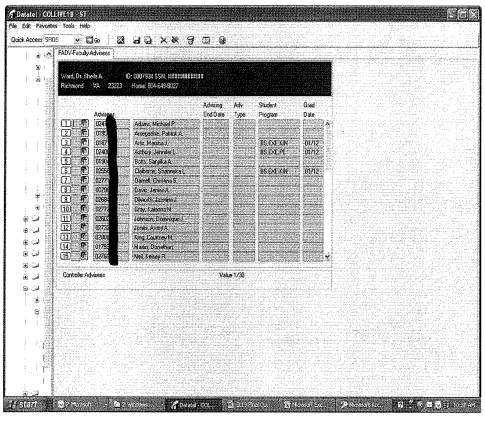
Advising for Retention

- Personal Responsibility
- Facilitator

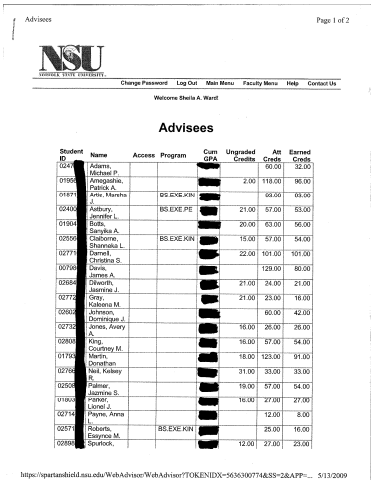
Names of Advisees

- Know the names of your advisees
  - Yearly update
    - FADV in DATATEL and SpartanShield Advisee List
  - Add/Delete
- Maintain an updated completed list
  - Change of curriculum

DATATEL---FADV List



SpartanShield Advisee List



Advisees Page 1 of 2

NSU

Change Password Log Out Main Menu Faculty Menu Help Contact Us

Welcome Sheila A. Ward!

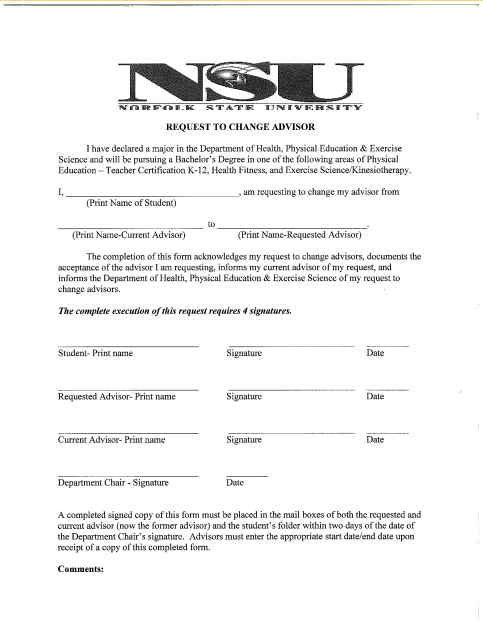
Advisees

Student ID	Name	Access	Program	Cum GPA	Ungraded Credits	Att Creds	Earned Creds
024	Adams, Michael P.					60.00	32.00
0192	Amegashie, Patrick A.				2.00	118.00	96.00
01871	Arlv, Mansha		BS.EXE.KIN			69.00	69.00
02402	Asbury, Jennifer L.		BS.EXE.PE		21.00	57.00	63.00
01904	Butts, Starylka A.				20.00	63.00	56.00
02556	Claborne, Shannisha L.		BS.EXE.KIN		15.00	57.00	54.00
02771	Darnell, Christina S.				22.00	101.00	101.00
00704	Davis, James A.					129.00	80.00
02684	Dilworth, Jasmine J.				21.00	24.00	21.00
02772	Gray, Kaleena M.				21.00	23.00	16.00
02602	Johnson, Dominique J.					60.00	42.00
02732	Jones, Avary A.				16.00	26.00	26.00
02803	King, Courtney M.				16.00	57.00	54.00
01793	Martin, Donathan				18.00	123.00	91.00
02764	Neil, Kelsey R.				31.00	33.00	33.00
02508	Palmer, Jazmine S.				19.00	57.00	54.00
01952	Palmer, Lionel J.				16.00	27.00	27.00
02714	Payne, Anna L.					12.00	8.00
02571	Roberts, Easynce M.		BS.EXE.KIN			25.00	16.00
02689	Spurlock,				12.00	27.00	23.00

https://spartanshield.nsu.edu/WebAdvisor/WebAdvisor?TOKENIDX=5636300774&SS=2&APP=... 5/13/2009

DO NOT Advise a student that is NOT on your advisee list

- Send student to assigned advisor
- Student must go through departmental process for 'changing advisors.'
- The responsibility of getting this form completed and turned in to the department is the student's, not the advisor's
- Action official when form with all 4 signatures and dates is placed in advisors boxes----appropriate advisor must add (start date)/delete (end date) student



NORFOLK STATE UNIVERSITY

REQUEST TO CHANGE ADVISOR

I have declared a major in the Department of Health, Physical Education & Exercise Science and will be pursuing a Bachelor's Degree in one of the following areas of Physical Education – Teacher Certification K-12, Health Fitness, and Exercise Science/Kinesiotherapy.

I, _____, am requesting to change my advisor from
(Print Name of Student)

_____ to _____.
(Print Name-Current Advisor) (Print Name-Requested Advisor)

The completion of this form acknowledges my request to change advisors, documents the acceptance of the advisor I am requesting, informs my current advisor of my request, and informs the Department of Health, Physical Education & Exercise Science of my request to change advisors.

The complete execution of this request requires 4 signatures.

_____	_____	_____
Student- Print name	Signature	Date
_____	_____	_____
Requested Advisor- Print name	Signature	Date
_____	_____	_____
Current Advisor- Print name	Signature	Date
_____	_____	
Department Chair - Signature	Date	

A completed signed copy of this form must be placed in the mail boxes of both the requested and current advisor (now the former advisor) and the student's folder within two days of the date of the Department Chair's signature. Advisors must enter the appropriate start date/end date upon receipt of a copy of this completed form.

Comments:

Additional Precautions

- Do not register an undeclared student
  - complete change of major form
  - send to university advisor for undeclared students
- Advising newly assigned students
  - enter them on your FADV list
  - be sure to enter a start date

Establish Contact with Advisees

- Contact Advisees
  - listserv
  - email—students required to check daily
    - Introduction letter
  - Additional suggested contacts
    - after midterm grades; registration reminder

Welcome Both Returning Students and New Students!

Hello 2008-2009 Advisees,

This is Dr. Ward and I am your academic advisor in the Department of Health, Physical Education, and Exercise Science. As your academic advisor, I will guide you through the scheduling of your classes, register you each semester, and monitor your academic progress at Norfolk State University to ensure a productive and satisfying college experience and timely graduation. Additionally, I will be able to direct you to resources regarding other issues that may impact your academic progress and/or quality of life.

If you are seeing someone else for academic advisement, please come in and meet with me regarding a newly established departmental policy. I will contact you throughout the semester to check on your progress. Please stop by and introduce yourself if you are a new advisee or just to say hello if you are a returning advisee. Feel free to contact me by phone, email, or in-person during the school year.

Below is my contact information:
Dr. Ward, Ph.D., MPH
Associate Professor
Echols Hall, Rm. 167
Phone: 757.823.8459
Email: sward@nsu.edu

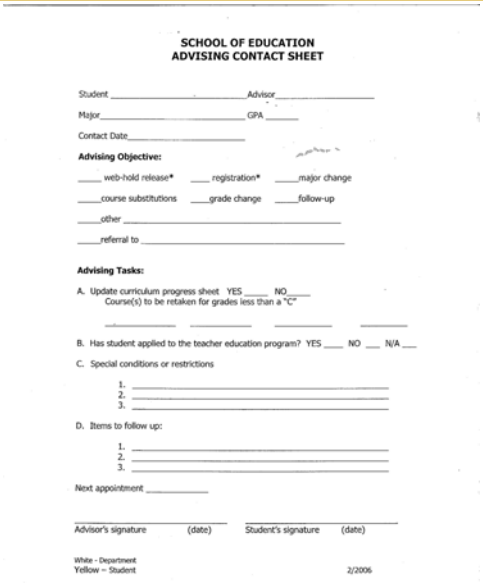
Please go on-line to check your mid-term grades. If you have a grade of ***C-*** or lower in any of your classes, please stop by my office as soon as possible. I look forward to working with you during your tenure at Norfolk State University.

Take Care,

Dr. Ward
Associate Professor

Initial Meeting/Registration

- Beware of the “WEBNO” release
  - Have students register in person; esp. if you don’t them or their issues
- Initial Meeting
  - Talk to your advisee
    - why did they choose this university, major
    - Are there any scheduling considerations?
    - Where do you see yourself in 5 years with this degree?
- Document contact with advisees



SCHOOL OF EDUCATION
ADVISING CONTACT SHEET

Student _____ Advisor_____

Major_____ GPA _____

Contact Date_____

Advising Objective:

____ web-hold release* ____ registration* ____major change

____course substitutions ____grade change ____follow-up

____other _____

____referral to _____

Advising Tasks:

A. Update curriculum progress sheet YES____ NO____
Course(s) to be retaken for grades less than a "C"

_____ _____ _____ _____

B. Has student applied to the teacher education program? YES____ NO ___ N/A ___

C. Special conditions or restrictions

1. _____
2. _____
3. _____

D. Items to follow up:

1. _____
2. _____
3. _____

Next appointment _____

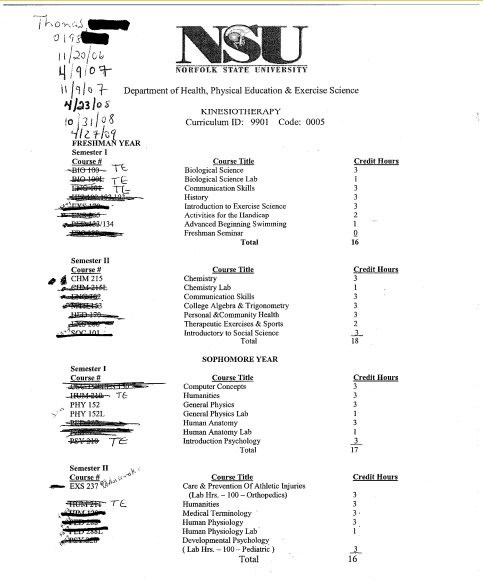
_____ _____
Advisor's signature (date) Student's signature (date)

White - Department
Yellow – Student

2/2006

Course selection, sequence, & scheduling

- Scheduling--ongoing
  - How is the semester going?
  - Check **EVAL**---previous semester classes
  - Check midterm grades
  - Follow the recommended sequence of courses
    - prerequisites have a purpose
  - Manual tracking is OK!



NSU
NORFOLK STATE UNIVERSITY

Department of Health, Physical Education & Exercise Science

KINESIOTHERAPY
Curriculum ID: 9901 Code: 0005

FRESHMAN YEAR

Semester I

Course #	Course Title	Credit Hours
BIO 100	Biological Science	3
BIO 100L	Biological Science Lab	1
[illegible]	Communication Skills	3
[illegible]	History	3
[illegible]	Introduction to Exercise Science	3
[illegible]	Activities for the Handicap	2
[illegible]	Advanced Beginning Swimming	1
[illegible]	Freshman Seminar	0
	Total	16

Semester II

Course #	Course Title	Credit Hours
CHM 215	Chemistry	3
[illegible]	Chemistry Lab	1
[illegible]	Communication Skills	3
[illegible]	College Algebra & Trigonometry	3
[illegible]	Personal &Community Health	3
[illegible]	Therapeutic Exercises & Sports	2
SOC 101	Introductory to Social Science	3
	Total	18

SOPHOMORE YEAR

Semester I

Course #	Course Title	Credit Hours
[illegible]	Computer Concepts	3
[illegible]	Humanities	3
PHY 152	General Physics	3
PHY 152L	General Physics Lab	1
[illegible]	Human Anatomy	3
[illegible]	Human Anatomy Lab	1
PSY 210	Introduction Psychology	3
	Total	17

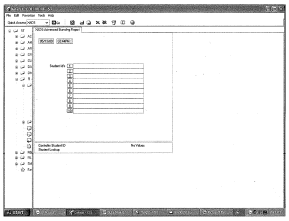
Semester II

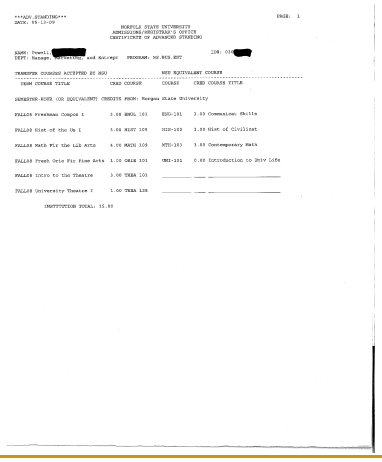
Course #	Course Title	Credit Hours
EXS 237	Care & Prevention Of Athletic Injuries (Lab Hrs. – 100 – Orthopedics)	3
[illegible]	Humanities	3
[illegible]	Medical Terminology	3
[illegible]	Human Physiology	3
[illegible]	Human Physiology Lab	1
[illegible]	Developmental Psychology (Lab Hrs. – 100 – Pediatric)	3
	Total	16

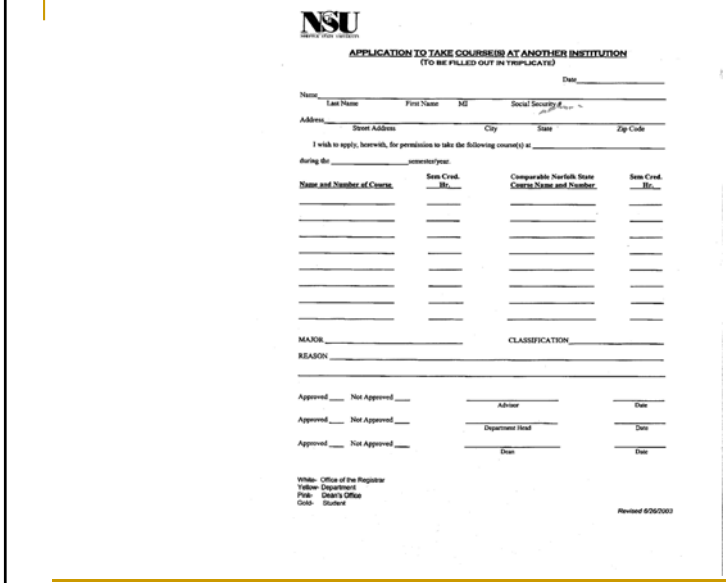
Other ISSUES

- Transfer Students
  - Certificate of Advanced Standing
- Taking classes at other institutions
  - Application to Take Course(s) at Another Institution
- Other forms
  - Substitution Approval Form
  - Academic Intervention Measures (AIM)--ACCESS

Advanced Standing







NSU

APPLICATION TO TAKE COURSE(S) AT ANOTHER INSTITUTION
(TO BE FILLED OUT IN TRIPLICATE)

Date_____

Name_____
Last Name First Name MI Social Security #

Address_____
Street Address City State Zip Code

I wish to apply, herewith, for permission to take the following course(s) at _____

during the _____semester/year.

Name and Number of Course	Sem Cred. Hr.	Comparable Norfolk State Course Name and Number	Sem Cred. Hr.

MAJOR_____ CLASSIFICATION_____

REASON_____

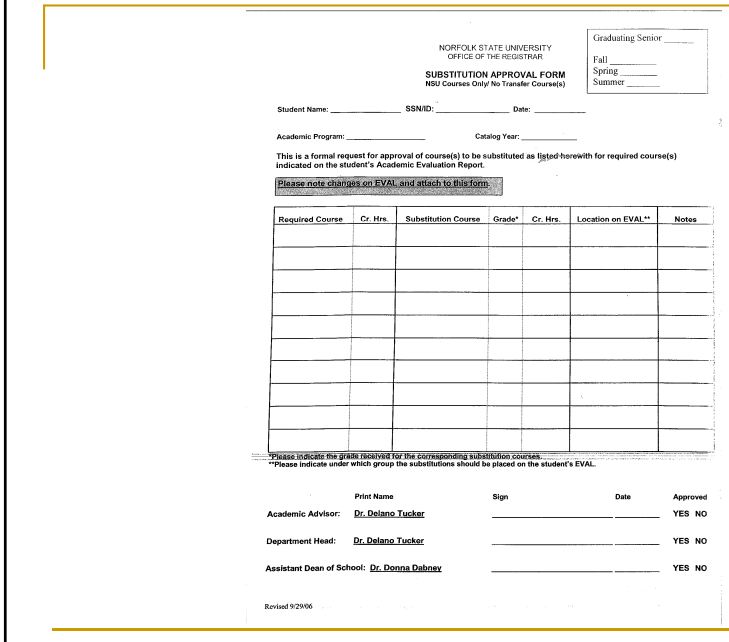
Approved ___ Not Approved ___ _____ Adviser _____ Date

Approved ___ Not Approved ___ _____ Department Head _____ Date

Approved ___ Not Approved ___ _____ Dean _____ Date

White- Office of the Registrar
Yellow- Department
Pink- Dean's Office
Gold- Student

Revised 6/26/2003



NORFOLK STATE UNIVERSITY
OFFICE OF THE REGISTRAR

SUBSTITUTION APPROVAL FORM
NSU Courses Only/ No Transfer Course(s)

Graduating Senior _____
Fall _____
Spring _____
Summer _____

Student Name: _____ SSN/ID: _____ Date: _____

Academic Program: _____ Catalog Year: _____

This is a formal request for approval of course(s) to be substituted as listed herewith for required course(s) indicated on the student's Academic Evaluation Report.

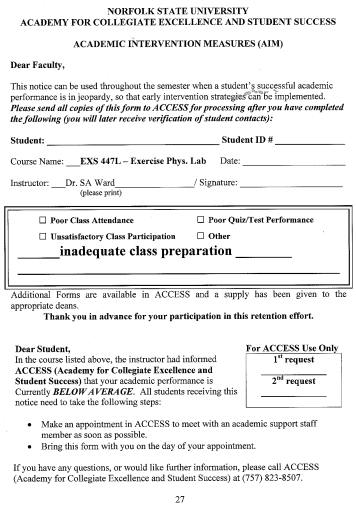
Please note changes on EVAL and attach to this form.

Required Course	Cr. Hrs.	Substitution Course	Grade*	Cr. Hrs.	Location on EVAL**	Notes

*Please indicate the grade received for the corresponding substitution courses.
**Please indicate under which group the substitutions should be placed on the student's EVAL.

	Print Name	Sign	Date	Approved
Academic Advisor:	Dr. Delano Tucker	_____	_____	YES NO
Department Head:	Dr. Delano Tucker	_____	_____	YES NO
Assistant Dean of School:	Dr. Donna Dabney	_____	_____	YES NO

Revised 9/29/06



NORFOLK STATE UNIVERSITY
ACADEMY FOR COLLEGIATE EXCELLENCE AND STUDENT SUCCESS

ACADEMIC INTERVENTION MEASURES (AIM)

Dear Faculty,

This notice can be used throughout the semester when a student's successful academic performance is in jeopardy, so that early intervention strategies can be implemented. ***Please send all copies of this form to ACCESS for processing after you have completed the following (you will later receive verification of student contacts):***

Student: _____ **Student ID #** _____

Course Name: ___**EXS 447L – Exercise Phys. Lab** Date: _____

Instructor: ___Dr. SA Ward_____/ Signature: _____
(please print)

☐ **Poor Class Attendance** ☐ **Poor Quiz/Test Performance**
☐ **Unsatisfactory Class Participation** ☐ **Other**
_____**inadequate class preparation** _____
_____

Additional Forms are available in ACCESS and a supply has been given to the appropriate deans.
Thank you in advance for your participation in this retention effort.

Dear Student,
In the course listed above, the instructor had informed **ACCESS (Academy for Collegiate Excellence and Student Success)** that your academic performance is Currently ***BELOW AVERAGE***. All students receiving this notice need to take the following steps:

For ACCESS Use Only
1st request
_____
2nd request
_____

- Make an appointment in ACCESS to meet with an academic support staff member as soon as possible.
- Bring this form with you on the day of your appointment.

If you have any questions, or would like further information, please call ACCESS (Academy for Collegiate Excellence and Student Success) at (757) 823-8507.

27

Major ISSUES

- Internships/Student Teaching
- Graduation Application

Questions/Best Practices from Participants

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A multidiscipline exploration of college students' perceptions of academic dishonesty: Are nursing students different from other college students?

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Perceptions

SUMMARY

As a result of the proliferation of technology, academic dishonesty in colleges and universities is on the rise and is a global issue. The problem of cheating behaviors in students is so pervasive that it is almost commonplace. Most students do not see their cheating actions as out of the ordinary or morally wrong. The process of neutralization is a major concern when students incorporate cheating into "normal" student culture.

In a Gallup poll conducted in 2006, nursing was perceived to be the most honest of 23 professions and the one with highest ethical standards (Saad, L., 2006. Nursing tops the list of most honest and ethical professions. The Gallup Poll. www.galluppoll.com/content/?ci=25888&pg=1 (retrieved 30.07.08.)). With such a high ethical expectation of the profession, one would assume that academic dishonesty would be nonexistent in nursing programs. Yet it has been documented that nursing students engage in academically dishonest behaviors that they do not perceive as such.

Thus, the purpose of this study was to explore the perceptions and attitudes of academic dishonesty in undergraduate students and to determine whether undergraduate nursing students' perceptions of academic dishonesty were different from undergraduate students majoring in other disciplines. Results of the study revealed clear differences in student perceptions of academic dishonesty by disciplines they were majoring in. Students majoring in nursing most frequently recognized academic dishonest behaviors compared to the other students sampled in this study.

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Introduction

Academic dishonesty

Intrinsic to the proliferation of technology, modern tools of communications such as the internet and cell phones are social lifelines for our youth. Lifelines including wireless messaging devices, sophisticated cell phones, MP3 players, and the internet make cheating easier than ever. The emergence of these technological devices has also spawned new and more sophisticated approaches to deceptive conduct among today's student (Strom and Strom, 2007). Students can text each other answers to an examination with relative ease using cell phones. Students can communicate via Bluetooth signaling. Photographed copies of entire examinations can be picture-messaged via MP3 players and cell phones. Plagiarism has become commonplace with students finding it easier to cut and paste parts of an assignment rather than writing out their own (Burkill and Abbey, 2004). The world has become such a global village, and extracting information across continents can be done with relative ease. A student in the United States can plagiarize full essays from an author in Africa just by visiting Google, or can purchase "original" essays from a website in China.

It comes as no surprise that academic dishonesty in colleges and universities is on the rise and is a global issue. In a recent study of 50,000 college and 18,000 high school students conducted by Duke University's Center for Academic Integrity, more than 70% admitted to having cheated (The Center of Academic Integrity, 1999). This result was up from 56% in 1993 and just 26% in 1963 (Vencat et al., 2006). In a study of pharmacy students in England, 80% of students admitted to at least one incident of academic dishonesty (Aggarwal et al., 2002). The problem of cheating behaviors in students is so pervasive that it is almost commonplace. Most students do not see their cheating actions as out of the ordinary or morally wrong. The process of neutralization is a major concern when students incorporate cheating into "normal" student culture (Bates et al., 2005).

This reality raises a number of questions: Are faculty members effective in communicating unacceptable academic dishonest behaviors? What behaviors do students perceive as academic dishonest? Are there differences between what faculty members perceive as academic dishonesty and what students perceive as academic dishonesty? Are there differences in student perceptions

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Faculty Development Retreat AGENDA

Robinson Technology Center

ONLINE TEACHING AND LEARNING

of academic dishonesty according to the discipline/profession they are majoring in?

Ethics in professions

According to McLafferty and Foust (2004), every profession has a holy grail that involves an element of trust necessary for that profession to survive and thrive. Consequently, the issue of academic dishonesty is critical for professions because it seems to mirror the growing concerns of ethical problems in the professional world (Nonis and Swift, 2001). It is imperative that colleges and universities address academic dishonesty because what students learn as acceptable behavior in the classroom impacts their expectations of what is acceptable in the professional world (Iyer and Eastman, 2006).

Health professions including nursing and pharmacy require clear standards of governance, accountability, and professionalism (Bates et al., 2005) as a result, ethics remains an essential component of the health professions.

Ethics in nursing

The profession of nursing is essentially concerned with the care of vulnerable fellow beings (Vanlaere and Gastmans, 2007). Consequently, nursing is often considered to be a moral practice (Gastmans et al., 1998). The moral practice of nursing underscores ethics education in the profession. This significance of ethics is clearly documented in the literature and is further substantiated by academic and professional standards, including the *American Nurses Association Code of Ethics for Nurses* which establishes ethics as an integral part of the foundation of nursing (Kalb and O'Conner-Von, 2007).

Academic dishonesty in nursing students

Unfortunately, academically dishonest behaviors still occurs among nursing students. Previous studies have indicated that the occurrence of self-reported cheating among nursing students although low still occurs at a significant rate (Hilbert, 1985, 1988). Although much has been reported in the literature on the incidence of student cheating, there is a dearth in published reports in the nursing literature that have explored this problem from the point of view of the discipline the student is majoring in.

In a Gallup poll conducted in 2006, nursing was perceived to be the most honest of 23 professions and the one with highest ethical standards (Saad, 2006). With such a high ethical expectation of the profession, one would assume that academic dishonesty would be nonexistent in nursing programs. Yet nursing students engage in academically dishonest behaviors that they do not perceive as such. In a pilot study to test the instrument that was implemented in this study, senior nursing students were quite clear on the definition of academic dishonesty in examination situations, but had difficulty identifying academic dishonest behaviors during classroom and laboratory assignments (Arhin, 2009), despite the emphasis of ethics in the nursing curriculum.

Academic dishonesty in students in other disciplines

The question then arises: how do students majoring in other disciplines perceive academic dishonesty? In a recent study, Iyer and Eastman (2006) found that non-business students were more likely to cheat than business students. In another study, Bates et al. (2005) revealed that students majoring in education reported fewer occurrences of academic dishonesty compared to pharmacy students. The authors suggest that the divergence requires closer investigation and further analysis of such courses because they might reveal ways in which elements of disciplines with fewer occurrences of academic dishonesty could be incorporated into other courses, in order to reduce the frequency of academic dishonesty.

Further, the differences that may arise between what students perceive as cheating and what faculty members perceive as cheating may contribute to differing notions and norms of behavior (Stern and Havlieck, 1986). It is impossible for faculty to work towards eliminating the problem behavior if students perceive the behavior as "normal." Understanding students' perceptions of cheating may be an important first step in curtailing this pervasive problem.

Therefore, the purpose of this study was to explore the perceptions and attitudes of academic dishonesty in undergraduate students attending a university located in the southeastern region of the United States. The specific aims of the study were to:

i Assess undergraduate students' perceptions of academic dishonesty across four disciplines (majors).
ii Determine whether undergraduate nursing students' perceptions of academic dishonesty were different from undergraduate students majoring in other disciplines.

Method

The study instrument used for this study was adapted from that used in the UK by Aggarwal et al. (2002) and Bates et al. (2005). [Permission for use of the instrument was obtained from Dr. Davies for use in this study] For this study, focus groups of nurse educators were used to review the instrument for clarity and face validity. Based on the feedback from the focus groups, the instrument was modified. Some items underwent wordsmithing to reflect American English, and some questions that accompanied the scenarios were eliminated. The final instrument included self-reported demographic data including age and gender. The questionnaire presented 12 scenarios. The first four scenarios represented dishonest behaviors in examination situations; the subsequent five represented cheating behaviors relevant to class assignments and the final three examined dishonest behaviors towards practical laboratory experiences (Bates et al., 2005). Following each scenario, the question was posed whether the student viewed the behavior as cheating (yes), not cheating (no) or was unsure. Before its use in a larger study, the modified instrument was pilot tested on senior-level nursing students who reported that the instrument was easy to follow, was understandable and clear to the reader.

After obtaining University Institutional Review Board approval, the instrument was administered to undergraduate students enrolled in the College of Professional Studies. These students included those majoring in the disciplines of nursing, social work, criminal justice, mass communication, elementary education, and sports management. Course sections were randomly selected, and questionnaires were disseminated by a student designee after class periods. Implied consent was assumed when the student completed the questionnaire. There were no personal identifiers on the questionnaire, and anonymity of the respondent was maintained.

Results

Of the 200 surveys that were distributed, 172 were completed and returned, a response rate of 86%. Eleven of the 176 surveys were not included in the final statistical analysis. These 11 surveys were from students majoring in elementary education and sports

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Table 1
Demographic characteristics by discipline and gender ($N = 161$).

Demographic characteristic	N	%
Discipline		
Mass communication	48	29.8
Criminal justice	35	21.7
Nursing	44	27.3
Social work	34	21.1
Gender		
Female	119	73.9
Male	42	26.1

management. However, there were so few of them that statistical analyses could not be performed. Completed surveys from 161 students were statistically analyzed. These students majored in four different disciplines: mass communication, criminal justice, nursing, and social work. The majority of the sample were female (73.9%); this was expected with sampling from nursing and social work students.

The demographic characteristics of the sample are depicted in Table 1.

The survey presented 12 scenarios. Following each scenario, the question was posed whether the student viewed the behavior as cheating (yes), not cheating (no), or was unsure. Answering "yes" or in the affirmative clearly indicated that the respondent perceived the scenario as dishonest. The percentages of affirmative responses to each scenario are presented in Table 2 in rank order.

For purposes of score computation, "yes" was given a value of 1, "not sure" was given a value of 2, and "no" was given a value of 3. Higher summed scores indicated a higher level of academic dishonesty. To compare students' scores among disciplines, a one-way ANOVA was used. There was a significant difference among the disciplinary groups ($F_{(3,\ 157)} = 3.336$, $p = .021$). Using a Bonferroni post hoc test, the only significant difference ($p = .036$) was noted between nursing students ($M = 19.41$, SD = 4.27) and mass communication students ($M = 22.48$, SD = 6.08).

Individual items of the academic dishonesty survey (Appendix A) were analyzed by disciplinary group using the Chi-square test. Nine of the 12 items were significantly different when disciplinary groups were compared.

Nursing

A higher percentage of nursing students perceived six scenarios as dishonest: (#1) student going to bathroom and looking at notes, (#3) student writing notes on arm and using them in exam, (#4) student writing mnemonics and abbreviations on hand to use in exam, (#5) student having difficulty writing assignment, borrows work from friend and use this to gain ideas for own assignment; (#6) student writing photocopying work of friend, and using parts for own assignment without permission of friend; and (#10) student making up laboratory exercise results.

Social work

A higher percentage of social work students perceived the following two scenarios as dishonest: (#9) student writing assignment; takes several quotes from journal without using quotation marks and does not reference them and (#12) students handing down coursework and lab reports to students in lower classes.

Criminal justice

A higher percentage of criminal justice students perceived scenario (#11) as dishonest. This scenario describes a student taking a laboratory exam and asking his or her neighbor for instructions. The statistical results for the individual items are delineated in Table 3.

Discussion

Findings from this study were quite similar to findings from a larger study conducted in the United Kingdom (Bates et al., 2005). A finding that was strikingly similar to the UK study is the fact that fewer than 50% of the students sampled perceived 6 out of the 12 scenarios presented to them as dishonest (see Table 2).

Furthermore, the respondents in this study had difficulty in identifying behaviors that constituted academic dishonesty in scenarios related to classroom and laboratory assignments, but were quite clear on the definition of academic dishonesty in most examination situations; however, a majority of students did not perceive the behavior of grading a peer's paper leniently as wrong. This perception may be influenced by the strong peer dependence found in today's generation of students (Arhin, 2009). Another interesting but disturbing finding is the fact that a significant number of the students sampled did not perceive accessing hidden notes during an examination as dishonest. This behavior was "normalized" by an anecdotal remark made by a respondent who believed that the student [in the scenario] was "just using available resources."

These concerning findings raise the question whether student attitudes towards cheating is influenced by today's societal values in the western culture. Is academic dishonesty an emulation of a society in which steroid use is common place in professional sports and well respected business leaders are found behind prison bars

Table 2
Percentages of affirmative responses to scenarios in rank order ($N = 161$).

Item in academic dishonesty survey (abbreviated)	Item No.	%
Student writes notes on arm and uses them in exam	3	73.9
Student writing an assignment takes quotes directly from journal without quotation marks and does not reference them	9	69.6
Student writes mnemonics and abbreviations on hand before going into an exam	4	67.1
Student finds internet site; cuts and pastes, changing it very little; does not use quotes but lists website in references	8	67.1
During exam, student goes to bathroom and looks at hidden notes	1	61.5
Student having difficulty writing; photocopies work of friend and uses parts of it without knowledge of friend	6	61.5
Student having difficulty writing; photocopies work of friend and uses parts of it with permission of friend	7	47.2
Students hand down coursework and lab reports to students in lower classes	12	45.3
Two students sit next to each other in class test; instructor asks students to grade colleague's test; students swap and grade each other's test leniently	2	42.2
For lab exercise which produces no results, student makes up results	10	42.2
Student taking lab exam; does not understand instruction and asks neighbor	11	39.8
Student having difficulty writing assignment; borrows work from friend and uses this to gain ideas for own paper	5	34.2

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Table 3
Analysis of individual items on academic dishonesty survey by discipline ($N = 161$).

Item #	Discipline	Yes	Not Sure	No	Chi-square
1	Mass comm	21 (43.8%)	13 (27.1%)	14 (29.2%)	27.39***
	CJ	17 (48.6%)	12 (34.3%)	6 (17.1%)	
	Nursing	40 (90.9%)[a]	1 (2.3%)	3 (6.8%)	
	Social work	21 (61.8%)	7 (20.6%)	6 (17.6%)	
2	Mass comm	16 (33.3%)	15 (31.3%)	17 (35.4%)	6.65
	CJ	12 (48.6%)	9 (25.7%)	14 (40.0%)	
	Nursing	22 (50.0%)	11(25.0%)	11 (25.0%)	
	Social work	18 (52.9%)	5 (14.7%)	11 (32.4%)	
3	Mass comm	25 (52.1%)	10 (20.8%)	13 (27.1%)	24.16***
	CJ	24 (68.6%)	4 (11.4%)	7 (20.0%)	
	Nursing	41 (93.2%)[a]	0 (0.0%)	3 (6.8%)	
	Social work	29 (85.3%)	2 (5.9%)	6 (8.8%)	
4	Mass comm	20 (41.7%)	15 (31.3%)	13 (27.1%)	26.58***
	CJ	23 (65.7%)	4 (11.4%)	8 (22.9%)	
	Nursing	38 (86.4%)[a]	2 (4.5%)	4 (9.1%)	
	Social work	27 (79.4%)	5 (14.7%)	2 (5.9%)	
5	Mass comm	21 (43.8%)	13 (27.1%)	14 (29.2%)	27.39***
	CJ	17 (48.6%)	12 (34.3%)	6 (17.1%)	
	Nursing	40 (90.9%)[a]	1 (2.3%)	3 (6.8%)	
	Social work	21 (61.8%)	7 (20.6%)	6 (17.6%)	
6	Mass comm	22 (45.8%)	12 (25.0%)	14 (29.2%)	17.20**
	CJ	20 (57.1%)	9 (25.7%)	6 (17.1%)	
	Nursing	37 (84.1%)[a]	2 (4.5%)	5 (11.4%)	
	Social Work	20 (58.8%)	5 14.7%)	9 (26.5%)	
7	Mass comm	19 (39.6%)	11 (22.9%)	18 (37.5%)	4.22
	CJ	19 (54.3%)	8 (22.9%)	8 (22.9%)	
	Nursing	21 (47.7%)	6 (13.6%)	17 (38.6%)	
	Social work	17 (50.0%)	7 (20.6%)	10 (29.4%)	
8	Mass comm	28 (58.3%)	8 (16.7%)	12 (25.0%)	5.34
	CJ	24 (68.6%)	4 (11.4%)	7 (20.0%)	
	Nursing	29 (65.9%)	8 (18.2%)	7 (15.9%)	
	Social work	27 (79.4%)	4 (11.8%)	3 (8.8%)	
9	Mass comm	28 (58.3%)	10 (20.8%)	10 (20.8%)	13.61*
	CJ	20 (57.1%)	10 (28.6%)	5 (14.3%)	
	Nursing	35 (79.5%)	6 (13.6%)	3 (6.8%)	
	Social work	29 (85.3%)[a]	4 (11.8%)	1 (2.9%)	
10	Mass comm	16 (33.3%)	16 (33.3%)	16 (33.3%)	18.64**
	CJ	10 (28.6%)	13 (37.1%)	12 (34.3%)	
	Nursing	29 (65.9%)[a]	11 (25.0%)	4 (9.1%)	
	Social work	13 (38.2%)	15 (44.1%)	6 (17.6%)	
11	Mass comm	22 (45.8%)	6 (12.5%)	20 (41.7%)	13.79*
	CJ	19 (54.3%)[a]	8 (22.9%)	8 (22.9%)	
	Nursing	11 (25.0%)	8 (18.2%)	25 (56.8%)	
	Social work	12 (18.8%)	3 (8.8%)	19 (55.9%)	
12	Mass comm	19 (39.6%)	12 (25.0%)	17 (35.4%)	23.64**
	CJ	19 (54.3%)	13 (37.1%)	3 (8.6%)	
	Nursing	15 (34.1%)	5 (11.4%)	24 (54.5%)	
	Social work	20 (58.8%)[a]	6 (17.6%)	8 (23.5%)	

[a] Highest percentage.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

for crimes ranging anywhere from securities fraud to tax evasion? Has perceptions of academic dishonesty been neutralized because of society's acceptance of the "end justifying the means" in a number of situations including business and politics? How can those of us working in academic settings rectify these strong influences on students' perceptions of academic dishonesty? What are the strengths of students that faculty can build on?

Other important results of the study were the clear differences in student perceptions of academic dishonesty by disciplines they were majoring in. Students majoring in nursing most frequently recognized academic dishonest behaviors in the scenarios presented compared to the other students sampled in this study. In fact, a higher percentage of nursing students recognized academically dishonesty in 6 out of the 12 scenarios. One might argue that these results are expected because nursing students have higher ethical standards than other non-health profession students. As encouraging as these findings may be, it is important to note that nursing students still had difficulty recognizing academically dishonest behaviors in 50% of the scenarios presented.

Nursing students had the most difficulty in identifying academic dishonest behaviors in laboratory situations, despite the fact that most of them had much experience in prerequisite science laboratory courses. This finding was consistent with Del Carlo and Bodner's 2006 study of biochemistry students and warrants further exploration of academic dishonesty in the laboratory. Although reports of academic cheating are abundant, there are relatively few papers in the literature that focus on cheating in the context of science courses and even fewer that address dishonest practices, such as "cooking" or fudging data, within the classroom laboratory (Del Carlo and Bodner, 2006). A majority of nursing students surveyed in this study normalized academically dishonest behaviors in laboratory settings. Thirty-five percent of the nursing students sampled did not believe that making up results for a laboratory exercise was academically dishonest; 75% did not believe asking a neighbor for instructions during an examination was dishonest; and 66% did not believe that handing down coursework and laboratory reports for use by other students in lower classes was dishonest. These findings suggest that students need to be educated in academic dishonesty in laboratory settings. Strategies should be implemented to prevent academic dishonesty in the laboratory classroom.

Emphasis on honor codes may be very important in the laboratory setting. These honor codes could be printed on every syllabus, and laboratory expectations should be clearly explained to students. Other strategies could include incorporating oral reports in the laboratory curriculum as well as changing experiments or giving different versions of an experiment. These strategies can prevent the "handing down" of reports to other students, a behavior that students in this study considered normal. To prevent falsification of results, faculty could emphasize more on the process of conducting experiments rather than the results of the experiment.

As nurse educators, we are challenged to engage in activities to prevent students from participating in practices such as cheating, plagiarism, and unethical clinical practice. We are also challenged to educate students who are competent, knowledgeable, and able to be successful on the standardized licensure examinations. Academic dishonesty and cheating impede these outcomes. Understanding students' perceptions of academic dishonesty may be an important first step in developing and implementing successful strategies that can reduce the incidence of academic dishonesty.

Limitations of study and recommendations for future research

Several limitations of the study that suggest avenues for future research warrant comment. These limitations are presented including recommendations for future research.

First, this study examined students' perceptions of academic dishonesty across only four disciplines in a small College of Professional Studies in a university located in the southeastern United States. It would be worthwhile to replicate this study with a larger number of disciplines from different universities. Also, in this study, student responses were not analyzed for gender or class standing. Such an analysis could provide more insight into the student responses. Additionally, it is worth mentioning that the researchers of this study could not ensure ethical responses by the students to the academic dishonesty survey.

Finally, this study was conducted in a predominantly black institution with over 80% of the respondents being of African-American descent. It would be beneficial if future research was conducted on a larger sample size of different races and sociocultural backgrounds.

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Appendix A. Academic dishonesty survey

Discipline:_____ Gender: ☐ Female ☐ Male

Do you think these actions are dishonest? Answer Yes, Not Sure, or No by placing a checkmark or an "X" in the appropriate box.

Academic scenario	Yes	Not Sure	No
1. During an end of year examination, a student goes to the bathroom and looks at some hidden notes to find answers			
2. Two students sit next to each other in a class test. The instructor asks students to grade their colleague's answers. The two students swap papers and grade each other's test leniently			
3. A student writes some notes on her arm and uses them to answer some questions in an exam			
4. As a memory prompt, a student writes some mnemonics and abbreviations on her hand before going into an exam			
5. A student is having difficulty writing an assignment. He borrows work from a friend and uses this to gain ideas for his own write up			
6. A student is having difficulty writing an assignment. She photocopies the work of a friend and then uses parts of this to write up her assignment without the permission of her friend			
7. A student is having difficulty writing an assignment. She photocopies the work of a friend and then uses parts of this to write up her assignment, with permission of her friend			
8. A student finds an internet site which is relevant to his work. He cuts and pastes portions of this in his own work, changing it very little. He does not use quotation marks but lists the name of the website in his references			
9. A student is writing an assignment. She takes several quotes directly from a journal without using quotation marks and does not reference them			
10. Following a laboratory exercise which produces no results, a student makes up some results for her write up			
11. A student is following a schedule in a laboratory examination. He does not understand one of the instructions, so asks his neighbor			
12. Students hand down coursework and laboratory reports for use by other students in lower classes			

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Special Report

Student Collaboration in the Online Classroom

Presented by

ONLINE CL@SSROOM
IDEAS FOR EFFECTIVE ONLINE INSTRUCTION

A MAGNA PUBLICATION

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IDEAS FOR EFFECTIVE ONLINE INSTRUCTION

FEBRUARY 2007

Using Individual and Group Instant Messaging to Engage Students

TIPS FROM THE PROS

Nine Strategies for Using IM in Your Online Course

IN THIS ISSUE

A MAGMA PUBLICATION

Student Collaboration in the Online Classroom

Using team assignments in an online course can be an excellent way to create community and improve learning. But just as in a face-to-face course, student collaboration in the online classroom requires careful course design, student preparation, and team management.

This *Online Classroom* special report is a compilation of articles that will help you

- recognize when teamwork is an appropriate strategy
- overcome student resistance to working together on group projects
- select collaboration tools
- teach students how to collaborate online
- monitor teams and help resolve conflict, and provide meaningful feedback.

We have compiled this special report to provide you with online collaboration design and facilitation ideas that work, whether you are a new or seasoned online instructor.

— Rob Kelly
Editor
Online Classroom

ONLINE TEAMWORK
Quick Reference

Best Practices compiled from ***Online Cl@ssroom***

What Is Teamwork?

Teamwork occurs when individual peers redefine themselves as a group. (Smith, p.26)

Collaborative learning, collective decision making, teambuilding, and group projects are all teamwork activities that involve taking responsibility for one's ideas and having sensitivity to the ideas and goals of others. (Shank, p. 12)

Teamwork mirrors the real world where sharing information and under-standing the views of others is often critical. (Shank, p. 12)

What are the Benefits of Teamwork? (Engle, p.11)

- Learners think through topics more thoroughly
- Teamwork encourages exploration of alternative perspectives and solutions
- Teamwork stimulates critical thinking and helps learners clarify ideas through discussion and debate
- Solutions are typically better than what one learner could develop working individually — particularly if the project is complex.

What Other Skills Does Teamwork Develop? (Engle, p.11)

- High-Level Thinking skills
- Negotiating skills
- Feedback skills
- Communication skills
- Project Management skills
- Interpersonal skills
- Intercultural skills

Kelly, Justin, Neil, and Cori have been assigned a teamwork project. Kelly tends to take charge and makes sure everything gets done according to her high standards. Justin is happy because he was on a team with Kelly previously and received a high grade without putting in much effort. Neil has been finishing his degree one course at a time because of his hectic work schedule, and Cori is new. Because of family obligations, Cori is only able to work on school projects in the evenings.

See any likely problems for this team? As you know, teamwork projects can be frustrating. The most common reasons for learner frustrations include inadequate preparation and communication, and the most common reason for faculty frustration is the need to deal with learner frustrations. (Shank, p. 9)

How Do Instructors Successfully Incorporate Teamwork in Online Teaching and Learning?

• Define Teamwork & Prepare Learners for Team Roles Early

Begin by making teamwork a stated course outcome. Collaboration, participation, and communication expectations should be written into the syllabus. (Roby, 2005) Then, discuss teamwork, broadly, during the first class. Use real-life examples of the benefits of teamwork with which learners can identify as a great teamwork motivator. (Sull, p. 8)

Terry Morris, associate professor at William Rainey Harper College in Palatine, Illinois, uses her online "Working in Teams" module (*http://terrymorris.net/teamwork*) to help learners understand team roles, how to be good team members, and how to resolve conflicts. After learners have used the module, she facilitates a discussion about teamwork experiences, including what made them good or not so good and how to prevent the not-so-good ones. (Shank, p. 9)

• Establish Criteria for Forming The Teams

Some instructors set up teams and others allow learners to form their own teams. If learners are allowed to select their own teams, it's important to provide a way for them to learn enough about each other to make good decisions about who to work with. (Shank, p. 9)

Instructors who assign learners to teams have many options. Learners may be randomly assigned or assigned based on their interests, skill levels, partici-

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Sample Teamwork Course
Outcome Statement

In this course you are required to collaborate on a team project:

- You will use the same team for the entire course.
- Your team will share a Discussion Forum.
- Teamwork grades consist of two elements: (Engle, p. 11)
  1. a group grade for the product itself and
  2. an individual grade based on peer reviews of your contribution to the team.
- Failure to participate in team projects is an automatic one-grade deduction for the course. (Engle, p. 11)

Sample Team Agreement

- Project Title & Due Date
- Project Objectives/Purpose
- Team Members & Contact Info
- Member Expertise
- How to Communicate/How Often
- Project Tasks & Deadlines
- Member Roles/Deliverables
- Conflict Management Procedure

Sample Peer Evaluation (Shank, p. 9)

Does this team member

- accept responsibility for tasks determined by the team?
- respect differences of opinion and backgrounds?
- provide positive feedback of team member accomplishments?
- keep in contact with team members for the purpose of maintaining team cohesion and collaboration?
- meet team deadlines?

Working in Teams Tutorial (Shank, p. 9)

http://terrymorris.net/teamwork

pation levels, or their learning styles. (Humbert, p. 17)

Forming teams based on learning styles is a great way of giving learners the opportunity to develop projects that best fit their specific styles. For instance, an instructor could have a team of kinesthetic learners develop a Web page, a team of auditory learners develop and record a jingle, and a group of visual learners write a paper or create a flyer. (Humbert, p. 17)

Once grouping criteria have been established, create teams of three to five learners. (Roby, p. 23) Introduce the project and then, if possible, give the team a relatively easy task before they take on more complex team tasks. "Before you actually launch a project, it's important to make sure that everybody knows who's doing what," says Jan Engle, coordinator of instruction development at Governors State University. (Engle, p. 11)

• Guide Learners Through Team Communication

Regardless of course platform (on-campus, hybrid, or fully online) allow team members to choose whether they work face to face, by telephone, or online. (Dineen, p. 19) Online interaction options can include e-mail, threaded discussion, text-based chat, document sharing, and blogs. Instructors decide whether to limit online options depending on whether they plan to monitor team interactions and whether team communication will be private within the group or open to the rest of the class.

Once teams are formed and the learners have some understanding of what is expected, it's important that they document their understanding. To facilitate this, teams should construct their first collaborative assignment, a formal team agreement. (Shank, p. 9) "We identified the roles and responsibilities, the tasks, and how they would be shared. And we did it all through discussion threads. Being able to have that record of the process was very helpful," says Valerie Taylor, a former online learner. (Taylor, p. 29)

• Improve Participation Through Peer Evaluation & Varied Membership

Some learners resist teamwork because of past experiences where they ended up doing most of the work while others did nothing and everyone got the same grade. (Engle, p. 11) To prevent inequity, set up a formal mechanism so team members can provide feedback about and to each other. This allows team members time to adjust their behaviors while they can still make a positive difference. The results of these assessments can also be used to determine individual grades for team assignments. (Shank, p. 9)

Another idea is to replicate professional contexts where membership in working groups changes frequently as tasks evolve. Alternating team roles (Piezon & Ferree, p. 21) and/or team membership may reduce social loafing without reducing levels of team communication or learning outcomes. (Dineen, p. 19)

• Seek Feedback

In addition to a general course evaluation, ask students for feedback on teamwork projects/exercises, particularly those that are newly implemented. Use the comments received to adjust, abandon, or confirm the use of specific teamwork projects. (Roby, p. 23)

Keeping Teamwork Alive, Motivated, and Enthused!

By Errol Craig Sull

Teamwork: it is a specified or non-specified section of so many online courses where students have the opportunity to "speak" with one another in an asynchronous environment. Yet online instructors often overlook its importance, and it can be the most difficult section to "maintain." To peek in and see a teamwork thread of five, six, or so students sharing ideas, growing their learning from this participation, and offering good ideas and responses—this is the stuff that online instructors dream of seeing in teamwork postings. Yet motivating students to buy into the teamwork concept—beyond getting a grade—can be a challenge. It is far easier for the online student to work by him/herself than in a teamwork environment—and to do this for an entire course, well, instructors are wont to say ... good luck!

Some basic approaches, a bit of time, and a persistent enthusiasm on the instructor's part can translate into teamwork sessions by students that are outstanding in that they result in the core outcome set for teamwork, can be fun and engaging, and make for a more enjoyable and meaningful class for both students and instructor.

To accomplish this, try the following techniques:

Emphasize and explain teamwork—early. Many students have never taken an online course or have not had one that used teamwork, thus many aspects of it will be foreign. It's very important that you discuss teamwork, broadly, in your first posting of the class, but also follow this with another posting that only emphasizes and explains teamwork—this one-subject posting lets students know how important it is and they will not lose it amongst other aspects of the class. Be sure to use the active voice and active, involved verbs—this "feel" only adds to the overall importance you place on teamwork and its value.

Give an example of a good teamwork session. Students need to know that their teamwork responses cannot be merely "I agree," "That's cool," "Nice job," and the like—yes, short responses can certainly be part of teamwork, but the ideal teamwork thread will have all team members involved, each offering substantive posts (both proactive and reactive) and about 30 percent short reactive postings. Copying and posting a previous team's thread that offers what you seek in your class will give them a nice guide—so much more effective than simply your description!

Become an active part of teamwork. You cannot be merely the "teacher observer," but rather you need to dive in as well: respond to some of the posts, offer suggestions, give kudos when appropriate. (Never chastise one student "in front" of the other team member; rather, do this in a private email.) By doing this, the students can see that you walk the walk, not just talk the talk—and a combination of your presence and what you offer will truly help motivate them to stay active in teamwork!

Post a list of teamwork problems—with possible solutions. There will be a variety of teamwork problems that pop up: team members not contributing, being too bossy, using negative language, personally attacking other team members; technical difficulties with postings, late postings, misunderstanding posting requirements or procedures; students who complain about their teamwork grade, about other team members, or your comments regarding their team postings—the list goes on. By posting a list of these, and your suggestions for each, at the beginning of the course you will cut down—tremendously—on student "teamwork emails" to you!

Use teamwork "genius" from students to motivate the class. Scour the team postings regularly and gather those that extend beyond that one team but can benefit the entire class—in teamwork or any other area of the course. This can result in two positive outcomes: first, students will love to have their "genius" team postings used for the entire class as great examples; second, you will be demonstrating the importance of teamwork—and both are great motivators.

Maintain a list of teamwork "nuggets." These will be items you harvest from teamwork throughout the course that are so good that they can be used from course to course to demonstrate great ideas that came from teamwork; to motivate students in teamwork or another portion of the course; and to offer suggestions, insights, and info for this, that, or another course portion. I have so many that they are broken into categories—including "Great Metaphors and Analogies"—and they prove very helpful as motivational or information "dust" sprinkled throughout a course.

Be sure to offer substantive resources for teams. Beyond your opinions and observations on postings during teamwork, be sure to post websites, anecdotal information, and the like that is specific to the teamwork thread—not only does this show you are actively interested in teamwork but that you have gone "the extra mile" with solid items that can make a team's efforts—whether it a team project or a team discussion—better.

Answer all teamwork questions

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within 24 hours. In most online courses, student questions to the instructor are usually not posted in a teamwork thread—but this will not prevent students from doing so. Often, these are spur-of-the-moment, emotion-filled questions—the kind that necessitate the quickest of responses. Be on the lookout for them—and let your students know that all questions, comments, etc. posted or sent to you will receive a response within 24 hours. (Don't single out teamwork: if you do, you are inviting students to post questions to you there!)

Use Reality-Based Education in explaining the benefits of teamwork beyond a grade. Always look for opportunities beyond the course to show the benefit of teamwork—these can include working together, new ideas coming out of group interchanges, interacting with varied personalities, overcoming hurdles, and making team decisions. Be sure to bring real-life examples of these with which the students can identify (Reality-Based Education)—this is a great teamwork motivator, as it points out Teamwork value in everyday life.

Stay 100 percent enthusiastic about teamwork's importance. You never want to give the appearance you are a "rah! rah!" supporter of teamwork because it is your job or only for the first part of a course; students quickly pick up on this. Teamwork—properly executed teamwork—is a crucial component of any class, and you must remain its most ardent cheerleader not only in words bit in deeds … from day one to day last of the class.@

Improving Results and Reducing Frustrations from Team Activities

By Patti Shank, PhD, CPT

Shauna, Juan, Morris, and Kati make up team #3 in Dr. Davidson's online business ethics course. Shauna is a planner and makes detailed plans for home, work, and school so she can make sure that everything she wants to accomplish gets done according to her very high standards. Juan is thrilled to be on Shauna's team because he worked with her in a previous course and knows that Shauna's plans usually result in optimal outcomes (and high grades). Morris has been finishing his degree online because he is unable to fit classroom-based courses into his hectic travel schedule, and Kati is a new online learner. Because of her family obligations, she is only able to work on school projects in the evenings.

See any likely problems for this team from the get-go? If you have been implementing collaborative projects, you know that they can be frustrating. Collaborating at a distance adds additional potential frustrations. The most common reasons for learner frustrations include inadequate preparation and communication, and the most common reasons for faculty frustration include the need to deal with learner frustrations.

Setting up teams

In online courses, learners often don't know much, if anything, about one another, so it's hard to form teams based on commonalities. Online instructors should consider implementing a process whereby learners are able to find commonalities or differences useful for team formation and activities. Depending on the purpose of the collaboration, learners can share information about themselves such as course-related special interests, specific skills (when heterogeneous skills are needed), desired topic (when teams can choose a topic), collaboration style (such as well-planned and more laissez-faire), and availability (weekday/weekend, time of day, time zone).

Some instructors set up teams and others allow learners to form their own teams. If you prefer to allow learners to select their own groups, it's important to provide a way for them to learn enough about each other to make good decisions about who to work with.

Understanding teamwork

Because so many educational activities reward individual results, lots of folks are unprepared for teamwork. Before beginning collaborative projects then, learners should ideally be prepared for team roles and responsibilities and resolving typical team problems.

Terry Morris, associate professor at William Rainey Harper College in Palatine, Illinois, uses her "Working in Teams" module (http://terrymorris.net/teamwork/) to help learners in her courses understand team roles, how to be a good team member, and how to resolve conflicts. Consider having learners use this resource (or build one of your own). After learners have used it, facilitate an online discussion about good collaborative experiences, including what made them good or not so

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good and how to prevent the not-so-good ones.

Team agreements

Once teams are formed and the students have some understanding of what is expected, it's really important that they document their understanding, so all team members are on the same page and can refer back to the agreement as needed. To facilitate this, teams should construct their first collaborative assignment, a formal team agreement.

Joanna C. Dunlap, assistant professor in the School of Education and Human Development, University of Colorado at Denver and Health Science Center, has each team answer the following questions (and I adapted her list to include a few of my own):

- Will they will have a leader, and if so, who this will be, and will this role will be rotated?
- How will work be distributed? Who will do what? Who is the designated backup?
- What work style do they agree to?
- Are there any known problems or problematic dates or times that need to be factored in?
- When and how will they "meet" and communicate with each other? How often?
- How will iteration and version control get handled?
- Who will post the team deliverables?
- How will they provide constructive feedback to each other?
- How will they handle work that is sub par, incomplete, or not done?

The instructor ideally should review team agreements and provide feedback on agreements that aren't specific enough or otherwise unlikely to work well. It's a good idea to not allow teams to proceed with other team assignments until a solid and workable team agreement that all members of the team support is in place.

Team assessments

Well-thought-out team agreements can greatly reduce team problems, but they may not eliminate them. As a result, it's a good idea to set up a formal mechanism for team members to provide feedback to each other. In addition to providing valuable input about how each team member is meeting team commitments, if completed throughout the course, this allows all learners time to adjust their behaviors while it can still make a positive difference.

Dr. Dunlap uses teamwork assessments at various points in her online courses. The results of these assessments impact individual grades for team assignment when assessments show that a team member is not fulfilling commitments. For example, she may lower team deliverable grades for anyone who receives less than 50 percent of the allowable points from more than one team member. Here are some of the questions Dunlap uses in her team assessments.

Does this team member

- accept responsibility for tasks determined by the team?
- respect differences of opinion and backgrounds?
- provide positive feedback of team member accomplishments?
- keep in contact with team members for the purpose of maintaining team cohesion and collaboration?
- meet team deadlines?

This process empowers team members to have a say in the grade distribution on team assignments. Everyone on the team receiving an identical grade despite inadequate contributions by some team members is one of the biggest complaints from learners about team assignments. The team assessment process also lets the instructor know what additional support he or she needs to provide to teams and individual team members.

Your turn

Consider adapting the ideas in this article to your team assignments in order to have greater benefits and fewer frustrations. Also, consider working on these ideas collaboratively with other online instructors and instructional designers in your institution so that all can benefit from the collaboration.

Patti Shank, PhD, CPT, is a widely recognized instructional designer and instructional technologist, writer, and author who builds and helps others build good online and blended courses and facilitated learning. She can be reached through her website, www.learningpeaks.com. @

The Benefits of Active Learning in a Collaborative Environment

According to Jan Engle, collaborative active learning

- develops higher-level thinking skills—students think through the topics more thoroughly,
- encourages exploration of alternative perspectives and solutions,
- stimulates critical thinking and helps students clarify ideas through discussion and debate, and
- generates solutions that are typically better than what one student can develop working individually—particularly if the project is complex.

This type of learning also helps develop the following ancillary skills:

a. Teamwork skills
b. Negotiating skills
c. Feedback skills
d. Communication skills
e. Project management skills
f. Interpersonal skills; skills in dealing with diversity

Students also learn strategies for learning by interacting and observing team members.

How to Promote Collaborative Active Online Learning

Jan Engle, coordinator of instruction development at Governors State University, uses group work in her online courses with an initial emphasis on process and, as a course progresses, a growing emphasis on product.

One of the biggest problems with doing group projects online (and face-to-face) is student resistance. "One of the best ways to overcome resistance is obviously for students to have a positive experience. Unfortunately, many of them come into an online class having had a very negative experience with group work. Almost always, those negative experiences stem from problems where they've been on teams where they ended up doing most of the work and other people did nothing and everybody got the same grade," Engle says.

To prevent this inequity, Engle makes participation in group work mandatory and uses peer evaluation to encourage equal participation. Grades consist of two elements: the group grade of the product itself and a grade for participation (based on peer review).

Engle provides a rubric for peer evaluation. Failure to participate in group projects is an automatic one-course grade deduction. "I do that primarily because really bad group experiences and failure to participate in the online environment just decimate the sense of community we've worked so hard to develop up to that point," she says.

Preliminary group projects in Engle's courses tend to be relatively easy and fun, in order to emphasize group processes. "Before you actually launch a project, it's important to make sure early on that everybody knows who's doing what and that they have contingency plans," she says. "And if they have nonparticipating members, I give groups the ability to fire a member, so that they are not continually spending all of their energy trying to chase someone who is not going to participate anyhow."

If students in her course have not done online group work before, Engle introduces the project and then, if possible, gives the students a relatively easy team task before they take on more complex team projects. She offers suggestions on using threaded discussion and chat and asks students to address the following organizational issues:

- How are you going to divide the project so that each team member has a part?
- Who is going to be responsible for each part?
- How are you going to communicate during the project?
- How will members submit their work to the group?
- What is the deadline for the submissions of individual pieces?
- Who is going to be responsible for putting the pieces together into one paper?
- How are you going to handle final proofing?
- What will you do if somebody does not do his or her part or does not meet deadlines?
- How are you going to go about answering questions that group members might have about the project?

Engle also monitors all groups by making herself a member of every discussion group. "Early on, I'm paying attention to groups in which I'm not seeing any activity," she says. "If I'm not seeing any activity in the discussion thread, then I'll post a message to that group, saying something such as, 'It looks like you're getting off to a slow start. Are there any problems that you need help with?' It's kind of a gentle nudge so that if there really are problems, that tends to bring them forward."

Engle encourages her students to send her private emails to alert her to problems; however, she makes it a point to have the students resolve problems in the threaded discussions. "I'm not solving their problems. I'm really helping facilitate their resolution of the problem. There's a tendency as an instructor to want to solve their problems, but that just doesn't work. You just really have to get in, and I might try to encourage. I may do it through a discussion thread. I might suggest that we have a team chat where we can get in and talk about the issues and get them resolved."

Project design

An important consideration in incorporating group work into an online course is making sure that it suits the goals of the course and that it makes "authentic use of the content that's being presented," Engle says. "If you use group work simply for the sake of incorporating group work, you're probably not going to create an engaging exercise."

One of Engle's most successful group projects was a scavenger hunt for an introduction to online learning course. Leading up to the scavenger hunt, students learned about search engines, search strategies, Boolean logic, and the relative merits of different search engines for different purposes.

"In this course, I wanted to make sure that the students had an opportunity to do virtual group work, and I also wanted them to be using this content knowledge from this unit on find-

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ing information on the Internet," Engle says.

The scavenger hunt consisted of 50 esoteric trivia questions that students were not likely to know the answers to. Each group consisted of five students, so each student in each group was responsible for 10 questions. Each team captain submitted answers to the questions through WebCT's quiz tool. The grade for the project was based on the number of correct questions, and Engle gave extra credit to the group that finished first with the most correct answers and to the group that demonstrated the most effective teamwork.

Teams were required to use threaded discussion or chat, which enabled Engle to monitor group interaction and made communication within the groups less confusing than using email would have done.

In an online graduate course in online learning, Engle makes it a point to create group projects that are common to all students but are not in any one student's field of expertise. When she first tried this approach, some students felt that it was a waste of time to design solutions that were of no interest to them. "It was clear to me that they weren't understanding that, in order for everybody to design and see alternate design strategies, they had to be looking at something that is common to everybody in the group," Engle says. She explained to them, "If I were simply to say, 'Pick something from your own subject matter and do this project,' then the ability for other people to compare solutions doesn't exist."

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Considering Collaboration

By Patti Shank, PhD, CPT

Close your eyes and see if you can recollect your high school algebra class. Do you remember who sat in the seat in front of you? Now, remember a college history or economics course. Where did you sit?

If your recollections are anything like mine, you were probably sitting at a desk in a classroom or lecture hall, taking notes, while the teacher lectured and scribbled words on the blackboard. Lecture-driven courses with individual assessments and deliverables such as tests and reports were the norm. Working together in groups may have been acceptable in some situations (e.g., study groups) but not in others (e.g., writing papers). All in all, collaboration didn't loom large in most teachers' instructional strategies toolboxes.

As a result of your own experiences, you may not have considered collaborative activities for the courses you teach. Even if you understand the benefits of collaborative activities, redesigning your courses to include them may seem daunting. You may also have questions about how to monitor and grade such activities. And you may have heard complaints from other instructors about the problems they have faced with collaborative activities. Easier to just stay with the same ole, same ole, right?

Because collaboration has critical benefits for learning, I'm going to explain in this and the next few articles, the rationale for using them, what new online tools may be valuable, how to design good collaborative activities, and how to avoid common problems. We'll start with the potential benefits and typical ways to employ collaborative activities.

The benefits of collaborative activities

Research studies clearly indicate that learning benefits can accrue from collaborative learning activities. They describe ways that social interaction can positively influence learning, motivation, and problem solving, and can help learners gain needed support and overcome frustration. In online courses, especially, social interaction and collaborative activities can help learners avoid feelings of isolation and improve motivation and persistence.

Changes in the nature of the workplace have put an increased emphasis on teamwork, group cognition, and collective decision making. Much of today's work isn't predictable or routine, as it was 50 years ago. Work in this era of knowledge and information increasingly involves

- tasks done alongside other tasks and under complex conditions and distractions,
- competing demands and the need to continually prioritize and reprioritize, and
- complex decisions made with changing and sometimes contradictory information.

As a result, the development of critical-thinking skills, sharing, and collaborative decision making is increasingly called for in instructional environments. Effective collaboration, like most other skills, takes time, practice, and feedback.

Here are some assumptions about learning that explain why these benefits occur.

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1. **Learning is social.** We learn in order to participate in the spheres of influence we are involved in or wish to be involved in. Joint inquiry and meaning making often leads to greater understanding for all.
2. **Learning is active.** Learning requires meaningful activity and integration of new ideas with what is already known. Collaboration can help learners better organize and integrate new information.
3. **Ideal learning activities are real or realistic.** Collaborative learning activities can be designed to mirror real or realistic activities, leading to enhanced engagement and learning. Collaboration can help learners deal with realistic levels of complexity, including differences of opinion and group decision making.
4. **Ideas of others are beneficial.** In collaborative activities, learners inevitably encounter differences. Negotiating these differences builds important capabilities such as understanding, tolerating, or resolving differences. These are crucial twenty-first century life and work skills.

At their best, collaborative activities involve taking responsibility for one's ideas and contributions and having sensitivity to the ideas and goals of others. In this way, they mirror the reality of living in a world where sharing information and understanding the views of others is often critical.

Collaborative activities

The table on the next page lists some of the more common types of collaborative activities and describes how to implement them in online courses.

Collaborative activities can engage learners and help them learn. This is especially important in online courses because learners need to overcome the inevitable issues that arise when learners and instructors are separated by time and space.

It takes preparation and practice to design and implement good collaborative activities, and learners need preparation and practice to get the most from them. Hopefully the examples in the table have provided you with a few ideas for collaborative activities in your courses. Another way to find good ideas is from colleagues who have successfully implemented collaborative activities.

Collaborative activities can model what it means to learn from and with others, being sensitive to how others view the world, and taking responsibility for more than your own outcomes.

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Collaborative Active Learning Advice

Jan Engle offers the following advice for online instructors looking to incorporate collaborative active learning in their courses:

- Start with simple collaborative projects until you get a feel for how to structure and facilitate collaborative exercises.
- Avoid introducing group projects too early in the course, unless they are VERY basic.
- Provide specific, clear instructions.
- Provide tips for success (both for virtual communication process and for group work). Don't assume that students know how to do group projects.
- Do not abandon students during this time … you still need to be available to guide and encourage groups.
- Allow plenty of time.
- If you are going to do a very sophisticated group project in the class, try to introduce a simple exercise earlier in the course to allow groups to develop a group process that will support the more complex project that comes later.

Activity	*Description*	*Online Course Example*
Case analysis	A detailed story of a real or realistic situation is introduced, along with a problem that learners can analyze and resolve.	Small groups of learners collaboratively analyze an injury case and identify measures that may be undertaken to prevent or reduce the damages from this type of injury.
Collaborative writing	Small groups of learners create a written deliverable.	The learners in the case analysis group write a joint position paper on the most promising measures for preventing and reducing damages from this type of injury.
Peer help	Learners post questions and call on the diversity of people resources to get help. The questions also provide the instructor with opportunities to assess problems and progress.	The course help discussion forum in the object-oriented programming course allows learners to post questions and get help from other learners and the instructor. As a result, questions are often answered quickly and creatively.
Knowledge base	Learners maintain a knowledge base to help them deal with typical problems encountered in the course content.	The intro-to-statistics course uses Web forms and a database to maintain a list of common issues and problems, and solutions for each of them.
Resource database	Learners find, share, tag, and maintain a list of favorite resources.	An online database has been created by the lead instructor for learners enrolled in the Web development certificate course. Learners in the program use, maintain, and add to it as part of their course activities.
Peer editing	Learners exchange draft versions of course deliverables (papers, Web sites, spreadsheets, etc.) and get feedback from each other in order to improve them.	Learners in a public health course write a paper on whether public health workers should advocate for the prevention of accidents (such as mandating motorcycle helmets). They share their papers with two other learners who provide feedback on the quality of their argument and writing.
Online discussions	Asynchronous dialogue is used for sharing and negotiating understanding.	A business law course includes two online discussion topics in the asynchronous course discussion forums each week. One discussion is initiated by the instructor. Another is initiated by one of the small groups that are formed at the beginning of the course.

7 Ways to Improve Student Satisfaction in Online Courses

Preparing students for the online learning experience and managing expectations are critical to student satisfaction, says Marie Gould, assistant professor and program manager of Business Administration, and Denise Padavano, associate professor and program manager, Information Technology, both of Peirce College.

Students at Peirce College (whether they are face-to-face or online students) are required to take a one-credit online course that gives an overview of how the college works and helps develop students' time management and study skills. The course uses eCollege, the same course management system used for online, hybrid, Web-supported courses at the college.

By the time students enroll in their regular courses (which are accelerated seven-week courses), they have a working knowledge of eCollege and a good idea of what to expect. But managing expectations needs to go beyond using the technology.

The following are suggestions by Gould and Padavano for improving student satisfaction:

- **Post the course syllabus on the Web.** Part of managing expectations is letting students know up front how the course is organized.
- **Administer a learning-styles inventory.** For each of her courses, Gould uses a learning-styles inventory as an icebreaker activity, and because group work is a required component of her courses, she has students share their results of the inventory. "When the students see the strengths and weaknesses of each person, they tend to delegate roles and responsibilities based on the strengths of each of their learning styles," Gould says.
- **Explain the importance of group work.** Because some students may object to working in groups, students need to see how they will benefit from group work. "We have to try to get students to focus on why we want them to work in teams. We're not just putting them into teams because we want to make them suffer. [Teamwork] is a critical skill that students need to learn so they are functional when they get out and work. We need to help them get over that fear and manage expectations," Padavano says.
- **Use team contracts.** Major obstacles to group work are finding the time for students to work together and defining each group member's roles and responsibilities. Gould has each group develop a team contract that outlines how and when the group will work together. Interaction options include email, threaded discussion, text-based chat, document sharing, and audio bridging.
- **Use a variety of assessments.** Points should be spread evenly across different assessments because some students might not perform well on tests while others might not write very well.
- **Be flexible.** "I might have guidelines and even assignments prepared, but depending on the makeup of the class and students' learning styles and personalities, I might have to adjust some things," Padavano says. "If you find that the class is quiet, you can become more active. If you find that the students are very active, you can step back. You can facilitate based on the way that the students are participating in the course."
- **Provide frequent interaction.** Instructors need to be responsive to students' needs—Padavano recommends a 24-hour response time to students' questions—but interaction is not solely the responsibility of the instructor. Students also need to interact with each other and with the content. "Students need to touch the content every day. They want to know how they're doing, and they want to know quickly. They want to know the faculty member is there and that he or she cares about the students."

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Open-Source Blog Platform Provides Much-Needed Communication Flexibility

When Margaret Anderson, a psychology professor at the State University of New York at Cortland, began teaching online 12 years ago, she used an open-source communication tool to facilitate online discussions. She later moved to WebCT when the college decided to stop supporting the open-source product for security reasons. But WebCT did not provide her with the flexibility she needed, so she found a new open-source communication tool—LiveJournal.

LiveJournal is a blogging tool that has helped Anderson to work around several shortcomings of WebCT. WebCT's discussion feature works well for discussions among those enrolled in a course, but Anderson wanted to open certain discussions to former students, interns' site supervisors, and colleagues in similar departments at other institutions (including several overseas).

Anderson chose LiveJournal because it is free, easy to use, and allows users to change security settings to enable variable access. She takes full advantage of the ability to change security settings to provide different access—individual, instructor, class group, entire class, select individuals outside the class, and even the entire online community—to suit specific communication needs.

At the beginning of her courses, the class as a whole has access to LiveJournal to build a sense of community and discuss issues that are pertinent to all the students. Each of these discussions lasts for two weeks. Anderson posts a question in the first week, and students respond directly to the question. In the second week, students continue the discussion. (The discussion can extend beyond two weeks, but it is not required.)

For discussions that are relevant beyond the students in a particular course, Anderson may invite colleagues and students from similar courses at other institutions to participate. For example, a discussion on how states are implementing laws related to No Child Left Behind might benefit from the perspectives of education students in different states or even the perspectives of a broader group. (Anderson reserves interaction with the general public for the end of the term.)

Anderson has students use LiveJournal for group work as well. In these instances, she can easily set up groups by changing the security settings to restrict access to certain students.

She also conducts one-on-one communication with her students by creating groups consisting of herself and each individual student. She uses this mainly for student journal entries based on each class session. In the past, she would ask students to submit their journals every two weeks for her to review. The problem with that method was that often students would write several journal entries just before they were due rather than writing them after each class session. With LiveJournal, however, each entry is date stamped.

For interns, Anderson is able to do "virtual observations," in which she can have students post artifacts of their work, such as audio or video files. Anderson also opens these intern blogs to the student's site supervisor, which provides more insight into the student's experiences.

The archives of these blogs provide students with a record of their learning, which they can use to create electronic portfolios, Anderson says. "I have students who have worked with me for three semesters, and they'll look back at their first year's journal and say, 'Wow! I didn't remember that.' In that sense I do like it because it provides opportunities for reflection."

Use of these blogs also benefits students after the class has ended, by providing them with experience using a tool that they might be able to adapt to the courses they teach in the future. "Most of my students are currently teachers, and they hear a lot about the use of technology but don't necessarily see it in action. So for a lot of them this is modeling a tool that they can use in their own classes. One of the reasons I prefer this to something like WebCT or any of the proprietary course management systems is that if a high school or middle school teacher uses this system in my class, students can replicate it on their own because it's free," Anderson says.

When considering a tool such as LiveJournal or other blogging platforms, Anderson recommends that you carefully consider the needs of the course. "Pedagogy needs to drive the technology use. I love to look at new toys and new things out there, but I want to know what the needs of my course are, and what is the best technology to meet those needs?"

Before using a blogging platform, consider who will have access to each blog before the course begins, to avoid having to change security settings, which can be cumbersome. It also helps to adopt standard user name conventions to make it easier to grant access to specific forums. For example, for students enrolled in her Psychology 501 course, Anderson has students log in as 501lastname to enable her to easily sort users.

One of the disadvantages of using open-source tools is that you may not have on-campus technical support for them. However, in the case of LiveJournal, there are "excellent" user groups and FAQs to help with technical issues that arise, Anderson says.

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Building Community in Online Classes through Group Work

By Roxann Humbert, EdD

Students' sense of isolation is often cited as one of the reasons for low retention rates in online classes. One way to combat this is to build group work into your online class. In doing so, you will most likely also improve retention and increase student learning. When built properly, group projects will also require students to use higher-level critical-thinking and problem-solving skills.

Creating the groups

Deciding on how to group the students can be very important to the groups' success. Students may be randomly assigned to groups or assigned based upon their interests, their skill levels, their learning style, or their participation levels.

There are several methods for randomly creating groups. Many course management software packages include an option for randomly assigning students to groups. Another way to divide students is to have the instructor manually assign students to groups based on the course list. So the first student alphabetically would be assigned to group one, the second person alphabetically would be assigned to group two, etc.

Assigning students to groups based on a common interest is a great way to have students tackle controversial issues. To group students with common interests the instructor could provide a list of topics and have the students sign up electronically or through email for the topic they wish to discuss. To encourage critical thinking, the instructor could assign students to take the opposite position on the topic.

Giving students a technology skills assessment and grouping them by similar skills for group work is a great way to lessen the intimidation many students feel when their skill level isn't as high as that of their classmates. On the other hand, if the group were to develop some sort of technology-rich product as part of the group work, e.g., a Web page or brochure, grouping students with a range of technical abilities would make for a more successful group project. Students could assign each other tasks, and the students with the better technical skills could be responsible for developing the final product.

Grouping students by learning style is a great way of giving students the opportunity to develop projects that best fit specific styles. For instance, in a nutrition class the instructor could have a group of kinesthetic learners develop a Web page on one of the vitamins, have a group of auditory students develop and record a jingle about one of the vitamins, and have a third group of visual learners write a paper or create a flyer for one of the vitamins.

In addition to these methods of creating groups, instructors can use data provided by their learning management system (LMS) to group students. Most LMS packages track student participation. Assigning students who participate early and often to the same section can circumvent the problem of random groupings that result in one or two group members doing all the work.

Developing group projects

The following are three group projects used in an educational technology class to encourage community building.

Group Project 1: Online Discussion

As a future teacher it is important that you become familiar with key issues affecting technology in public schools. Using the discussion guidelines, tips, and rubric, accomplish the following:

1. Locate the topic that has been assigned to you.
   a. Do schools need more computers or more teachers? John, Maria
   b. Is technology further widening the gap between rich and poor? William, Julie
   c. Is technology further widening the gap between males and females? Jessica, Scott
   d. Should technology resources be focused on basic skills or higher-level thinking? Shannon, Pat
2. Decide if you agree or disagree with the statement.
3. Locate two Web sources that support your position.
4. Write a brief essay (approximately 200 to 400 words) expressing your point of view.
5. Identify, by quote, the point or points from the Web resources that support your position and elaborate on your point of view.
6. Go to the discussion board and select the **Assignment 2: Discussion Questions** topic.
7. Please put your name, the letter of your topic, and a brief description in the subject line of your message, e.g., Julie's Topic B: Rich or Poor.
8. List the hyperlinks for the two websites you found.
9. Write out the topic question before you write your answer in your posting. This will help us focus on the content and keep things in order. (This is due by April 21.)
10. Reply to at least three other stu-

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dents' postings, one for your assigned topic and one for each of two other topics. For instance, John will respond to Maria's posting and to one person in topic c and one in topic d. Review the responses of your fellow classmates. Ask questions to clarify any of the information that you don't understand. Post your comments, questions, and reactions as appropriate. You are not expected to comment on everyone's postings—only those that interest you (but a minimum of three). **(This is due by April 24.)**

Group Project 2: Group Justification

For this assignment you will become the expert on a computer input or output device, develop criteria for selecting a computer input or output device, and write a justification to your school board for purchasing this device. Use the device assigned to you:

- Scanner—Richard
- Graphics Tablet—Joyce
- Digital Camera—Victoria

Part 1: Locate two Internet sources of reviews for your device.
Part 2: Develop at least a 12-item rating instrument to evaluate your device.
Part 3: Use your instrument to evaluate two brands/models of your device. Record your results in an Excel spreadsheet.
Part 4: Write a two-paragraph justification to your school board for purchasing the device. Post your spreadsheet and justification to the Input/Output Device forum.
Part 5: Select the justification for the classmate listed below you and decide whether or not you would allow them to purchase the device and why. Post your response as a reply to their original posting in the Input/Output Device forum.

Group Project 3: Paired Groups

For this assignment I have divided the class into pairs.

Group 1: Richard, Jessica
Group 2: Michelle, Victoria

You will be working as a group to develop a checklist to conduct a technology inventory for a public school. Your instrument should contain the following parts:

- Part 1: Identification information, e.g., date of assessment, school name, etc.
- Part 2: Computer hardware information, i.e., number and types of computers found in the school.
- Part 3: Local Area Networks (LANs) installed in school, i.e., type and location of networks.
- Part 4: Network elements currently used, e.g., wireless, Ethernet, etc.
- Part 5: School- and countywide servers, e.g., file servers, Web servers, mail servers, etc.
- Part 6: Operating systems, e.g., MacOS, MS-DOS, Windows, etc.
- Part 7: Connectivity technologies and sources, e.g., modems, T1 lines, ATMs, cable, etc.

1. You are welcome to contact each other using whatever means you feel most comfortable with, but doing the project fully online will be more meaningful and fun for you. I have set up a private discussion topic—one for each pair. You are welcome to use these discussion areas to communicate and collaborate on your projects. Your group also has a chat area.
2. I have access to your private group discussions so I can monitor your collaborative group efforts. I will not participate in your groups' discussions unless you specifically ask for my help. If you choose to communicate via regular email, please CC me on your messages. The reason for this is that unless you include me in your loop, I will have no way to assess your group's collaboration.
3. As a group, decide on the technology you will use to develop your checklist, e.g., Microsoft Word, HTML, etc.
4. Post your group's collective assignment to the technology inventory discussion board on or before the date scheduled on the course calendar for review by other class members. I will give feedback to your team on your project shortly thereafter.
5. You will use your group's private discussion forum to communicate with each other.
6. The collaborative group project rubric will be used to evaluate the first 80 points of this assignment.
7. Evaluate the effectiveness of your group. There is a maximum of 20 points for this part of the assignment, and each member of your group will receive a possible 15 out of the assigned points for submitting the group project critique. The remaining five points evaluate your individual contributions to the group project. The last question in the review asks you to highlight your contributions to the group project. Tell me how many of the five points you feel you earned.

These are just a few examples of what instructors can do to build a sense of community in online courses. Providing exercises and activities that encourage group work and participation help to maintain that sense of community.

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Study: Changing Virtual Team Membership Improves Participation

Are you having trouble getting virtual team members to contribute equally to team projects? If so, perhaps you should try varying the membership of these teams because, according to a study by Brian Dineen (see reference below), doing so can reduce the issue of social loafing, where team members rely on other group members to do the work for them.

Dineen formed groups in a large, upper-division organizational behavior class and gave members the option of working face to face, by telephone, or online. He opted for this model because he felt it closely replicated conditions now common in professional contexts. Employees work with others in a virtual environment, and frequently, as tasks evolve, membership in working groups changes.

Dineen provides complete logistical details for the assignment, including the following important elements that were used: groups were made up of three to five members; for each of eight weeks they analyzed short cases relevant to course material and answered two questions related to the case; and group work, which counted for one-fourth of their grade, included a peer evaluation component. Even though students had the option of meeting face-to-face or by phone, 70 percent reported that they completed the entire exercise without ever meeting face-to-face. Instead, they used private bulletin boards that the instructor set up for them within WebCT.

For comparative purposes, Dineen kept membership in half of the 26 groups stable. Those students worked together from start to finish on the project. In the other groups, Dineen changed group membership weekly; in the second week, groups gained and lost one member, and in the third and fourth weeks they gained and lost two members. Students did not know how long they would be in the group. They simply received an email announcing that they had been reassigned to another group. They could no longer access their previous group's bulletin board and were given access to a new one.

Dineen looked at the impact of this group work design across a number of different variables. He collected data from students before the experience, on weekly surveys and on the anonymous end-of-course evaluation. From the data gathered, Dineen discovered that most of those who responded to the surveys did not have previous group experience in a virtual environment. The inexperienced group reported significantly higher degrees of learning outcomes and confidence than those who had worked in virtual groups before.

Dineen explains the reduction of social loafing by citing other research documenting that when groups contain strangers, team members tend to be on their best behavior because they are somewhat inhibited by people they don't know. Quantitative data indicated that social loafing was isolated to less than 5 percent of possible cases. However, levels of cohesion reported by group members were higher in those groups with stable membership. Interestingly, students in groups with fluid membership did not report lower levels of internal communication or decreases in their perceived abilities to influence group decision making.

Also of note were some findings related to extraverted and introverted team members. Results "show that introverts actually felt *more* influence than extraverts during this exercise and perceived a greater cohesiveness and better internal communication." This finding held true regardless of whether group membership was stable or fluid. (p. 613) Dineen suspects that the virtual environment somehow "levels the playing field," making it easier for introverts to contribute during group interactions. "This is important because it suggests that conducting online team exercises might bring more equivalent contributions from all team members." (p. 613)

This article is exemplary not only for the creative design of the group work, but also for the comprehensive way in which the impact of the approach was analyzed and assessed. This is an impressive piece of practitioner pedagogical scholarship.

Reference: Dineen, B. R. (2005). TeamXchange: A team project experience involving virtual teams and fluid team membership. *Journal of Management Education*, 29(4), 593–616.

Facilitating Student Interaction with Online Discussion Groups

By Eric K. Cooper, PhD

Many instructors use group work in their courses. I especially like to use group work for adults as it helps to draw upon their varied experiences. Unfortunately, adding group work to accelerated adult programs creates additional challenges. Less face-to-face contact, a characteristic of many accelerated courses, can lead to added pressure to cover course content. Adding outside group-related assignments could be perceived as undermining the adult-friendly nature of accelerated programs and lead to student resistance, especially for those students with full-time careers, families, and long commutes to and from class. A possible alternative to face-to-face group work is the use of online discussion groups.

I taught an accelerated, eight-week, once-a-week child development course to non-traditionally aged students. In an effort to increase group work and offer experiential learning without requiring more face-to-face time, I added an online component to enhance the child observation requirement of the course.

Discussion groups and learning communities have been suggested as necessary for effective learning and student satisfaction in online courses (Rossman 1999). An online format, especially one of an asynchronous nature, eliminates the need for adult students to return to campus or become confined to others' work or home schedules. According to Presby (2002), online discussion groups, especially used in combination with face-to-face interaction, have many positive outcomes. However, online discussion groups are not without criticism, including lack of interpersonal communication and miscommunication (Jonassen, Davidson, Collins, Campbell, and Haag 1995), lack of focus and planning (Presby 2002), and apprehension of and opposition to technology (Cooper 2000; Presby 2002). Careful planning and continued evaluation can effectively address these issues.

Method

After reviewing the literature on how to foster interaction among students outside of the classroom, I added an online discussion component to the course. Objectives of this course require students to complete child observations. Online group work seemed a beneficial means for enhancing the observation requirement.

Each student observed two children at different stages of development. I divided the class into eight, three-member groups in which students discussed the similarities and differences of their children, relating information obtained from the textbook and the classroom to the observations. These discussions took place online between face-to-face class meetings using a course management system. Because some researchers suggest face-to-face orientations to online assignments (Cooper 2000; Presby 2002), I demonstrated the use of the course management system during the first class meeting, suggesting how students would effectively use it to post assignments and interact and attempting to suspend any student opposition and apprehension regarding technology.

During the online assignment, group members commented on each member's observations, helping to determine if each child was following typical development patterns, commenting on each child's uniqueness, and relating course and text information the observer may have missed. Each group discussed the observations with the goal of group support to make connections between the observations, text, and class discussions. The groups then completed short class presentations every two weeks to update the entire class on their progress.

The online assignment was graded on thoroughness of individual member observations, substance of the comments from each member, and timeliness of completion. Students were then given an anonymous survey to evaluate the online assignment. The survey consisted of 21 questions, rated on a scale of one to five (strongly disagree to strongly agree). Students were allowed to offer additional comments on the survey.

Results and discussion

Students viewed the child observation experience as a positive learning experience, which supports our department's philosophy of experiential learning. Additionally, most students believed group work contributed to the experience. Of the eight groups, I feel six performed well with group members being supportive, offering advice, making connections to the course content, and taking the assignment seriously. One group had a more difficult time with the assignment and another group, as a whole, did poorly. These two groups did poorly on this assignment due to a lack of member participation and extreme lateness of responses, which was specific to the assignment as these instances did not necessarily mirror overall course involvement.

Overall, both the students and I viewed the online discussion groups positively. As expected, based on the literature and initial comments in the classroom, many students were initially apprehensive about the assignment, but a face-to-face orientation to

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the online system was beneficial in alleviating student concerns about technology and online discussions. Additionally, continued chances for questions and answers helped alleviate student concerns. Students indicated the small groups were appropriate, and I found the small groups easy to monitor. However, some students commented that groups with only three members may have been too small.

Based on the results, students appreciated the convenience of the online format without extra face-to-face meetings. Presby (2002) suggested shyer students would reflect on and participate more in the online discussions. Although shyness was not addressed in the survey, students tended to agree they could reflect more on the assignment. Overall, students believed the addition of the online assignment was appropriate for an accelerated course and suggested using the assignment in the future.

The online discussion groups were designed to allow students to control and dictate the direction of the discussions. Jonassen, Davidson, Collins, Campbell, and Haag (1995) suggest the instructor should remain absent or act only as facilitator because instructor involvement may impede student collaboration. Less instructor direction moves student interaction to a much deeper level with better understanding and interaction (Caverly and MacDonald 2002). However, many of the students wanted more instructor involvement in the online discussions. More instructor involvement is supported by much of the literature (e.g., Swan 2002) and should be used, especially in courses with higher levels of apprehension surrounding online assignments. For most of the students in the class, this was their first foray into online work. The discussions should become more student-directed as students progress in a course, but an eight-week course did not allow sufficient time for transition.

The online discussion groups enhanced the child observation experience in the accelerated psychology course based on student perception. However, based on my experience during this assignment, it is important to plan the assignments carefully, anticipate student questions, and post clear expectations regarding online participation and grading criteria. Also, it is important to offer prompt feedback as students will expect immediate responses online. Additionally, some apprehension surrounding the use of technology and the online environment, especially from adult students, should be expected. It also may be necessary for the instructor to interact more in the assignment discussions than originally intended. These results may have been different with traditionally aged students.

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How to Reduce Social Loafing

In any group there is always the potential for real or perceived inequity in the amount of work done by individuals. This phenomenon is known as social loafing. Unlike lurking, which some would argue is a valid learning style, social loafing can have major negative consequences for the learning team, such as reduced motivation.

At this year's Conference on Distance Teaching & Learning, Sherry Piezon, a doctoral student at Florida State University, and William Ferree, manager of Web-enables programs at the Naval War College, offered the following recommendations for reducing this problem:

- Require high levels of accountability
- Alternate group roles
- Balance group member skills and knowledge
- Encourage discussions
- Give meaningful feedback to the group and individuals
- Provide rewards for group performance
- Provide all groups with for performance data from other groups for comparison
- Use a grading system that gives a group grade and an individual grade—the latter based on individual contribution to the final project and participation in group meetings
- Assign readings on group work processes
- Provide opportunities to increase collaboration and publicize results.

Active Online Learning Prepares Students for the Workplace, Reflects Changing Learning Style Preferences

Changing workplace demands and student learning style preferences require that instructors rethink their courses. No longer can students passively absorb knowledge. They must become active learners — interacting with peers and designing and implementing the learning, says Jane Legacy, MBA/MBE chair at Southern New Hampshire University's School of Business.

Legacy uses active learning techniques such as group inquiry, online field trips, asynchronous debate, and Web quests in her online courses—in organizational leadership and human relations, research and technology, and online learning—to prepare students for the types of learning situations they will encounter on the job and to reflect the changes in the ways students prefer to learn. "If we want our students to be successful in the workplace, we've got to model what we want them to be like," Legacy says. "If the ultimate goal for us is to prepare people to learn, unlearn, and relearn the rest of their lives, they have to start having fun, and we need to make them accountable. And the only way we're going to give them that opportunity is to not be so rigid with our instructions."

In addition, Legacy says, today's students are less interested in lectures and prefer more variety in the instructional methods used in a course. "They love to be active participants in the learning process, and the research says also that students learn better from other students than they do from teachers," Legacy says.

Because of the changes in students' preferred styles of learning, Legacy recommends that instructors change instructional strategies every 15 to 18 minutes, whether the course is on campus or online.

Legacy's courses are set up as modules on a Wednesday to Wednesday schedule rather than Sunday to Sunday to give students more time on the weekends to complete their work. Each module consists of 15-minute increments. For example, students may read for 15 minutes, then spend 15 minutes in a group activity, followed by 15 minutes in the discussion forum. (A three-credit course typically requires students to put in approximately nine hours a week.)

The first step in creating an active learning environment online is to get students to relate what is going on in the course to their lives, which helps them problem solve and think critically, two skills that are essential in the workplace.

This concept is played out in a variety of ways in Legacy's courses. She begins each course with a pre-assessment of students' skills and abilities by taking all the course's learning outcomes and having each student rate himself or herself on those outcomes. Legacy also does a personality assessment, and based on those two assessments, she puts students in groups so that each group has a cross section of skill levels and personality traits.

From the beginning of each course, each student's work is visible online to others in the course through an e-portfolio. Students also critique each others' work using a set of rubrics. This helps students be more creative in their work, and it also gives them ideas for how to approach their own projects. "It's all about students designing, implementing, and evaluating their own work using other people's work as resources," Legacy says.

Legacy also has a discussion board in Blackboard in which students each week are asked to reflect on their "deliverable" for that week. "I change the word 'assignment' to 'deliverable' because the word 'deliverable' puts the responsibility on the students," Legacy says.

Discussing the deliverables "teaches them that there is always a reflection in work." It gives students a chance to analyze what worked and what didn't.

The goal of Legacy's courses is to relate the material to real-world situations, which motivates students to learn by emphasizing the things they will need to know when they are in a particular career. It also gets students to relate the material to their own lives and to seek other people's perspectives.

For example, Legacy might include an "expert witness" in a course, someone who works in a field that is relevant to the course. If it's a law class, the expert witness might be an attorney. Legacy will have the students read a relevant chapter and follow up by asking the expert witness how the material relates to the real world or how his or her experiences compare to what the students read in the textbook.

One of the keys to getting students to take an active role in their own learning and their peers is a set of clear rubrics. For group projects, the rubrics list all the things students need to accomplish, and for each group project students assess each others' participation.

The rubrics remove the subjectivity of the grading process and give students the responsibility of selecting the grade they want. For example, in threaded discussions, students know that in order to get a C, they must re-

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spond with information that comes from the textbook. To get a B, they must use information from the textbook and another resource. To get an A, they must respond with information from the textbook and two other resources.

Like all learning situations, the success of active learning techniques depends largely on the dedication and skills of the individuals in the course. Legacy teaches at the undergraduate and graduate levels. Legacy's graduate students, who are generally in the business world and understand the value of active learning because it closely resembles how they conduct themselves at work, are more inclined than her undergraduates to "dive into" active learning. However, the undergraduates generally have less fear of the technology.

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17 Tips for Successfully Including Peer Collaboration in an Online Course

By Teshia Young Roby, PhD

Building relationships and communities through peer collaboration in online courses is a concern for many instructors, and finding a starting point might be a challenge. Fortunately, there are instructors who have undergone the processes.

Instructors within the University System of Georgia participated in a study that explored examples of peer collaboration exercises within their online university courses. The instructors represented five universities and nine academic disciplines. Their educational and professional backgrounds varied greatly. For most of the instructors, the online courses in which they included peer collaboration were their first experiences teaching online, and most did not receive formal training to do so, nor did they have access to teaching assistants during the various phases of the course. The instructors employed a variety of communication mechanisms and technology tools within the courses involved in the study and the examples of peer collaboration exercises offered by the instructors ranged from the simple to the complex.

The data provided by the instructors revealed several instances of common practices and lessons learned, and a set of heuristics for successfully including peer collaboration in an online course emerged.

1. **Get rid of preconceptions**—Prior to beginning the design of the online collaboration activities, abandon any preconceptions regarding which types of exercises cannot occur online.
2. **Adapt and adopt existing collaborative exercises**—Rather than creating new and original online peer collaboration exercises from the beginning, exercises can be developed initially by referencing previous classroom collaborative activities that proved successful and adapting those exercises for use online.
3. **Begin with a manageable amount of collaboration**—To provide optimal learning experiences for the students, incorporate a few well-planned exercises when first including such activities.
4. **Consider a course orientation**—Though including a face-to-face orientation for an online course is not an option in some cases, an initial session to introduce the course can be beneficial to the online student. If a face-to-face course orientation is not an option, an initial course content module can be designed to present that information.
5. **Make the collaboration a stated course outcome**—Encourage student efficacy with peer collaboration by first making collaboration a stated outcome of the course. Collaboration, participation, and communication expectations must be written into the syllabus.
6. **Teach students how to collaborate**—Provide students with information and tips on how to interact with classmates, problem solve, constructively criticize, divide and assume responsibilities, organize their work, manage their time, and provide an end product that is seamlessly representative of the collaborative efforts of the group.
7. **Provide structure for and require deliverables from the students**—Help students manage time and meet course milestones by requiring deliverables and informing them of expected benchmark competencies.
8. **Organize the student groups early and stabilize the groups throughout the course**—Early group formation allows the students to become familiar with their groupmates and conse-

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quently promotes ease of communication within the groups. If possible, groups should remain intact for the duration of the course to promote team cohesion.

9. **Create groups of three to five students**—When groups contain more than five students, they become unmanageable. In large groups, "lurkers" are able to not participate, "slackers" are able to unduly benefit, and "controllers" are able to dominate the discourse. Groups of two may not fully allow the students learn the skills of group consensus gathering and problem solving.
10. **Instruct groups to report large problems**—During the peer collaboration exercises, students should be allowed—and expected—to solve internal problems. However, students should be informed that irreconcilable problems should be reported to allow an intervention to occur that would enable project work to progress.
11. **Provide feedback often**—Prior to tests and finals, students should receive feedback on how well they understand the course information.
12. **Carefully choose discussion topics**—When preparing discussion topics for the groups, choose interesting and controversial topics to elicit discourse.
13. **Prepare in advance for chat room discussions**—First, be organized for chat room discussions. Make the chat room topic and any associated questions available to the students at least three days prior to the exercise. Instruct the students to prepare questions and comments regarding the topic to help facilitate the flow of conversation during the exercise. Next, to promote student involvement and activity, give grades for sustentative participation in the chat discussion and inform the students of the grading structure prior to the chats.
14. **Organize the discussion board for productive discourse**—Because of the volume of traffic that the discussion board can generate, it is important to provide a great deal of structure in this area. First, create an exhaustive list of topics that might be discussed during the course and create headings for each of those topics in the discussion area. Instruct the students to post messages under the appropriate topic heading on the discussion board and make the students aware of the rules and etiquette for posting a message to the discussion area. Next, instruct the students to place questions for general consumption on the discussion board and encourage other students to respond to the message if they have an answer.
15. **Constantly facilitate and monitor online collaboration**—At no time during the course can the students be on autopilot. Since physical and verbal cues cannot be obtained from the students, facilitation and monitoring of the course are the only ways to know that they understand the concepts that are being provided. During the peer collaboration exercise, visit the discussion areas to make certain that the students remain on track with the concepts and on task with the assignment.
16. **Promote peer collaborations through grading**—When conducting group exercises that require the use of the discussion board, remind the students that posted discussions are designed to replace the classroom discussions and that only substantive contributions will be graded. In addition to the overall group grade for an exercise, be certain to require the students to individually submit their work to ensure that everyone will have something to contribute once the groups meet. Conclude the exercise by having the students complete a group evaluation.
17. **Receive student feedback on collaboration exercises**—In addition to a general course evaluation, ask students for feedback on each peer collaboration exercise, particularly those that are newly implemented. Use the comments received from the students to adjust, abandon, or confirm the use of the exercises.

An Excerpt from:
Roby, T. Y. (2002). An exploration of perceived successful and unsuccessful peer collaboration exercises within online university courses. *Department of Middle and Secondary Instruction and Instructional Technology.* Unpublished doctoral dissertation, Georgia State University, Atlanta.

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Comparing Online Peer Interaction Methods

Face-to-face instructors are increasingly turning to online communication tools to provide students the opportunities to discuss course content with peers. There are several communication modes that support this type of interaction, and in a recent study, Bill Warrick, education instructor at George Mason University, and his colleague Stacy Connors surveyed a cohort of graduate students in an instructional technology master's program on the quality of the learning experience, peer interactions, and ease of use of email, bulletin board, and synchronous chat for collaborative group work.

The study

In fall 2003, 49 students enrolled in two courses—Teaching With Technology and Education and the Culture of Schools—engaged in online discussions about seven books related to the culture of schools and technology tools. During the first five weeks, they used email as their discussion tool, followed by Blackboard's bulletin board feature in the second five-week period, and finally DigiChat software for synchronous communication in the final five-week period.

For each five-week discussion, the students were randomly divided into groups of four or five and were asked to discuss the readings.

In the first five-week period, each student was asked to create a chain email message about what they thought was the main idea of the reading. Each message was to be sent to the group one at a time in a specific order. As each student received peers' messages he or she would comment and forward the original message and all additional comments to the next person in the group. When the chain message made its way back to the original sender, he or she would read all the comments and forward it to the instructor.

For the Blackboard assignment, students were asked to post and reply to other group members' comments about the main ideas of the book.

In the synchronous part of the course, the instructor created private chat rooms for each group to discuss the books. One student served as moderator and summarized the chat for the instructor.

After each five-week period, Warrick surveyed the students to determine how they rated

- their learning experiences using each of the three communication modes
- their interactions with peers using each of the three communication modes
- the ease of use of each of the three communication modes.

And at the end of the course, Warrick asked students to rank each communication mode in terms of overall quality.

Results

Based on anonymous survey responses, the quality of the learning experiences, interactions with peers, and ease of use were consistently high across the three communication modes. In terms of quality of interactions with peers, synchronous chat rated slightly lower than the other two modes.

On a scale of 1 to 5 where 1 is the best, the mean scores for each category were all 1's and 2's in terms of quality of learning and peer interaction. "That kind of surprised and pleased us. It said that all three were viable means of interaction," Warrick says.

As for ranking the different communication modes, there was no clear preferred mode: 31 percent ranked email as their preferred mode; 35 percent chose bulletin board; 33 percent chose synchronous chat.

Students were less divided on which communication mode they least preferred: 29 percent rated email lowest; 29 percent rated bulletin board lowest; 41 percent ranked synchronous chat the lowest.

"We just attributed that to the fact that one of the problems was that they were doing this on a weekly basis, and it is difficult to arrange time for people to meet online, particularly when they are just being introduced to the tool," Warrick says.

Warrick and Connors also analyzed the discussions that occurred in each mode. "Blackboard and chat allowed for a little more freedom of interaction. The email was a little too structured, and I wish we hadn't had it as structured as we had where they were only able to react once to someone's comments. There was not a lot of opportunity for back and forth discussion, so we didn't see the depth of interaction simply because of the way we had it structured. In Blackboard and in the synchronous chats, they were a lot more free to react and have what we term a 'general discussion' with a lot more give and take," Warrick says.

Implications

"Inasmuch as we found that each of the three was rated highly in terms of their quality of learning and interaction, we learned that it is appropriate to use any of these three tools depending on the subject matter, time frame,

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and students' learning styles," Warrick says.

In addition to the findings, informal discussions with students pointed out areas of frustration such as difficulty in organizing synchronous chats and the lack of back-and-forth interaction using email.

Students reactions to these communication tools were partly based on their previous experience with them, Warrick says. "Email was much more familiar to them. It facilitated their discussion, and it made it easier for them to share their thoughts. By the same token, one of the problems we found in talking with students after the course had ended was that they were simply reacting to what someone wrote to them. If we had a more iterative process where they could email back and forth among each of the five members a number of times, the quality of the discussion, I think, would approach what we saw in Blackboard," Warrick says.

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Developing Community Online

By Patricia A. Smith, EdD

Collaborative learning is a process that advances student learning in the classroom. Collaboration occurs when individual peers redefine themselves as a group.

Groups enhance student learning. Through this learning process, students also rediscover their own individual ideas as they develop higher-level reasoning skills and strategies.

Applying collaborative learning techniques in the online classroom promotes active student involvement in the learning process. Collaboration also capitalizes on the work of the peer group to improve understanding of subject matter and development of writing in the field of study.

Why collaborative groups?

I include group activity as a means to move students to a higher level of thinking and responding to ideas in my *Educational Philosophy and Teaching Practice* online class. Through a measure that I validated and modified called "The Educational Philosophy Test" (Jersin, 1972), online students determine their personal educational philosophies. Students are grouped in one of two categories—traditionalist or modernist—and then two subcategories are developed under each of these headings, resulting in four small philosophy groups.

These small philosophy groups promote intellectual interaction among their members, as students work to better understand difficult concepts. Because they are grouped by their personal educational philosophies, peers have similar stances on the role of education. They support one another by sending drafts of papers for input before their final essays are due. They connect online through virtual classrooms or discussion threads to discuss aspects of course material that provoke thought and require in-depth review. Through use of small groups of like thinkers, the online participants establish a bond, as group peers grapple with readings that provoke thought, such as those of Plato Aristotle, Kant, and Dewey, among others.

Tips for developing small groups

The following are a few for incorporating small groups into any online class:

- Establish a system of grouping that is most favorable to your subject area.
- Define what you mean as *support*. Develop clear guidelines in which group members support one another.
- Provide assignments that encourage active group involvement.
- Open discussion threads in which small groups can participate.
- Establish due dates that students must meet so that they are prepared for group discussion.
- Provide writing assignments that require peer response and that further the thinking process of each student.

Reference:

Jersin, P. (1972). What is your education EP? *The Clearing House* 46, (5), 274-278.

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Let Students Choose How to Collaborate

Group work can be a hassle for students, particularly in the online classroom, but the learning opportunities it provides makes it a popular technique among instructors. To understand how adult learners work in groups in online courses and to develop ways to make group work more enjoyable and productive, Kathleen Ingram, assistant professor in the University of South Alabama's instructional design and development program, surveyed and interviewed students in her online graduate-level needs assessment course. She found that the groups took very different approaches based on their schedules and preferences.

Group selection

In the first week of the course, Ingram conducted an introductory threaded discussion to help build a learning community and to give students information about each other when it came time to selecting a project and group.

Ingram posted project descriptions in the second week and gave students a chance to choose which project interested them the most and who they would like to work with. However, students did not have final say. Ingram also considered each student's amount of time in the program, instructional design experience, cultural background, technological experience with online classes, and distance from campus when she divided her 10 students into three groups.

"With the asynchronous nature of the group work, it becomes very difficulty to make decisions. You have to be comfortable with each other, and you have to have some strengths in [each group]. So I tried to make the groups even—to have some leadership and background in instructional design in each," Ingram says.

Different approaches

One of the first group activities was to establish a charter, similar to what a group in business and industry would do. Each group created a document that described how they were going to work together and how they were going to resolve problems.

As in most online courses, the students could use email, threaded discussions, chat, and/or face-to-face meetings to work together (depending on where they were located).

The three groups took quite different approaches. One group chose to use chat and developed a set of protocols to avoid some of the problems that can come up. For example, group members agreed to use an ellipsis to indicate "I haven't finished my thought, but I want you to read this while I type the rest." And a period indicated that a person was done with a particular thought. Group members took turns as moderator and timekeeper. "They turned out to be my best group, but also had the most problems. One member was not on board, but the protocols allowed them to progress," Ingram says.

The chat protocols could have been in the charter, but because the group was working in this environment for the first time, they didn't know exactly how they would use the tools and what issues might arise.

Another group was not completely at a distance, although they had more outside commitments than the other groups and chose to do everything by email. "I would say they got along better than the other groups. They would come to consensus and then go forward with a plan, and if one of them was having a bad week, the others picked up the slack with no questions asked," Ingram says.

The third group felt it was important to meet face to face to establish rapport. Since group members were local, they had the opportunity to meet several times. This group functioned the least well because there was a person new to the program and another who was not doing his share of the work. "Because most of the communication was asynchronous, it was hard to hold that person accountable," Ingram says.

Although all of the groups were familiar with threaded discussion (Ingram used it throughout the course), none of them chose it for their group communication. Ingram speculates that the two groups chose email because they were more familiar with it and because its' more of a "push" than "pull" technology—"you don't have to go into the course. It comes to you," Ingram says.

The group that used chat, chose it because they didn't want the communication to drag out over the week, Ingram speculates.

"[The choice of communication tools] depends on the content and what the learners are trying to accomplish. Since they were trying to come to consensus and move this project along, that's why they chose chat and email. They are much more dynamic than threaded discussion. Threaded discussions are rather static and can really take longer because students are not as accountable. They can come in at the last minute, but if they're not there at the chat at the scheduled time, they've missed it," Ingram says.

Lessons learned

This was the first time Ingram used charters to establish group practices,

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and she found they didn't make much difference. [Students] actually made their decisions as problems came up and the projects evolved," Ingram says. "I would definitely use a charter and have them try to decide ahead of time how they were going to work but make it more of a living document. Rather than writing it for me, I would have them write it for themselves, and after the first couple of weeks come in and change it the way they need to."

Ingram wanted to give her students the chance to decide for themselves how they would work. While she still believes that is an important aspect of adult learning, she would create some checkpoints along the way so she can observe their communication to make sure things are going well and perhaps ask questions or offer guidance.

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Online Process-Oriented Group Projects

Many students fear group work, and the prospect of working with classmates at a distance adds more uncertainty and apprehension. Nevertheless, group work in the online classroom can encourage active participation and teach the same group processes that many will encounter in the workplace. The following is how one online instructor uses group work in her courses.

Cynthia Calongne, computer science professor at Colorado Technical University, uses activity-based instruction in her courses whether they are on campus, hybrid, or fully online. She does this to keep the courses consistent so that students can take them in any medium and get the same instruction and because computer science lends itself well this approach. "I'm a big believer in groups because it models the way we do work in the software industry. Very few individuals write an entire product by themselves," Calongne says.

In each group project in Calongne's online courses, whether it's developing requirements specs or designing software or user interfaces, students have to elicit and define project requirements as a group. And in her graduate courses students have to form groups and develop and complete their projects in just five-and-a-half weeks.

Group selection and formation

She begins the group process by creating a forum in which students introduce themselves, post and discuss topic ideas, and select teams.

Calongne lets students select their own teams of three to five. She tried assigning students to teams once, but that didn't work very well. "Everyone in the class I had had at least once in the campus classroom so I had an understanding of their preferences, goals, and why they had taken the class. I formed teams based on my knowledge of their backgrounds. It was disastrous. It took more work on my part to keep them motivated and going in the right direction," she says.

Along the same lines, Calongne allows groups to develop their own ways of working together. "I have seen some try to get together for face-to-face meetings because they feel disconnected. I've seen others mobilize quickly and divide the project into sections. Some are highly motivated and can work independently and gather online every few days. And some spend their initial time in threaded discussions and won't produce tangible results immediately.

"I allow them two weeks to explore and then ask them to show me some of their sections so I can give feedback. I think that's critical regardless of which method they use. I'll confirm what they're doing so they're comfortable because when there's a lot of uncertainty, the team has a hard time making confident progress. They'll spend more time worrying than actually getting the work done," Calongne says.

The group struggle

Although Calongne provides some structure—she gives the groups a template that has all the possible sections that could be included in the project, and each group decides which sections to include—she deliberately allows for ambiguity, creating an environment where conflict is inevitable.

While online instructors in general should provide feedback within 24

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hours for most classroom activities, Calongne makes an exception for team projects to allow students to learn from their mistakes. She monitors group progress throughout her courses, but provides feedback only when students ask for it or if she sees that they are getting off course.

"Each group needs to struggle," Calongne says. "It's difficult to know how long they should be allowed to struggle, but you let them struggle for a while, and then you give them three or four recommendations so they can make a choice as to how to proceed. That's important, otherwise students won't have a good team experience; they won't see the benefits of [team work]; and they won't be successful in the course."

Informal communication

Throughout the group projects, Calongne encourages her students to take risks and to not concentrate on polishing their communication within the group. "So often there's a community of people who are uncomfortable committing their thoughts to words and having them in print. They think everything has to be precise like an exam response or research. I try not to be very formal with them so they don't spend so much time on reflection so that their answer no longer sounds like theirs."

In addition, Calongne does not have the groups submit incremental deliverables on the projects "because that just creates busy work. Why polish something that's wrong? Instead, I tell them that I'm reading all their stuff and that their classmates are reading all their stuff, which improves quality."

Calongne holds optional weekly chat sessions. Each session lasts one hour and is loosely structured. It's an opportunity for the students to review for exams and to ask questions about the group projects. Although the main goal of the group projects is to learn the process of working with others, Calongne notes that in these sessions students are often more focused on the product than the process, asking for clarifications of grading rubrics.

In cases where groups lose members (whether by dropping the course or switching to another group) students are often concerned with how it will affect the quality of the project. It isn't until the end of the course when students take time to reflect on the group projects that their learning about the process becomes apparent.

Evaluation

Calongne uses several assessment tools. She has students evaluate each other by asking whether each team member performed. If all the team members agree that one member did not perform, that student does not receive credit for the project.

She also has objective measurements, including the number of times each student entered the course site, the quality of the posts, and the interaction within teams.

To assess other elements of the course that are not addressed by these measures, Calongne gives students bonus points for a three- to five-page email telling her what they learned and why it was significant. In this email students often indicate what they learned about the team experience, and she uses this information to refine her courses.

Contact Cynthia Calongne at calongne @pcisys.net.

How a Former Student/Current Instructor Facilitates Online Student Collaboration

As a former online learner, Valerie Taylor, an online instructor at De Anza Community College in California, understands the needs and frustrations of her online students and the importance of interaction and collaboration to motivate and improve learning outcomes.

Even though she was enrolled in a program in online teaching and learning at California State University-Hayward, Taylor herself was hesitant to take an online course. "At the outset of the program, a couple of people I knew had enjoyed an online course they had taken. I thought, 'I'm not sure. I'm a people person, and I'm not sure I want to do this sitting at home by myself,'" Taylor says.

Within a few days, she was convinced of the effectiveness of the online format. "What was interesting to me was the sense of community that was actively promoted. I felt I knew more of my classmates better because of the introductions and discussions than I would have sitting in a classroom that I would have had to drive an hour to and an hour from after a long day of work," Taylor says.

For Taylor, the essence of the program (which used eCollege for her first two quarters and switched to Blackboard) was the threaded discussions—in both contributing to the discussion and being able to read what other people wrote. "It's imperative to be able to collect threads you previously read and be able to string them together easily. I don't know how one would have done it if the discussion tool was

PAGE 30 ▸

FROM PAGE 29

any less capable in that department," Taylor says.

While she missed some of the personal contact with her classmates, being able to peruse the threaded discussions at her leisure meant that she wouldn't miss a thing, "which is huge, especially when you have a class of 30 or 40 other teaching professionals who have lots of things to say," Taylor says.

In addition to the threaded discussions, collaborating on group projects enabled her and her fellow learners to share their areas of expertise with each other. For example, Taylor worked with three other students on a project to develop a WebQuest on insects for a K-12 teacher in the group. A kindergarten teacher provided the subject-matter expertise. Taylor had more of a Web background than the others. And two other group members helped with rollovers, animation, links, and insect pictures.

"We did this iteratively, each of us contributing our piece, which worked really well. We identified the roles and responsibilities, the tasks, and how they would be shared. And we did it all through discussion threads. Being able to have that record of the process was very helpful," Taylor says.

The value of her collaborative experiences convinced Taylor to include similar elements in the course she teaches (in the CSU-Hayward program and through De Anza Community College). "Students say they hate group projects. They don't want anything to do with them. All of the students in the CSU-Hayward program said the same. But we make them do them, and they all love it. They do really well," Taylor says.

In a recent JavaScript course, some of Taylor's local students got together physically to work on group projects. Some talked on the phone, and some used email. She found that the groups that collaborated online struggled more in the beginning, "but, I think, in the end, they had a better understanding of what they were doing, and everybody participated more equitably."

When she first started teaching online, she created private discussion areas for each group (and gave herself access so she could monitor the interaction). She has since made all the groups open to the entire class in case her students are curious about what the other groups are working on and how they are working together and in case a student would like to change groups.

Taylor monitors the groups and occasionally sends emails to group members when a member is excluded or does not participate as much as the others. Taylor looks for potential problems but does not respond unless her input is needed. Because most of her students are non-traditional, they often bring project-management skills to the group that help resolve group issues, and the students will often resolve problems on their own. "I'm astonished how self-correcting groups can be," she says.

Including group work in an online course is also a good way of tailoring the course to each student's interests. For example, in the courses Taylor took at CSU-Hayward, there were corporate trainers, K-12 teachers, and higher education instructors — all of whom had different things they wanted to get out of the program. Because the courses were online, it was easier for the instructors to offer students more choices about how they learned, and the students could take a more active role in directing their learning, which increases their engagement in the course.

ONLINE CL@SSROOM

IDEAS FOR EFFECTIVE ONLINE INSTRUCTION

FEBRUARY 2007

Using Individual and Group Instant Messaging to Engage Students

Debby Kilburn, a computer science professor at Cero Coso Community College, has two compelling reasons for using instant messaging (IM) in her online courses. First, it's an integral part of the content—she teaches an online version of introduction to computer information systems, and learning about computers involves learning about instant messaging." Second, it creates a sense of connection that, she says, improves student satisfaction and retention.

Kilburn uses IM for conducting synchronous chat sessions, as well as to provide individual communication with students. She also encourages students to add each other to their buddy lists and use the tool throughout the course as they see fit.

The syllabus explains how IM will be used in the course and how to get set up. In many cases, students have already been using IM, but not necessarily in an academic setting. Kilburn uses a multiprotocol instant messaging application and encourages her students to do the same. This makes communication easier across different synchronous communication systems, such as AOL Instant Messenger, Yahoo! Messenger, and MSN Messenger.

Group sessions

Kilburn uses IM for one-hour chat sessions throughout her online courses. She schedules them at different times and on different days to accommodate as many students as possible. She allows students to sign up for sessions that are convenient for them but limits each chat session to seven or eight people to keep each session manageable.

The chat sessions are not intended as spaces for formal writing; rather, they should be used for collaboration and brainstorming. The only thing Kilburn asks of students is to avoid multitasking during these sessions. However, she does not restrict the individual student-to-student instant messaging that goes on during group sessions. "Having multiple streams of communication going on doesn't bother me, as long as the students are participating in the [main discussion]. What I want [them] to get out of using instant messaging is some sense of community—some sense that there are classmates [whom] students can turn to, in the face-to-face classroom, students may chat with the people sitting next to them or

CONTINUED ON PAGE 2 >>

TIPS FROM THE PROS

Nine Strategies for Using IM in Your Online Course

Instant messaging can be an effective online learning tool that can build community and foster collaborative learning. The following are some suggestions from Debby Kilburn, computer science professor at Cero Coso Community College, for making the most of this tool:

- **Explain how to get set up.** Although many students may have used IM, they probably have not used it for academic purposes. The syllabus should explain how to set up students' IM accounts. Have students use a multiprotocol instant messaging application such as Trillian or Gaim to make communication across different IM systems easier. Remind students to add each other to their buddy lists.
- **Offer group chats at different days and times.** IM can be used for group chats. In order to keep chats manageable, limit them to eight students per session and offer them at different days and times, so students can find a session that is convenient for them.

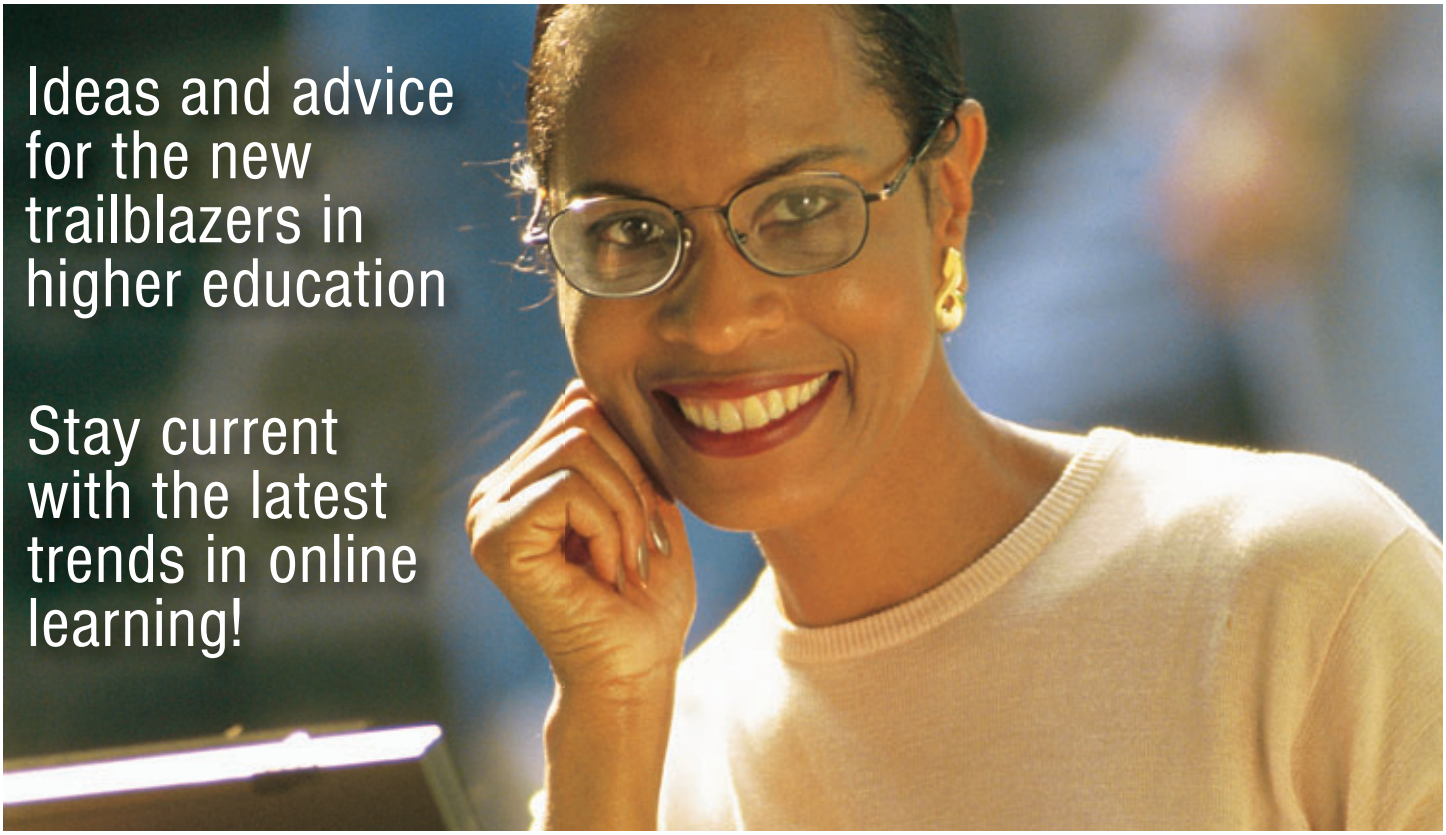
CONTINUED ON PAGE 8 >>

IN THIS ISSUE

3 A Guide to Creating Modular Courses
4 Activities 101: Developing Self-Check Exercises
6 Be Aware of How You Write What You Write!
7 Seminar—A Good First Venture into the Online Classroom

A MAGNA PUBLICATION

Contact Valerie Taylor at cis89taylor@yahoo.com. @



About *Online Classroom*

Online Classroom helps you:

- Create and design quality online courses
- Stay current with the latest learning strategies
- Manage courses without becoming overwhelmed
- Keep online students engaged and committed
- Continuously evolve and improve your courses

A MUST read for:

- Faculty currently online—or wanting to get there
- Distance education administrators
- Faculty development personnel
- Academic deans
- Department chairs
- Continuing or extension education personnel

Online Classroom has been helping educators develop and define the world of online education since its inception in 2001. Issue after issue, it looks at the challenges and opportunities presented by this dynamic, fast-growing teaching medium.

Broad in scope, *Online Classroom* covers topics including:

- Instructor roles
- Course management
- Student support
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- Time management
- Synchronous/Asynchronous interaction
- Assessing student learning
- Threaded discussions
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- Protecting the Classroom Community
- Managing a High-Enrollment Course
- Engagement Is the Key to Online Learning Success
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Back cover

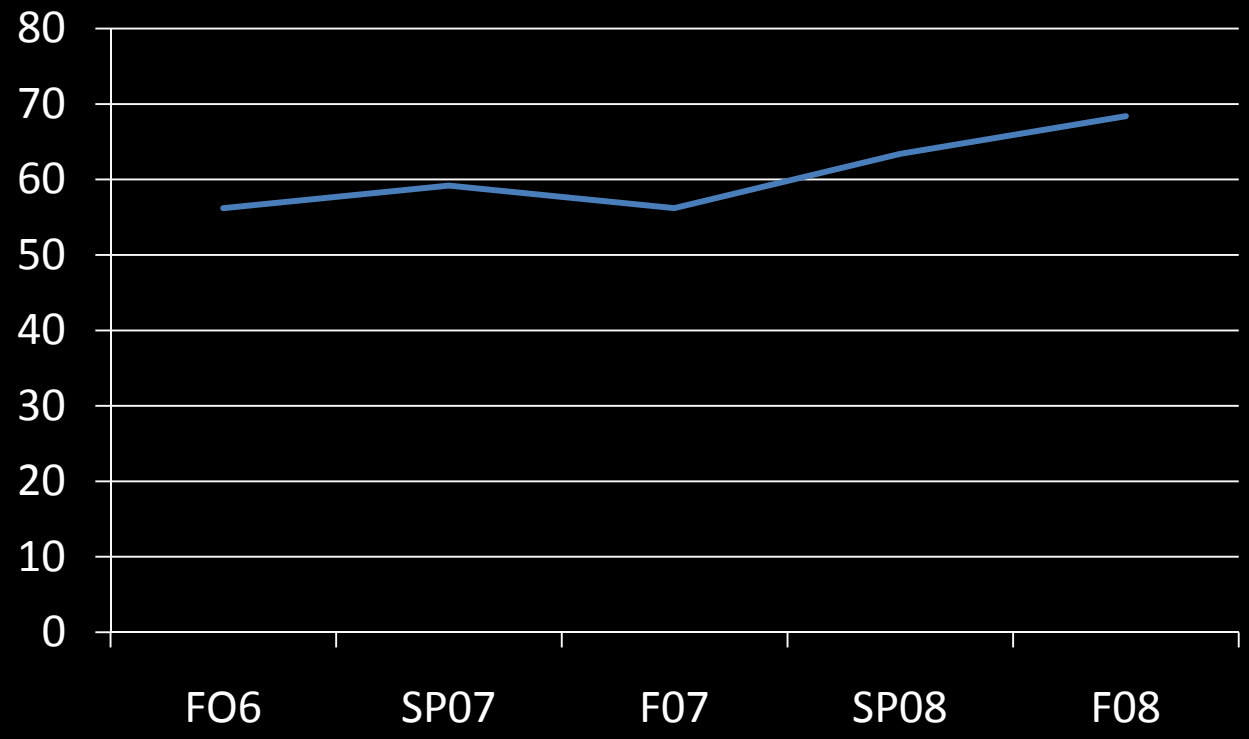
BEST PRACTICES

FACULTY BEST PRACTICES

BIO 100 BIOLOGICAL SCIENCE

ACTIVITIES IMPLEMENTED IN 2008-2009

PASS RATE



ACTIVITIES IMPLEMENTED

- 1. Short exams/quizzes.
- 2. Review questions at end of study section.
- 3. Study assignments (e.g., Sec 03, pp 63-72) – students required to e-mail subject they have studied; credit given.
- 4. Class participation.
- 5. Mini-quizzes at beginning of class to encourage attendance.

- 6. Group projects --- to encourage learning as well as leadership role.
- 7. Tutoring.
- 8. Question of the day to start off discussions.
- 9. Vocabulary with quizzes.
- 10. Exam study guide.
- 11. Films for visual/auditory learners.

RESULTS

Fall 07	**56.2%**
Spring 08	63.4%
Fall 08	68.4%

RESULTS

WHAT WORKED

- No single practice; but, a combination of strategies listed above.
- Group projects and study groups appeared to be most beneficial to students.

WHAT DIDN'T WORK

Long exams

Not participating in tutoring sessions

CHM 100: Man & Environment

Best Practices Implemented in
2008-09 Academic Year

Course Catalogue Description

Survey of the principles and applications of chemistry designed for the non-science major with limited background in science and mathematics. Includes topics in general, organic and biochemistry designed to aid the student in understanding the chemical factors in our technological society.

Old Course Syllabus

- Jean Krail – Retired
- 4 pages of basic dimensional analysis & relevant chemical calculations
- Three writing exercises (Magazine Article; Research Paper; Book report)
- Extra Credit – PBS Chemistry Series Tapes (in Library)

Old Grading Scale

- Chapter Examinations – 50%
- Writing Exercises – 25%
- Final Examination – 25%
- Extra Credit – 5 %

SST Web-enhanced Course Site

- Chapters
- Syllabus
- Objectives
- Labs
- Practice Areas
- Lecture Notes
- Sample Tests

Web-enhanced Site Contd. Syllabus

- 4 pages of basic dimensional analysis & relevant chemical calculations
- Online Chapter Quizzes
- Monthly writing Exercise on Contemporary Matters
- Link to PBS tapes from our website

Sample Writing Exercise - January

- **Write a short essay explaining the change in global temperatures and the risks associated with that change.**

Sample Writing Exercise - February

- **The introduction to this chapter states that everything is made of atoms, including ourselves. Does that affect the way you view human life? Do the atoms in our bodies follow the same physical laws as atoms in soil or rocks or water? If so, does this make human life any less unique?**

Sample Writing Exercise - March

- **Why do you think our society has mixed feelings about ethanol consumption? The legal drinking age in the United States is 21 years old. Should it be changed? Why or why not?**

Sample Writing Exercise - April

- **Is it ethical to intentionally expose animals to high levels of radiation to study its effects? If not, why not? If so, are there any species, such as dolphins, dogs, or monkeys, for which your answer would be different?**

New Grading Scale

- Online Quiz – 10%
- Writing Exercises – 20%
- Chapter Examinations – 45%
- Final Examination – 25%
- Extra Credit – 5 %

Activities Implemented

- **Making Connections Between Principles & Applications**
- **Use of Molecular Models & Lego Blocks**

  -Laws of Conservation of Mass & Constant Composition

  -Limiting Reagent

  -Balancing Equations

Activities Implemented Contd.

- Demonstrations
- Material Reviews & "Apply your Knowledge"
- Small Group Problem Solving
- Contemporary Writing
- Classroom Discussion
- No Multiple Questions – (one section)

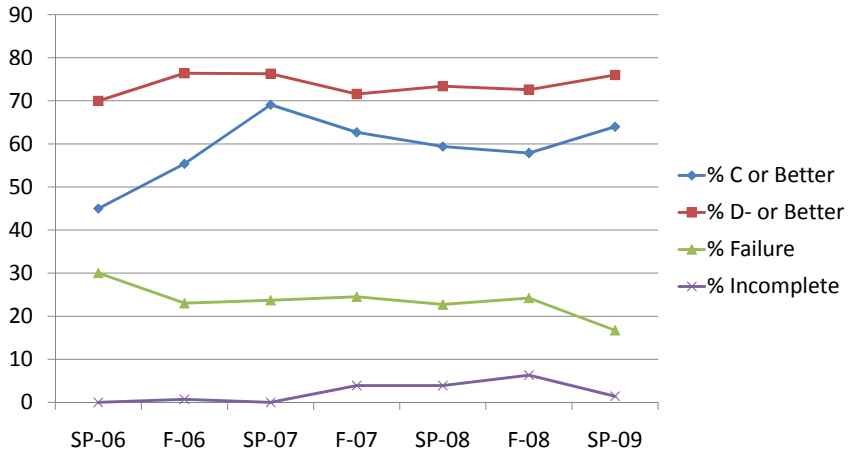
CHM 100-Grades

	SP-06	F-06	SP-07	F-07	SP-08	F-08	SP-09
# Stud	40	148	152	102	128	95	150
≥ C	18	82	105	64	76	55	96
D- to C-	10	31	11	9	18	14	18
< C	22	65	47	34	47	37	43
Incom	0	1	0	4	5	6	1

CHM 100-Grades Contd.

	SP-06	F-06	SP-07	F-07	SP-08	F-08	SP-09
%C & +	45	55.4	69.1	62.7	59.4	57.9	64
%D & +	70	76.4	76.3	71.6	73.4	72.6	76
% F	30	23	23.7	24.5	22.7	24.2	16.7
% I	0	0.7	0	3.9	3.9	6.3	1.4

CHM 100-Grades Contd.



Future Plans

- **Clickers**
- **Explore Ways to Reduce the influence of Mathematics (where possible)**

THANKS

- **Ken Hicks**
- **Carl Bonner**
- **Katina, Phil, Argy**
- **Dr. DeLoatch**

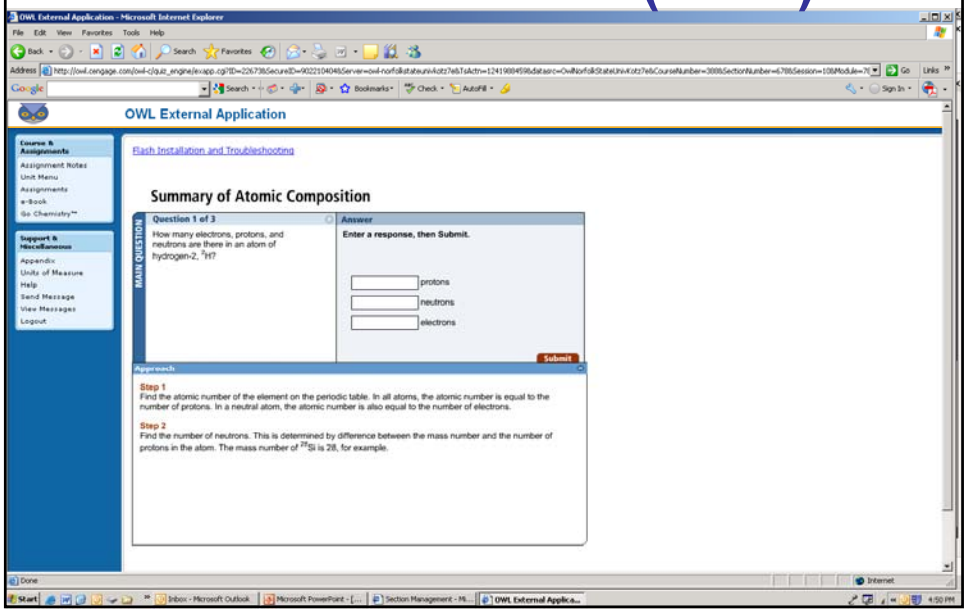
Best Practice Strategies

Anil Mahapatro
Department of Chemistry

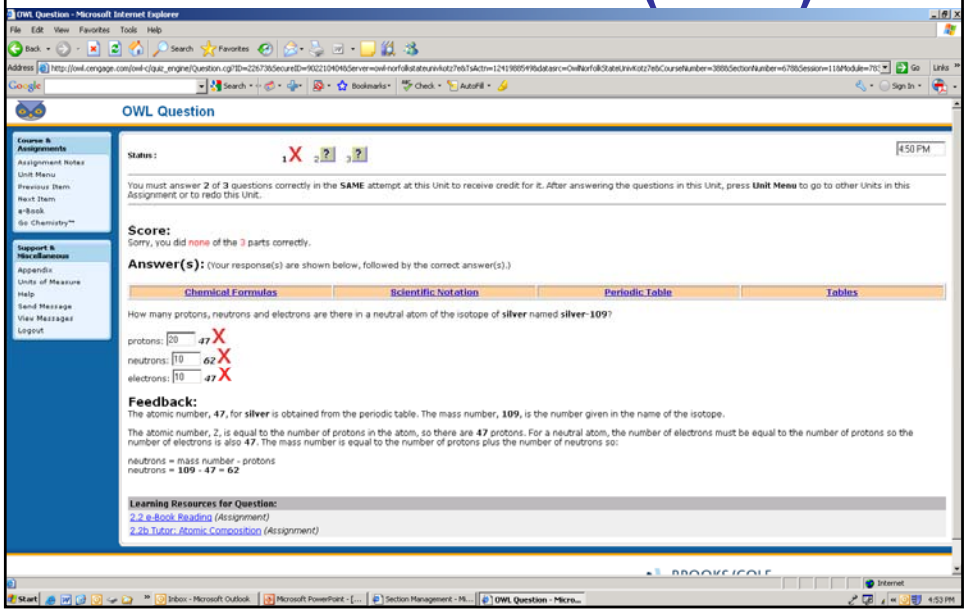
Activities Implemented in Fall 2008 CHM 221: General Chemistry I

- **Online homework (OWL):**
  - **If problem is solved incorrectly provides instant feedback on how to solve problem correctly**
  - **Convenient for working students who may not be able to go to tutoring centers**
- **Eliminated multiple choice questions for quizzes**
  - **Able to identify key areas where students were struggling**
  - **Emphasized those areas while teaching**

Online homework (OWL):



Online homework (OWL):



Activities Implemented in Fall 2008 CHM 221: General Chemistry I

- **Same as previous slide**
  - **Online homework (OWL):**
  - **Eliminated multiple choice questions for quizzes**
- **At least one evening study session every week**
  - **Volunteered to implement as per CSET teaching and learning "Best Practices"**

Activities Implemented in Fall 2007 & Spring 2008

- One minute paper
  - Concepts learned today
  - Concept I did not understand
- Cooperative learning for homework assignments
- Group problem solving
  - Break class in to groups to solve problems
  - Randomly pick one student to solve problem on board

Results (what worked/what didn't work):

- Things that worked for me: (based on student feedback and personal assessment)
- Online homework
- Eliminated multiple choice questions for quizzes
  - Helped in identifying student's weak areas
  - For example, realized 30% of my class don't understand if D=M/V, so V=M/D, hence I began to emphasize every minor mathematical step as I solve problems.
- Evening study session every week:
  - Seems to benefit students who participate
  - Challenge: 6-7 (≈ 20%) students participate regularly; jumps to 30-40% week before a major test
- One minute paper
- Group problem solving

Results (what worked/what didn't work):

- Things that didn't work for me:
  - Cooperative learning: implemented it for homework assignments in fall 2007 and spring 2008, had challenges with student participation, especially getting weaker students to participate.

Suggested Best Practice

- Found students who do poorly don't devote enough time to the course
- 30% of the class don't even devote 1 hour per week studying for the course
- Use combination of different techniques to identify student's weak areas and engage them so they actually devote time and effort necessary to do well.
  - Conduct more tests / quizzes

Suggestions???

Best Practices In Action

- **D'Nita Andrews Graham**
- **Title III Curriculum Developer**
- **Computer Science Department**

- **CSC 150**

Activities Implemented during 2008-2009 Academic Year

- Designed, Created ,Implemented and Co-Authored Textbook
- Updated syllabus and used for multi-section courses
- Revised course material and published on SST website
- Prepared and used common assessments
- Provided students with study guides
- Utilized collaborative assignments
- Rubrics
- Provided options for Alternative Delivery of Instructions
- Adjusted teaching style to student learning styles
- Designed, Created and Implemented Learning Games

Who Are We ?

Sage on the Stage

The instructor must somehow transfer his or her knowledge to the participants

Fabulous Facilitator:

The instructor motivate participants to go further with the material

First Point of Connection

- Introduction process
- Relationship begins to develop
- Ice Breakers
- Professor Motto

Community building Results

- Focused more on the member
- More information often flows from the student-student and student-instructor
- Learners are more active
- Learners have more responsibility for their learning
- Wealth of knowledge and resources are shared
- Instructor acts as a cheerleader

Best Practices in action

- Role Playing in Discussion Board Forums
  - **Facilitator** will make the first posting
  - **Guru** will bring another source to the discussion
  - **Agitator** will ask for clarification, offers alternatives, and stirs the pot
  - **Poker** will poke people to post
  - **Summarizer** will bring the team to consensus and post the consensus in the correct location

Best Practices in Action

- Snowball Fight
  - Students should have several pieces of paper so there is abundant snow
  - Ask students to write a question regarding the topic you want to review
  - If you want to make sure certain issues are covered, add some snowballs of your own
  - When the fight is over, each student will pick up a snowball and answer the question in it.
  - Moving around helps people retain learning, and it's a great way to energize a classroom
- This activity is used for recapping or test preparation.

Best Practices in Action

- 3 Question Reflective Paper
  - What was the most important or useful thing you learned today?
  - What two important questions do you still have; what remains unclear?
  - What would you like to know more about?
- This activity focuses on the content and provides feedback to the facilitator.

Best Practices in Action

- Ping Pong Conversation
  - Each group member is assigned a component of the unit and then must teach it to the other members
  - This brings real life situations to the discussion and a ping pong conversation is developed

    Convey (1989)
  - Each participant is either speaking or preparing to speak

Best Practices in Action

- Word Search and Scramble
- Scavenger Hunt
- Case Studies
- Bingo
- E-Portfolio
- Jeopardy

Results

- Student Engagement
- Strong connection between participants
- Information Literacy and critical thinking skills
- Motivated and Interest Capture
- Sense of fun and discovery
- Encouragement and support was exchanged
- Positive Feedback was shared
- Teaching and learning can take place anywhere
- The new paradigm has been recognized and shifted

Conclusion

Our Belief

Collaborative Learning

Deborah Chen

Computer Science Department

Implementation Fall 2008

- Gave a short quiz on the topic just been discussed. Have the students worked out the problem individually first. Then
- Group students of teams of 3 (or 4 if needed) in random to compare and discuss their individual answers. Each team was required to come up with one answer that all agreed on and understood.
- One member of each team chosen randomly by me will present the team answer (without note) by writing down the team answer on white board.
- The entire class will examine and discuss different answers (if any) given by teams.
- It was understood by all students that the answer provided by the Team Presenter will be graded and posted as the grade for all members on the team.

Implementation
Spring 2009

- Gave laboratory assignment.
- Two days before assignment due date, give one class period for group of two students to work together to finish the assignment.
- Students can submit group work for grading.

Results (what worked/what didn't work)

- Due to the time requirement, only few quizzes were given in this manner in fall 2008.
- Most students are engaged by the activities.
- When grades involved, tension among students occurred when few in the class did not participate, sometimes leaving one person doing the work.
- Better assignment grades from spring 2009 activities when practiced.

Suggested Best Practice

- Collaborative learning activities require extra time. Better practiced in classes meeting on Tuesdays and Thursdays.
- Set policies/rules ahead of time to avoid free-loader scenario.
- The degree of engagement correlates with student willingness of participation.

Best Practices in Action: Title III Curriculum Developers

Pamela B. Lonergan MS MT(ASCP)SC
Department of Allied Health
Medical Technology

HRP 290
African American Health

- Disconnect
  - Even with very specific outline of expectations, students were not preparing papers with the depth of thought and critical thinking desired
- Solution
  - Developed a “Scoring Rubric” that described the depth of information and thought expected

Project #1
Evaluation of a Health Care Plan

- Purpose
  - To help the students gain an understanding of health care insurance in the United States
  - To help the students learn to evaluate the coverage options and out of pocket expenses
  - To help the students understand the financial impact of chronic disease and illness

Project #1

- In addition to the basic plan, the family can choose to add on additional coverage (expanded coverage) for an extra cost. For this family, what, if any, additional coverage would you add? Explain **in detail** the rationale for your decision.
- Describe, **in detail**, the coverage and out of pocket expenses under this plan for services by a PCP (Primary Care Provider), by a specialist, for Emergency Room care, for hospitalization and for diagnostic testing. Discuss the specific services that are most important to this family?

Topic	Meets	Somewhat Meets	Fails to Meet
Choice of Plan (15pts)	IDs plan and describes completely the rationale for choice 15pts	IDs plan but provides minimal rationale for choice 11 pts	IDs plan but does not provide rationale for choice 8pts
Coverage, Cost of Services (15pts)	Describes in detail the extend of coverage for services listed, out of pocket expenses; describes how important to family 15pts	Describes in detail the extend of coverage & out of pocket expenses for 3-4 services; somewhat describes importance to family 11pts	Does not describes in detail the extend of coverage & out of pocket expenses; <2 services; Does not describe importance to family 8pts

Project #2

- Purpose
  - To help the students recognize and evaluate the environmental, behavioral, ethnic and health care access issues that determine health.

Project #2

- After visiting the two neighborhood:
  - Discuss the types of business activities that are in the neighborhoods such as factories, offices, retail sale, food service etc.
  - Comment on any differences that you observed and suggest reasons for the differences. Discuss how these differences contribute to the health status of a community

Topic	Points	Comments
Describes the various business establishments found in each neighborhood		
Discusses in detail the information gathered and the neighborhood and store observations; relates classroom readings, discussions, and information to the activity; describes the relationship between health and the observations; includes examples to support the relationship between the determinants of health and neighborhood observations		

Conclusions

- H_0= There is no difference between the scores with and without the scoring rubric
- Calculated a 2 tailed unpaired t-Test
- Project #1

  t = 0.0923

  Failed to reject the null hypothesis ($p<0.001$)
- Project #2

  t = 0.9551

  Failed to reject the null hypothesis ($p<0.001$)

Increase Enrollment In Allied Health

- Recorded the current majors of those enrolled HRP 290 classes in the Fall 2008 and Spring 2009 semesters
- Review the majors again in March to identify any changes to Allied Health
- Will Review the rosters again in August for changes

Future Activities

- Develop in class activities that guide the students through simulated observation of health care issues.
- Revise the scoring rubric to include more specifics
- Assign readings from a book called “Powerful Medicines” by Jerry Avorn
- Develop in class activities that guide the students in critical thinking and evaluation regarding healthcare issues
  - Example: video clip of Medicare/Medicaid fraud, in class writing of implications for healthcare
- Perform more statistical evaluation of data

Developing Creative Classroom and Curriculum Models for Fostering Student Retention in MTH 103

Ronald L. White
Course Coordinator

Introduction

- To investigate and execute an innovative curriculum model or effective teaching strategy in an attempt to increase/ maintain a 70% success rate in MTH 103.

Background

MTH 103 is terminal level math course for liberal arts majors. It is not a development course or gateway course and requires a background in elementary algebra. Topics include logic, probability and statistics, discrete systems, measurement, geometry, and consumer applications. The major goal of the course is to help develop quantitative reasoning skills as consistent with the goals of a liberal arts education. The course serves approximately 400 students per year in 10 sections per semester.

Strategy (Kagan Cooperative Learning Strategies

- Dr. Spencer Kagan
- Structured Engagement = Cooperative Learning + Collaborative Learning
- Cooperative learning theory posits that students learn best when they can encourage and tutor each other, when they are held individually accountable, when they all participate about equally, and when there is a great deal of active, interactive engagement.
- Rules of Engagement: (PIES) Positive Interdependence, Individual Accountability, Equal Participation, Simultaneous Interaction

Learning Theories

- **Cooperative Learning Theory**
- **Multiple Intelligences Theory**
- **Brain-Based Learning**
- **Essential Elements of Effective Instruction**
- **Expectation Theory**
- **Learned Optimism Theory**
- **Flow Theory**
- **Vygotsky's Theory**
- **Behavior Theory**
- **Transference Theory**

Studies

- **Academic Achievement Gains**
- **Critical Thinking Skills**
- **Social Skills & Relations**
- **Status Equalization**
- **Language Acquisition**
- **Education for Character**
- **Multiple Intelligences**
- **Emotional Intelligences**

Preliminary Study

- Summer 2008 study included 65 students enrolled in MTH 101, MTH 105, MTH 151, and MTH 132 in the 4 week session of summer school. The results of the MANCOVA suggested that students enrolled in one of the treatment groups (MTH 105) had statistically higher averages on the test of quantitative reasoning than the students enrolled in both control groups (MTH 151 and MTH 132) at a 0.10 alpha level. However, the average scores of students enrolled in the intermediate algebra class were only marginally higher than those students taking college algebra. In any case, the study revealed that structured engagement used at least 3 times a week does improve ones' quantitative reasoning skills which is one the main goals/objectives for the course.

Method

- In the fall of 2008, teachers were asked to use cooperative learning in their classes to a least review for tests, i.e. a minimum of four times a year. Faculty met bi-weekly to discuss progress and share ideas. In these meetings, it was learned that either because of the amount of course content, slow concept development of students, or lack of training in how to use cooperative learning as a teaching strategy that many faculty were not able to integrate this idea into their classrooms.

Other Methods

- In the spring of 2009, each faculty member teaching MTH 103 has agreed to facilitate one evening study session for a total of 8 over the course of the semester. Faculty were asked to make sessions fun and interactive, i.e., to use cooperative learning as the primary tool for concept development and/ or reinforcement. Students are asked to go to a webpage developed in the summer of 2008 CSET by to download and print specific worksheets and/or sample tests to be used in the study sessions before coming to the workshop. To date, though the attendance has increased steadily from approximately 10 to 30 on average, these numbers only represent approximately 10% of the students enrolled in MTH 103 this semester.

Results

- Fall 2006 Success Rate (69%)
- Fall 2007 Baseline Success Rate (65%)
- Fall 2008 Success Rate (63%)

6% decrease from ’06 to ’07 and a 3% decrease from ‘07 to ’08.

Future Directions

- Assessment, Assessment, Assessment
- Train
- Ensure Accountability
- Guilford Curriculum Model
- Product: (Integrated Assignments/ Authentic Assessment Activities)

Teaching for the Retention of Learning

Presenter: Carrie L. Davis

Teaching for Retention of Learning

- Students retain:
  - 70% of what they say and write
  - 90% of what they do
- Overall, different methods must be used in order to increase retention rates
- A seemingly effective model was discussed at the institute

Information from a document provided by Dr. Robert J. Hanny

Teaching for Retention of Learning (Continued)….

- Advance Organizer
- Clear Objectives
- Focusing Questions
- Organized Input
- Active Reception
- Check for Understanding
- Writing Activity
- Review and Practice

Information obtained from a presentation titled: “Teaching for Retention of Learning, Modeling the Model” by: Dr. Robert J. Hanny

Pass Rates for Nursing 160

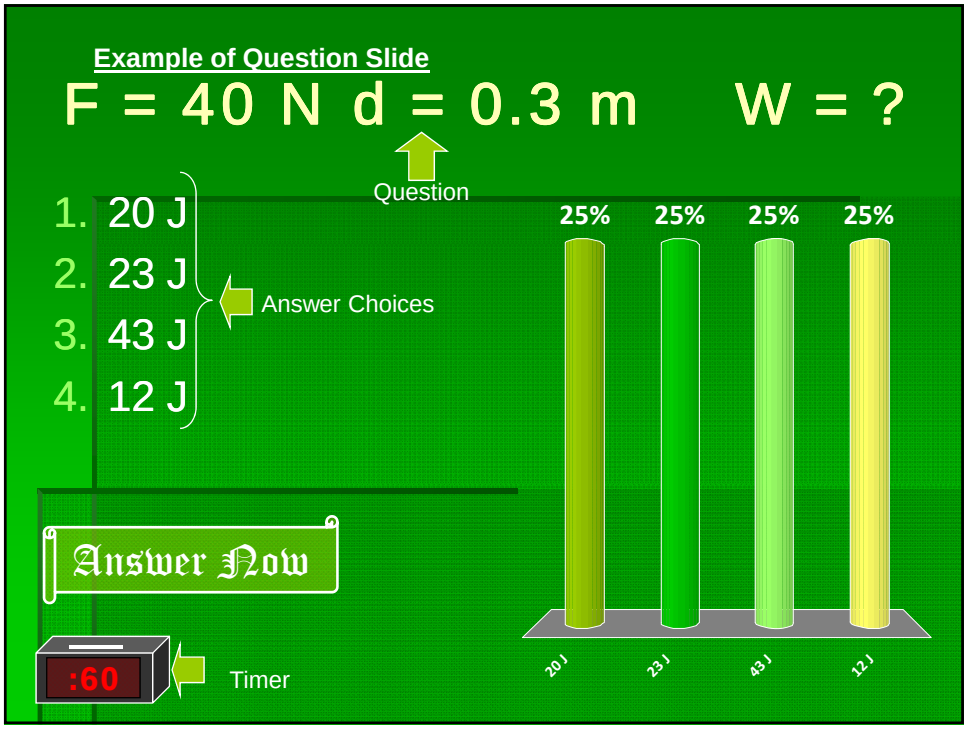
Course	Pass Rate	Total Number of Students
Nursing 160 Rotation One	88.4 %	43
Nursing 160 Rotation Two	82.2%	45

Best Teaching Practices for Physical Science 100

Monique Haythe
Instructor, Physics Department

Physical Science 100 Best Teaching Practices

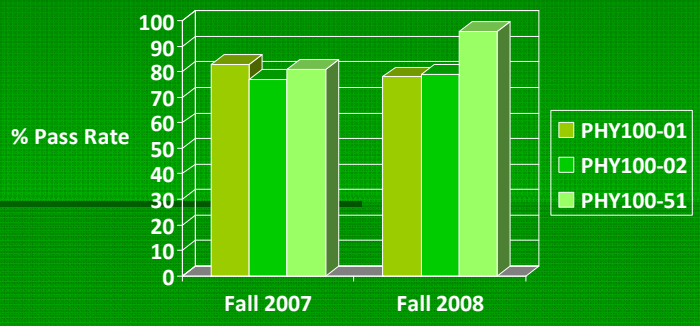
- Turning Point Remotes
  - The students purchase their own remotes and they use their remotes to answer quiz questions in class
  - Question slides can be added to existing PowerPoint presentations. This provides an interactive learning environment which assists in the students retaining knowledge from the course
  - This method was discussed at the Teaching Institute. Utilization of this teaching practice has shown an increase in pass rates.



Example of Response Data

Name	Question#1	Question #2	Score
Student	4 c	2 i	50 %
Student	4 c	3 c	100 %
Student	4 c	3 c	100 %
Student	3 i	2 i	0 %

Continuing Success for Pass Rates……



Continuing Success for Pass Rates….

- Pass rates were good during the Fall semester of 2007.
- CPS software and remotes were used
- Pass rates remained successful through the Fall of 2008
- Turning Point software and remotes are used during the lecture as opposed to after the lecture

The Inquiry Method

- Students were asked application questions that they discussed in groups
- Example: How to keep snow from freezing on driveways. This required the students to think about the freezing points of different materials

Student-Centered Learning

- Method was also discussed at the Teaching Institute and utilizing the Inquiry Method involves student-centered learning which is also a technique that was discussed at the Teaching Institute.

Physical Science 100 Best Teaching Practices

- Of the several methods that were discussed at the institute, Turning Point, the inquiry method and student-centered learning are incorporated in the classes
- These teaching practices have proven to be successful along with other methods used such as posting assignments on Blackboard and presenting physics demonstrations.

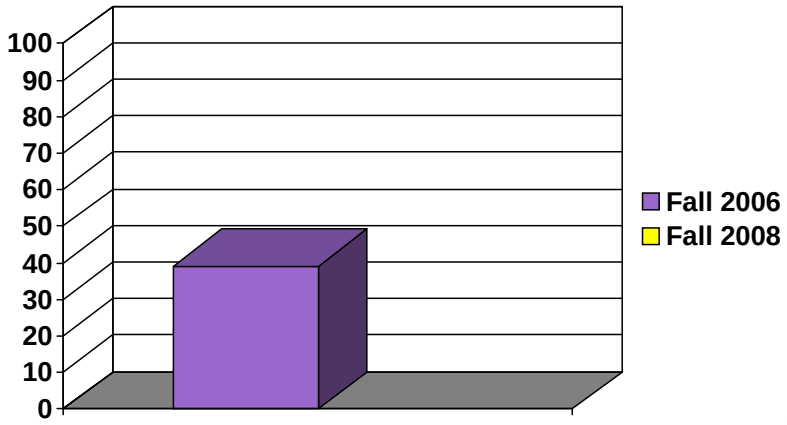
Physics

Physical Science 100

Title III Curriculum Development

Dr. W. Hinton

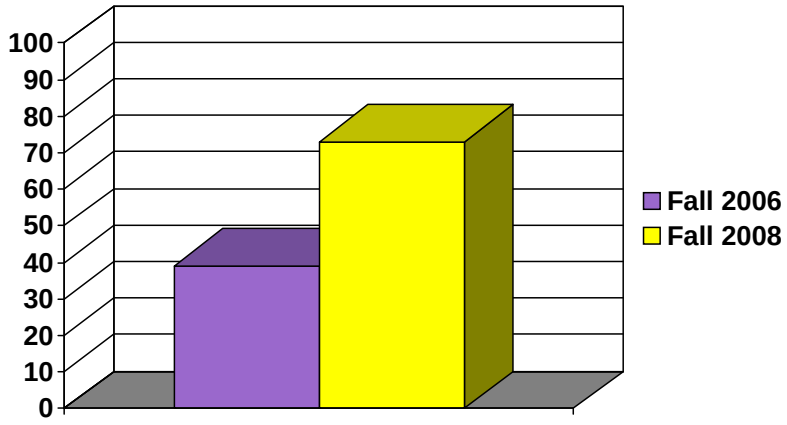
Pass Rates PHY 100



Activities

- Personal Response System (***Clickers***)
- Peer Instruction
  - ***Daily In class Quiz***
- Mini lecture (15 min)
- Online Assignment
  - Reading Quiz
  - Homework
  - Mini Exam

Pass Rates PHY 100



PRESENTATIONS

Faculty Development Retreat AGENDA

Robinson Technology Center

LEARNING COMMUNITIES

Phyllis Worthy Dawkins, Johnson C. Smith University

Phyllis Worthy Dawkins is the Dean of the College of Professional Studies, Professor of Physical Education, former Interim Vice President for Academic Affairs, and former Director of the Faculty Development Program at Johnson C. Smith University. She has a PhD from The Ohio State University, an M.A. from The University of Michigan, and a B.S. degree from Johnson C. Smith University.

The Faculty Development Program includes a Steering Committee and a Learning Communities Training Program. Initially, The Bush Hewlett Faculty Development Grant supported the instructional technology, learning communities and learning across the curriculum programs. The Learning Communities Program participated in the National Learning Communities Project in 2001. In 1994, the JCSU Faculty Development Program received a Theodore M. Hesburgh Certificate of Excellence for Faculty Development.

Dr. Dawkins is the Vice President and former Co-Director of the Historically Black Colleges and Universities (HBCU) Faculty Development Network and serves as a faculty development consultant, evaluator or presenter for the National Learning Communities Project of the Washington Center at Evergreen College, and the Collaboration for the Advancement of College Teaching and Learning, the Teaching and the Learning with Technology (TLT) Group. She also served as a core faculty member at the Asheville Institute on General Education, a consultant for the Southern Education Foundation's Instructional Technology Assistance Project (ITAP), a liaison member of the Executive Board of the Association for General and Liberal Studies and a member of the Core Committee (board) of the Professional, Organizational and Development Network (POD). She conducts on and off-campus workshops and present at professional conferences and colleges on: 1) faculty development, 2) instructional technology, 3) learning across the curriculum, and 4) learning communities. In 1998, she served as a Salzburg Institute Fellow at the Information Technology Seminar in Salzburg, Austria.

The Learning Communities (LC) Program at Johnson C. Smith University has been operating since 1998. During its years of existence, Learning Communities were implemented in the following programs: Liberal Studies-LS, African and African American Studies, Elementary Education, Communication Arts, Business and Accounting Entrepreneurship, Community Wellness, Foreign Language and Business, Banking and Finance, and Sociology and Criminal Justice.

Expertise Related to Learning Communities

- Coordinating the LC Program
- Professional development in the design and teaching of LCs
- Publishing, presenting and disseminating LC programs at workshops, conferences and professional meetings
- Developing a Wellness and Fitness learning community
- Assisting with the development of out-of-class activities, cross-course assignments, and active learning strategies
- Assessing and evaluating LC Programs

Publications

Butler, K. & **Dawkins**, P.W. (2008). The Impact of a "Healthy Youth" Learning Community on Student Learning Outcome Measures**.** *Journal of Negro Education*, 77 (3), 264-270.

Yancy, D. C., Sutton-Haywood, M., Hermitte, E., **Dawkins**, P.W., Rainey, K. & Parker, F. (2008). The impact of the Freshman Academy/Learning Communities program on student progression and engagement. *Journal of Negro Education*, 77 (3), 250-263.

Butler, K. & Dawkins, P.W. (2007). Developing learning communities in health and human performance. American Journal of Health Education,38 (4), 230-236.

Dawkins, P. W. Froneberger, B., Sutton-Haywood, M., Jeter, P. (2007). Engaging faculty in a freshman academy learning community. Journal of Learning Communities, 2, (1), 1-119.

Dawkins, P. (2006). Faculty development opportunities and learning communities. In N. Simpson & J. Layne (Eds.), *Learning communities*. Still Water, OK, New Forums Press.

Dawkins, P. (2006). Learning communities growing at historically black colleges and universities. Washington Center for the Improvement of Undergraduate Learning: Olympia, Washington.

Dawkins, P. W. Froneberger, B., Sutton-Haywood, M., Jeter, P. (in press). Engaging faculty in a freshman academy learning community. *Journal of Learning Communities*.

Butler, K. & Dawkins, P.W. (in press). Developing learning communities in health and human performance. *American Journal of Health Education.*

Presentations of the JCSU LC Program

Dawkins, P.W. (October 2, 2008). Learning community 101 workshop. Paper presented at Shaw University: Raleigh, N.C.

Dawkins, P.W. & Yancy, D.C. (July 29, 2008) Learning Communities. Presentation at the Summer Institute on QEP, SACS, Orlando, Florida.

Dawkins, P.W. & Singer, R. (June 25, 2008). *Building Student Centered Relationships Between Faculty and Administrators.* Paper presented at the 10th Annual Summer Institute on Learning Communities, Washington Center for Undergraduate Learning: Olympia, Washington.

Dawkins, P.W. (June 26, 2008). *Learning about Learning with Flashlight.* Paper presented at the 10th Annual Summer Institute on Learning Communities, Washington Center for Undergraduate Learning: Olympia, Washington.

Dawkins, P.W. Learning Communities. Presentation at the JAM (Joint Association Conference), sponsored by NSF, June 17, 2008, Washington, D.C.

Dawkins, P.W. (March 24, 2008). Learning Communities: Interdisciplinary Pedagogy and Integrated Assignments: English, History and African American Studies. Paper presented at Morehouse College, Atlanta, Georgia.

Dawkins, P.W. (December 4, 2007). Learning community planning workshop. Paper presented at Bethune Cookman University: Daytona Beach, Florida.

Lardner, E., Malnarich, G., & Dawkins, P.W. (November 3, 2007). Assessing interdisciplinary & integrative learning from classroom assessment to program assessment. Paper presented at the AAC&U Autumn Conference on Sharing Responsibility for Essential Learning Outcomes: New Partnerships across Departments, Academic Affairs and Student Affairs: Savannah, Georgia.

Lardner, E., Malnarich, G., Dawkins, P.W. & Hardiman, J. (October 19, 2007). Building on the Best: From Classroom to Program Assessment on LC. Paper presented at the 14th Annual HBCU Faculty Development Symposium: Enhancing Quality through Engaged Assessment and Research: Tuskegee, Alabama.

Yancy, D.C., Sutton-Haywood, M., Hermitte, E. & Dawkins, P.W. (September 10, 2007). *Building a Community of Learners: The Johnson C. Smith Experience.* Paper presented at the National Historically Black Colleges and Universities Week Conference sponsored by the White House Initiative on HBCUs: Washington, D.C.

Dawkins, P.W. (July 23, 2007). Learning Communities. Paper presented at SACS Summer Institute on Quality Enhancement & Accreditation: Louisville, Kentucky.

Dawkins, P. W. & Cicerone, M. (June 28, 2007). *Faculty Development around Core Practices.* Paper presented at the 9th Annual Summer Institute on Learning Communities, Washington Center for Undergraduate Learning: Olympia, Washington.

Dawkins, P.W. & Ricardo Leyva-Puebla (June 29, 2007). *Multiple Ways for Building Student Affairs into Learning Communities.* Paper presented at the 9th Annual Summer Institute on Learning Communities, Washington Center for Undergraduate Learning: Olympia, Washington.

Dawkins, P.W. (June 3, 2007). Active Learning. Paper presented at the Curriculum Planning Retreat, JCSU: Charlotte, N.C.

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Dawkins, P.W. & Froneberger, B. (October, 2006). *The Relationship of Academic Affairs and Student Affairs in Learning Communities.* Paper presented at the 13th HBCU Faculty Development Symposium, Houston, Texas.

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Dawkins, P.W. (July 28, 2006). *Faculty and Student Learning Communities at Historically Black Colleges and Universities.* Presented to Howard University, Xavier University, Jackson State University and Talladega College – FIPSE Project. Orlando, Florida.

Dawkins, P. W. & Cicerone, M. (June 23, 2006). *Engaged Pedagogy: Faculty Development and Learning Communities.* 8th Annual Summer Institute on Learning Communities, Washington Center for Undergraduate Learning: Olympia, Washington.

Shapiro, N. & Dawkins, P.W. (June 22, 2006). *The Relationship of Academic Affairs and Student Affairs in Learning Communities.* 8th Annual Summer Institute on Learning Communities, Washington Center for Undergraduate Learning: Olympia, Washington.

Decker, E. & Dawkins, P.W. (March 28, 2006). *Aspiring Eagles Scholars Learning Communities: Curriculum, Administrative and Faculty Development*. North Carolina Central University: Durham, N.C.

Dawkins, P. W. (August, 2005). *Technology, Teaching and Learning Communities*. Paper presented at the University of Central Arkansas, Conway, Arkansas

Smith, B. L., & Dawkins, P. W. (June 2005). *Financing learning communities: Finding money*. Presented at the Summer Institute on Learning Communities, sponsored by the National Learning Communities Project, Evergreen College, Olympia, Washington.

Dawkins, P. (June 20, 2005). *The Value of Conceptualizing Frameworks for Learning Communities Assessments and Learning Outcomes.* Keynote speaker presentation at Bennett College, Greensboro, N.C.

Dawkins, P. (June 20, 2005). Promoting the Scholarship of Teaching and Learning in the Context of Learning Communities, Bennett College, Greensboro, N.C.

Dawkins, P. (October 2004). *Assessment and Evaluation of Learning Communities.* Paper presented at the 11th National HBCU Faculty Development Symposium, Miami, Florida.

Ciccerone, M. & Dawkins, P. W., & Pougiales, R. (May 20, 2004). *Faculty Development for Successful Learning Communitie.* Paper presented at the Learning Communities and Undergraduate Education Reform: A National Conference, May 20, 2004, Seattle Washington

Anguilar-Wells, M. & Dawkins, P. (May 21, 2004). *Learning Communities: Lessons Learned from Minority Serving Programs*, Learning Communities and Undergraduate Education Reform: A National Conference. Seattle, Washington

Butler, K., Froneberger, B., Gage, B., & Dawkins, P.W. (May 21, 2004). *Learning Communities at the Freshman and Upper Levels at Johnson C. Smith University*, Poster Session. Learning Communities and Undergraduate Education Reform: A National Conference. Seattle Washington

Dawkins, P. (October 2004). *Faculty Development, Interdisciplinarity, and Learning Communities.* Paper presented at the 26th Annual Conference of the Association for Integrative Studies.

Dawkins, P.W. (August 30, 2004). Keynote Presenter, Learning Communities. Paper presented at Hampton University, Hampton, Virginia.

Dawkins, P. W. & Froneberger, B. (February 11, 2004), *Learning Communities: TheJCSU Model.* Paper presented at Barber-Scotia College, Concord, N.C.

Dawkins, P. W. Faculty Development and Learning Communities Consultant and Presenter, National Learning Communities Project: Summer Institute on Learning Communities, Evergreen State College, Olympia, Washington, June 2002-2003

Henschide, J. & Dawkins, P. W. (September 2003). Learning Communities Program Evaluators, Tougaloo, College: Tougaloo, MS.

Tribble, R. & Dawkins, P.W. *Developing a Learning Community in One Hour and LC and Administrative Support* , Bennett College, Greensboro, N.C., November 12, 2002

MacGregor, J. & Dawkins, P. W. Learning *Communities Assessment and Planning.* Tougaloo College: Tougaloo, Mississippi, October 22-23, 2002

Dawkins, P. W. (March 2002). *Learning Communities: The JCSU Model*. Bennett College, Greensboro, N.C.

Dawkins, P.W. (August 2001). *Different Models and Approaches to Delivering Faculty Development and Creating Learning Communities*. Keynote Speaker for Opening Faculty Conference, Tougaloo College: Tougaloo, MS.

Dawkins, P. W. (March 28, 2001). *Learning Communities: The JCSU Model*. Mississippi Valley State College: Itabina, Mississippi.

Dawkins, P. W. (June 19, 2000). *JCSU Learning Across the Curriculum and Learning Communities Programs*. Central State University: Xenia, Ohio.

Dawkins, P. W. (June 7, 2000). *JCSU Learning Across the Curriculum and Learning Communities Programs.* LeMoyne-Owen College: Memphis, TN.

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Charlotte, North Carolina
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Fax: 704, 378-3556
Email: **pdawkins@jcsu.edu**
pwdawkins@aol.com

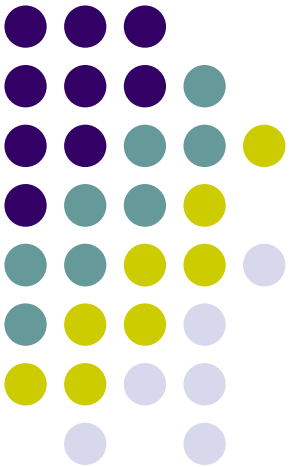
Learning Communities for Student Engagement

Norfolk State University
May 12, 2009

Phyllis Worthy Dawkins, Ph.D.
Associate Provost, Dillard University

Former Dean and CAO, College of Professional Studies
Former Director, Faculty Development
Johnson C. Smith University

Resource Faculty
The Washington Center for the
Improvement of Undergraduate Studies
pdawkins@aol.com



Outline

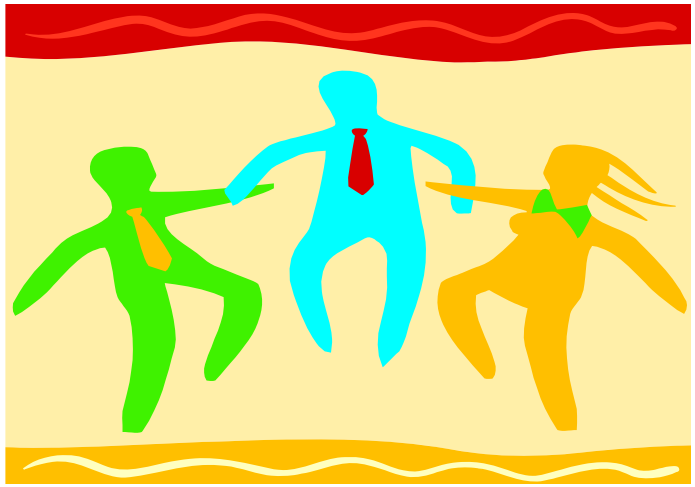
- 5 Minute Universe
- History
- Trends
- Benefits
- Program Models
- Integrated Assignment
- LCs and HBCUs

5 Minute Universe

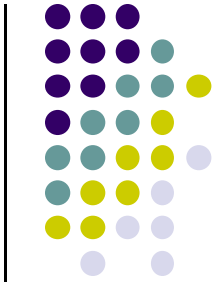
http://www.youtube.com/watch?v=kO8x8eoU3L4

Father Guido Sarducci

History

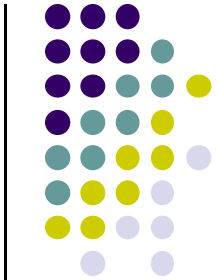


National Learning Communities Project



- Began in the state of Washington in 1983
- Started with Evergreen College (4 yr) and Seattle Central Community College (2 yr)
- Moved from a pedagogical innovation to a faculty development effort
- Created by Barbara Leigh Smith and Jean MacGregor of Evergreen College
- Housed at Evergreen State College through a public service center, known as the Washington Center for the Improvement of Undergraduate Education
  - Headquarter for the Learning Communities Project
  - http://learningcommons.evergreen.edu
- Currently Co-Directed by Emily Lardner and Gillies Malnarich

Johnson C. Smith University

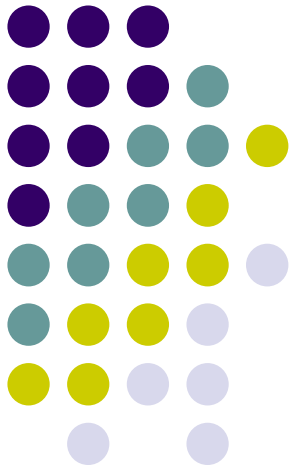


- Historically, Black, private, undergraduate institution
- Liberal Arts Institution
- Charlotte, North Carolina
- 103 full-time faculty
- Student Enrollment @1588
- 98% African American students
- *Mobile University, Learning Communities, Learning Across the Curriculum and Service Learning*
- President, Dr. Ronald Carter

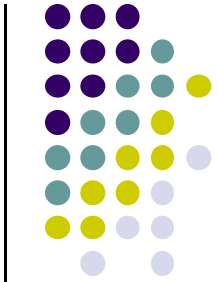
Definition,Trends and Structure

What are Learning Communities and how are they structured?

Critical components of successful LCs



Factors Negatively Associated with Positive Student Outcomes

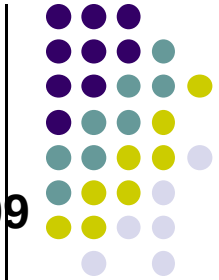


- Hours spent watching television
- Institutional size
- Use of teaching assistants
- Full-time employment
- Lack of community among students
- Living at home
- Participating in inter-collegiate athletics
- Peers oriented toward materialism

Astin, A. W. *What Matters in College: Four Critical Years Revisited*. 1993.

High Impact Activities

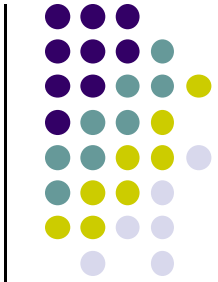
George Khuh & Associates, AAC&U Presentation, January 22, 2009



- First-Year Seminars and Experiences
- Common Intellectual Experiences
- Learning Communities
- Writing-Intensive Courses
- Collaborative Assignments and Projects

  "Science as Science Is Done";
- Undergraduate Research
- Diversity/Global Learning
- Service Learning, Community-Based Learning
- Internships
- Capstone Courses and Projects

Definition of Learning Communities



- Consist of a variety of approaches that link or cluster classes during a given term, often around an interdisciplinary theme or public issue, that enroll a common cohort of students.

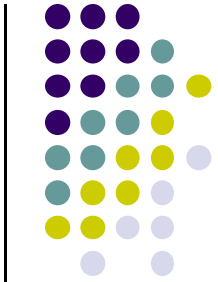
- This represents an intentional restructuring of students' time, credit, and learning experiences to build community and to foster more explicit connections among students, among students and their teachers, and among disciplines.

  (Jean MacGregor and Barbara Leigh Smith)

- At the heart of all Learning Communities is an intentionally-designed integrated assignment (Emily Lardner and Gillies Malnarich, 2007)

The Washington Center for the Quality of Undergraduate Studies

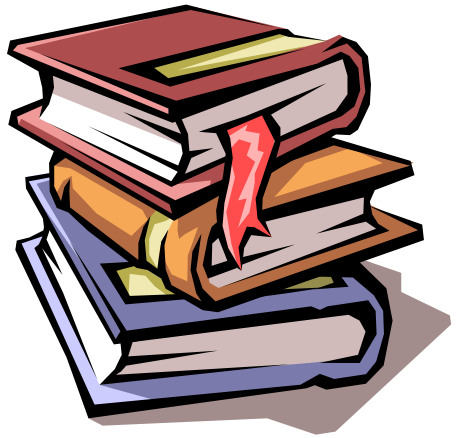
Situating LCs in appropriate curricular arenas



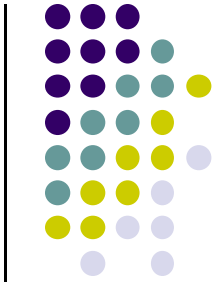
1. **Identify goals for a learning community initiative**
   - for students
   - for faculty
   - for the curriculum
   - for the institution
2. **Consider areas of need:**
   - first-term-in-college adjustment needs and developmental opportunities
   - high-risk courses
   - gateway courses and pre-requisites
   - critical distribution courses
   - platform courses for specific majors
   - courses that are or could be arenas for bridging skills/ content, theory/practice, liberal arts/professions
   - across-curriculum initiatives

Situating LCs in appropriate curricular arenas continued…

3. Consider building on existing nests of interest and opportunity:
   - areas of faculty interest, strength, innovation
   - your college's distinctive mission and location
   - fit with and ability to enhance other initiatives already underway on the campus

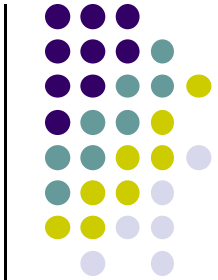


Learning Communities are Found in:



- Developmental studies
- Freshmen/First Year initiatives
- Strategies for coherence in general education
- Writing programs: teaching writing in the context of a subject or an interdisciplinary theme
- Study in a minor (Women's Studies, Environmental Studies)
- Study in the major
- Graduate school programs
- Honors Programs

Historically Black Colleges and Universities with Learning Communities (30/105)



- Benedict College
- Bennett College
- Bethune-Cookman College
- Central State University
- Clark Atlanta University
- Delaware State University
- Fayetteville State University
- Florida A&M University
- Hampton University
- Howard University
- Johnson C. Smith University
- Jackson State University
- LeMoyne-Owen College
- Mississippi Valley State University
- N.C.A&T State University
- N.C. Central University
- Philander Smith College
- Prairie View A&M University
- Shaw University
- Spelman College
- St. Augustine's College
- Southern University, NO
- Talladega College
- Tennessee State University
- Tougaloo College
- Winston Salem State University
- Xavier University, NO
- University of Central Arkansas-Pine Bluff
- University of the District of Columbia
- Voorhees College
- Others…

HBCUs with LCs by Type of Institution

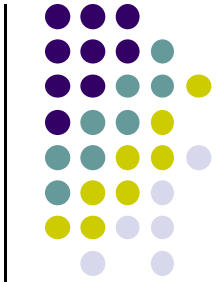
Public Universities (15)

- Central State University
- Delaware State University
- Fayetteville State University
- Florida A&M University
- Howard University
- Jackson State University
- Mississippi Valley State University
- N.C.A&T State University
- N.C. Central University
- Prairie View A&M University
- Southern University, NO
- Tennessee State University
- Winston Salem State University
- University of Central Arkansas-Pine Bluff
- University of the District of Columbia

Private Universities (15)

- Benedict College
- Bennett College
- Bethune-Cookman College
- Clark Atlanta University
- Hampton University
- Johnson C. Smith University
- LeMoyne-Owen College
- Philander Smith College
- Shaw University
- Spelman College
- St. Augustine's College
- Talladega College
- Tougaloo College
- Xavier University, NO
- Voorhees College

FIPSE Funded Learning Community Programs



LC and Faculty LC

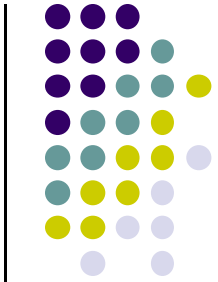
- Howard University
- Jackson State University
- Talladega College
- Xavier University

Learning Communities

- Bennett College
- Benedict College
- Greensboro College
- Talladega College

Curriculum Planning Retreat on Learning Communities at JCSU

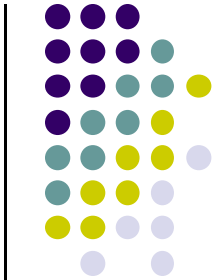
co-sponsored and funded by the UNCF-Mellon Grant, Washington Center, Bush-Hewlett Foundation and HBCU Faculty Development Network



- 2001 CPR Retreat
  - Benedict College
  - Bennett College
  - Central State University
  - Johnson S. Smith University
  - North Carolina A&T State University

Curriculum Planning Retreat on Learning Communities at JCSU

co-sponsored by the Washington Center continued…



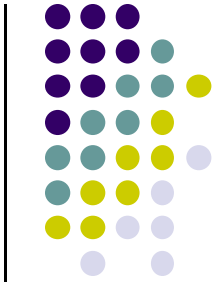
2007 CPR Retreat

- Clark-Atlanta University
- Coosa Valley Technical College
- Concordia College
- Johnson C. Smith University
- Queens University of Charlotte
- Prairie View A&M University
- Sandhill Community College
- Villa Julie College
- Voorhees College

2008 CPR Retreat

- Benedict College
- Bethune Cookmen University
- Florida A&M University
- Johnson C. Smith University
- Prairie View A&M University
- Spartanburg Technical College
- Villa Julie College
- Voorhees College
- Winston Salem State University

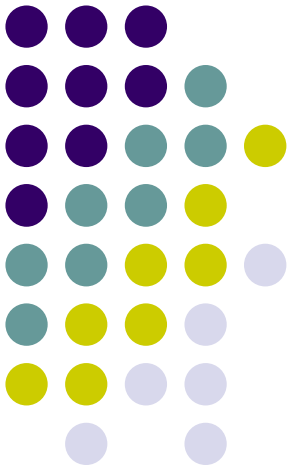
Washington Center for Undergraduate Learning Summer Institute on Learning Communities Participants



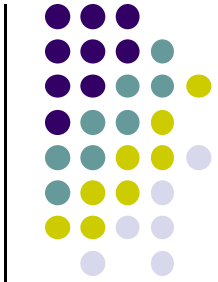
- Johnson C. Smith University, 2002
- Tougaloo College, 2002
- University of the District of Columbia, 2007, 2008
- Delaware State University 2007, 2008
- Bethune Cookman College, 2003
- Florida A&M University, 2007
- Mississippi Valley State University, 2007
- Southern University of New Orleans, 2008
- Fayetteville State University, 2008

Benefits to students, universities, and communities

Based on findings across the country



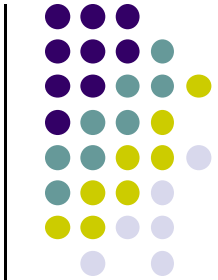
Learning Communities Address the Need for:



- Greater intellectual interaction
  - student ⟷ student
  - student ⟷ faculty
  - faculty ⟷ faculty
- Curricular coherence: reinforcement and/or integration of ideas
- Understanding issues which cross subject matter boundaries
- Ways to facilitate the move toward a richer, learning-centered environment
- Active and collaborative learning
- Exploring and understanding diverse perspectives
- Student retention and progress toward degree
- Faculty development
- Low-cost methods for doing the above

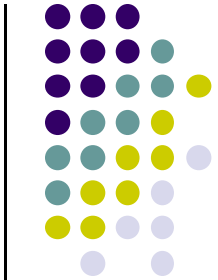
Features of Effective Learning Communities

Source: *Involvement in Learning*, 1984.



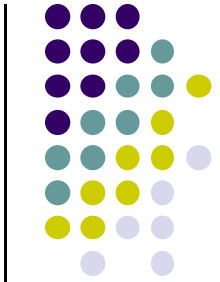
- They are usually smaller than most other units on campus.
- They have a sense of purpose.
- They help overcome the isolation of faculty members from one another and from their students.
- They encourage faculty members to relate to one another both as specialists and as educators. (In effect this encourages the development of new faculty roles.)
- They encourage continuity and integration in the curriculum.
- They help build a sense of group identity, cohesion, and "specialness."

Benefits of Learning Communities



- Strengthen student retention
- Increase learning
- Enhance recruitment efforts
- Increase student satisfaction
- Deepen understanding of content
- Create a sense of community when it is connected to co-curricular activities
- Create a sense of community when connected to service learning experiences
- Provide an opportunity for faculty and students to bond in and out of the classroom

Benefits continued…



- Make way for a smooth transition to college
- Provide opportunities to “learn by doing”
- Provide a supportive learning environment

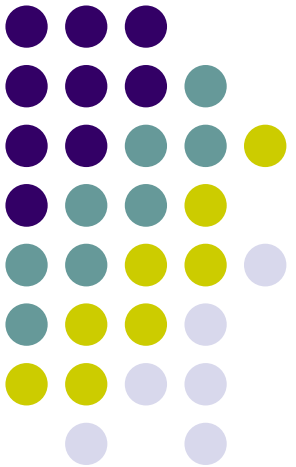
Curricula Models

Three Basic Types

Freshman Interest Groups

Paired/Cluster Classes

Coordinated Studies (Team-Taught)



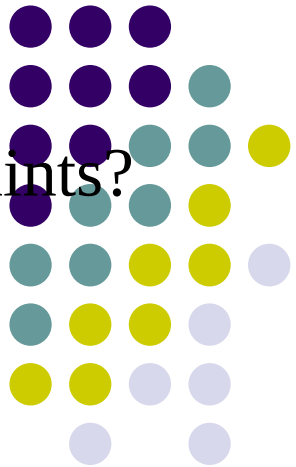
Choosing the appropriate LC Model

What are student enrollment patterns?

- usual course loads (full-time, part-time)
- scheduling patterns, needs
- kinds of courses taken (general education, honors, developmental, gateway courses into majors)

What are staff and faculty opportunities and constraints?

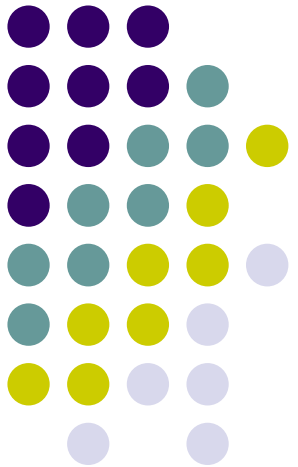
- usual teaching loads
- staffing patterns and sizes of key courses
- reward systems
- “riskiness”
- history of collaboration
- interest in deep collaboration
- history of academic/student affairs partnerships
- current advising and placement systems



Choosing the appropriate LC Model continued…

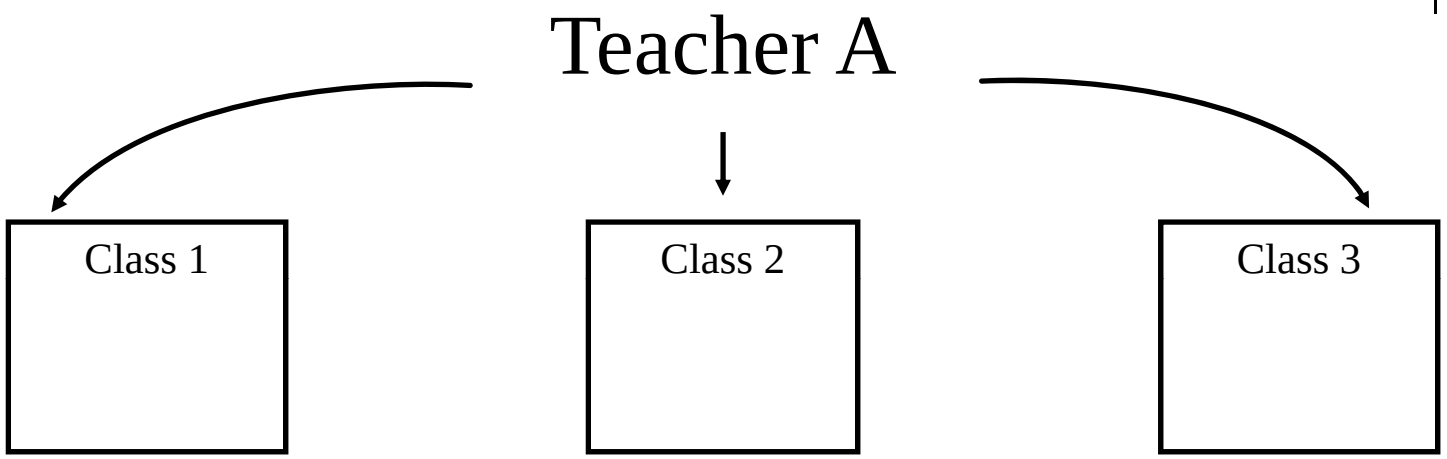
What is your institutional milieu?

- history of conversations and initiatives around strengthening teaching and learning
- genuine interest in fostering institutional commitment toward cross-disciplinary and cross-unit collaboration
- willingness, flexibility and ability to support change, especially to change planning practices, and resource development
- commitment to focused arenas of change
- fit with other institutional priorities

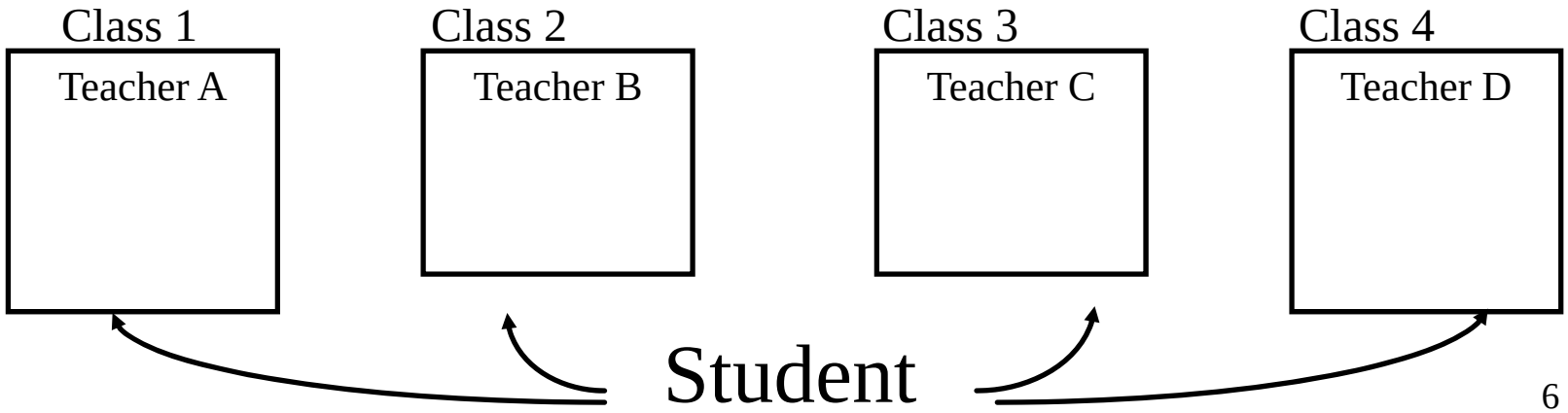


From Courses

Usually, teachers teach separate courses to separate sets of students

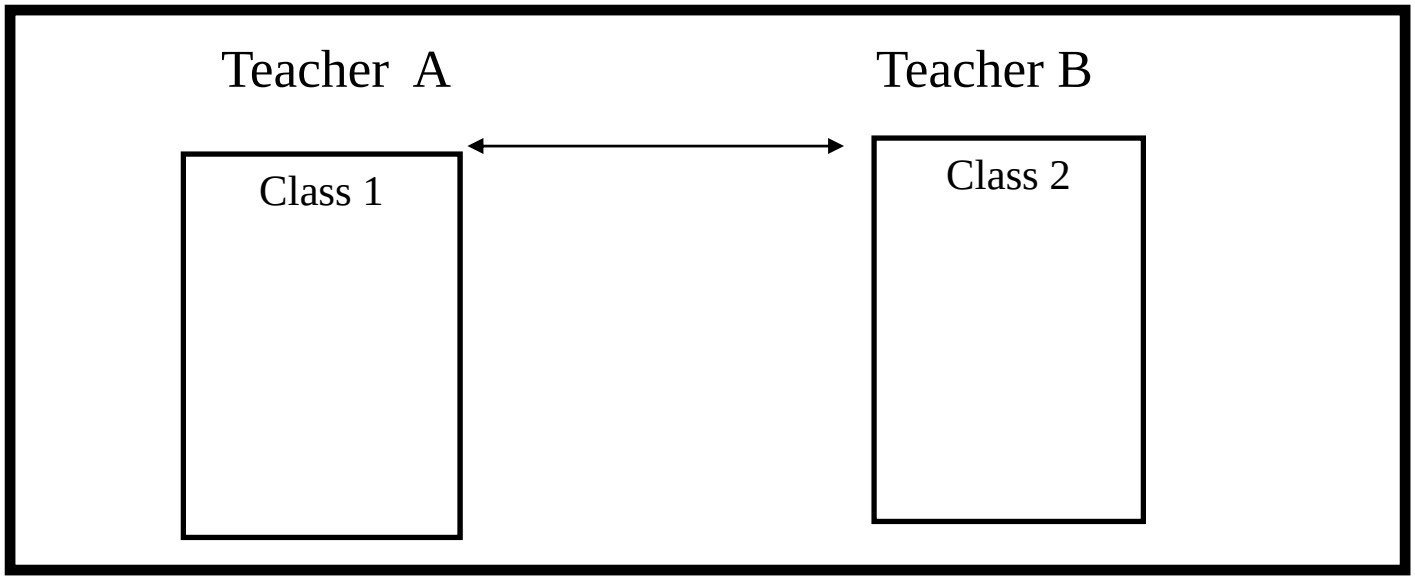


and students experience their
separate courses in unrelated fragments



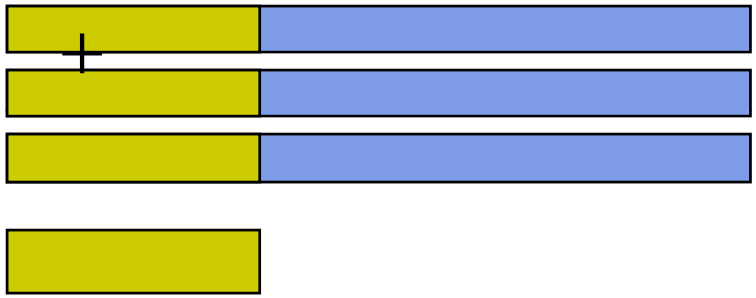
To Programs

By intentionally pairing or clustering courses into **programs,** both teachers and students experience a more coherent and enriched teaching and learning environment.



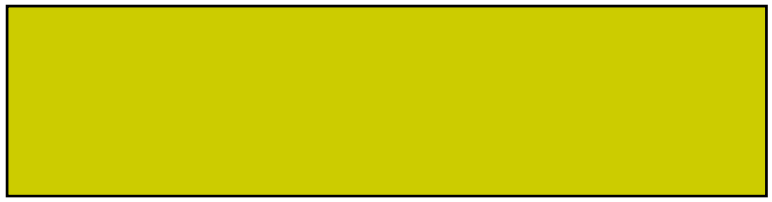
Learning Communities Can Be Structured As:

Programs in which a small cohort of students enrolls in larger classes that faculty DO NOT coordinate. Intellectual connections and community- building often take place in an additional integrative seminar. (e.g. FIG)



Programs of two or more classes linked thematically or by content, which a cohort of students takes together. The faculty DO plan the program collaboratively.

Programs of coursework that faculty members team-teach. The course work is embedded in an integrated program of study.



shading represents the student cohort

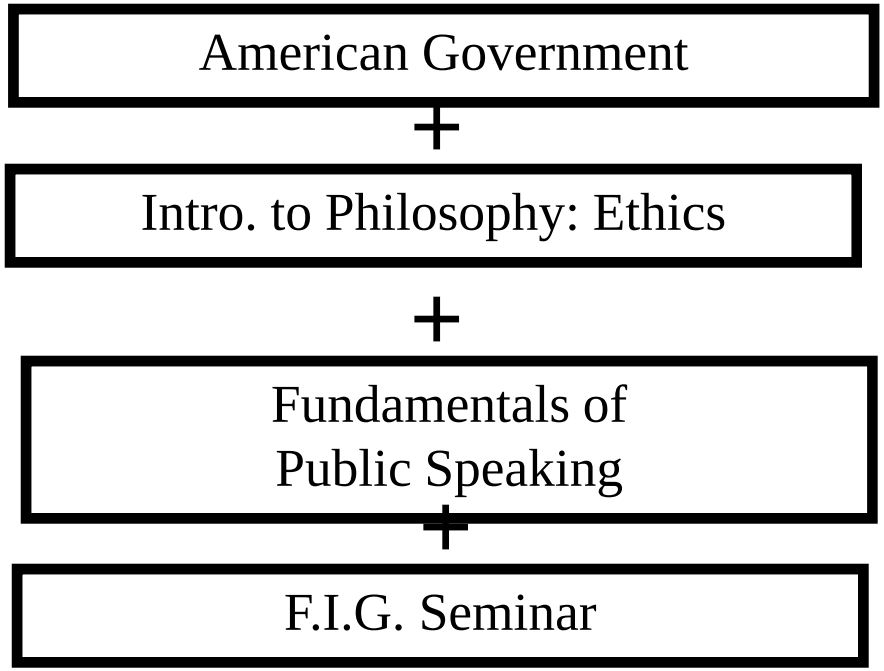
“F.I.G.’s” Freshman Interest Groups

Goal: The creation of small effective academic learning communities in a large college setting.

Vehicle: Triads of courses offered around an area of interest, an interdisciplinary topic, or courses related to a specific major. Each F.I.G. has a peer advisor, a more advanced undergraduate who convenes the group weekly to form study groups, to learn about campus resources, and to plan social gatherings.

Pre-Law

F.I.G.



Examples of F.I.G.'s

THE AMERICAN STATE	Introduction to Politics Survey - U.S. History Interdisciplinary Writing F.I.G. Seminar
THE SPECTRUM OF BEHAVIOR	Psychology as a Natural Science Intro. to Anthropology Composition: Social Issues F.I.G. Seminar
PRE-ENGINEERING	Psychology w/Analytic Geometry General Chemistry Composition: Exposition Engineering Careers F.I.G. Seminar

Linked or Paired Courses

Goal: Curricular coherence and integrating skill and content teaching

- Two courses for which students co-register.
- Generally, faculty work to coordinate syllabi and assignments, but teach their classes separately.
- Often, a writing or speech course is linked to a lecture-centered course, or a mathematics course is linked to a science course.

Examples of Paired Courses

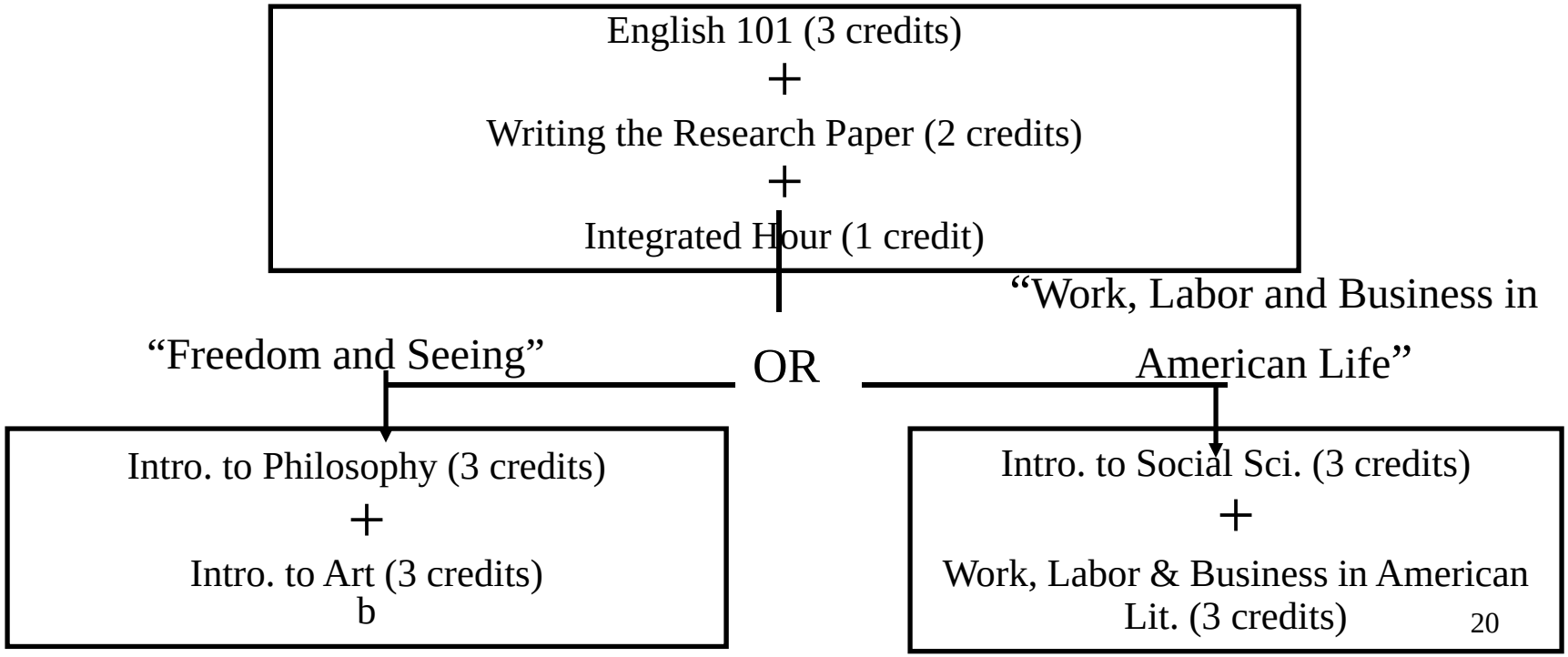
Introduction to Public Speaking American History
Beginning Calculus College Physics
College Study Skills Introductory Biology
Technical Writing Intro. to Environmental Science
Women and Fiction Philosophy: Ethics

Learning Clusters:

Goal: Coherence, thinking and writing skills in a community setting

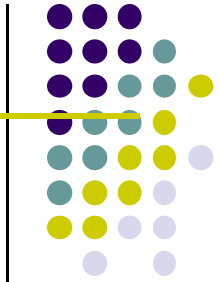
LaGuardia Community College

- All day-time enrolled students in Liberal Arts AA Programs take one of these 12-credit clusters.
- Cluster enrollment is limited to 30 students. Students travel from class to class as a self-contained group.



A Learning Cluster Schedule:

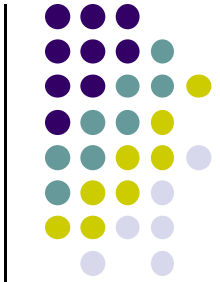
Work, Labor and Business in American Society



Monday	Tuesday	Wednesday	Thursday	Friday
	9:20-11:50 Work, Labor & Business in Amer. Lit.			
10:40-11:50 Research Paper		10:40-11:50 Research Paper	9:40-11:50 Work, Labor & Business in Amer. Lit.	
12:00-1:10 Composition		12:00-1:10 Integrated Hour	12:00-1:10 Composition	
1:20-2:30 Intro. to Social Science		1:20-2:30 Intro. to Social Science	1:20-2:30 Intro. to Social Science	

Coordinated Study Model

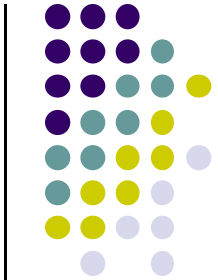
Evergreen College



The learning community is engaged "full-time" (15-18 credits) in interdisciplinary, active learning around themes. Faculty development occurs through co-planning and team-teaching across disciplinary boundaries.

- Faculty teams of 3-4 co-plan the coordinated study around an over-arching theme, or around related content/skills subjects
- Generally, faculty members teach *only* in the coordinated study, and students register for it as their entire "course load"
- Therefore, scheduling of class time becomes quite flexible: opportunities for BLOCKS of time for lectures, discussions, field trips, workshops
- Frequent use of "book seminars," collaborative learning, and student projects

Team-Taught Course Pairs (Coordinated Studies)



"Chemath"	Intro. Chemistry Intermediate Algebra
	+
"Politics & the Internet"	Computer Science Political Science
	+
"Mexico: Facts & Fiction"	History of Mexico Cinema

Team-Taught Triads of Courses

The Quanta Program at
Daytona Beach Community College

A year-long program involving 3 courses (9 credits) each semester.

Fall

"The Quest for Identity: the Search for Identity and Intimacy"

English 1 (Composition)
+
Psychology of Adjustment
+
Humanities 1

Spring

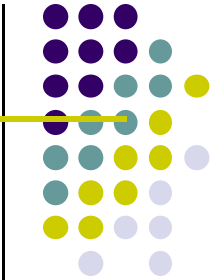
"Threshold to the Millennium: Towards a Better World"

English 2 (Literature)
+
General Psychology
+
Humanities 2

Coordinated Study Model

Typical Schedules

Problems Without Solutions?

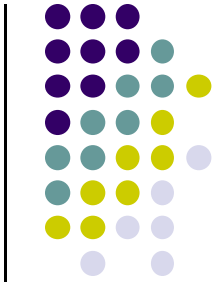


Monday	Tuesday	Wednesday	Thursday	Friday
9-10:30 Lecture	9-10:30 Faculty Seminar	8-1:00 Literacies Workshop	9-10:30 Lecture	
11-12:30 Book Seminar	11-12:30 Lecture	• writing • quantitative reasoning • photography	11-12:30 Book Seminar	Prep Day
1:30-3:30 Film/Video	2:30-4:00 Topical Workshops		1:30-3:30 In Conversation Week in Review	

JCSU Model

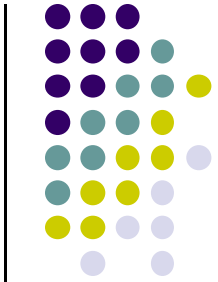
JCSU
J.C. SMITH
university
C. SMITH
university
JCSU
The Cotton Exchange

JCSU Model: Learning Communities (Cluster Model)



- 21 Linked LC Blocks (all freshmen)
- Each LC Block has:
  - 30 (maximum) students in a cohort per block
  - 4-5 five full-time faculty teaching in each block
  - Team Leader
  - Cluster Leader (serves 4 blocks)
  - Case manager for each block
  - Orientation leaders for each block
  - Peer Active Learning Mentors (PALMs)
  - Student Engagement Active Learner (SEAL) Trainers
  - 15-16 credit hour loads per block
    - Every block has a Math, English and Orientation Course
- Tutors

JCSU Per Block (20) Organization



Team Leader	
3-5 Full-time Faculty SEAL	Case Manager PALM
30 Students Enrolled in 15-16 credit hours of pure GE courses- **Math, English and Orientation** in every block	

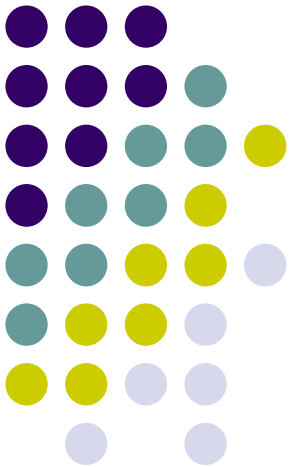
Core Practices at JCSU Across All LC Blocks

Integrated assignment

Co-curricular activities

Service learning

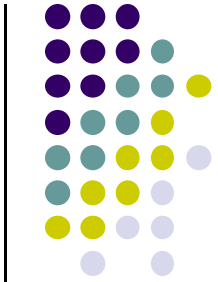
Active and Engaged Learning



Block Themes (JCSU) 2005-2006

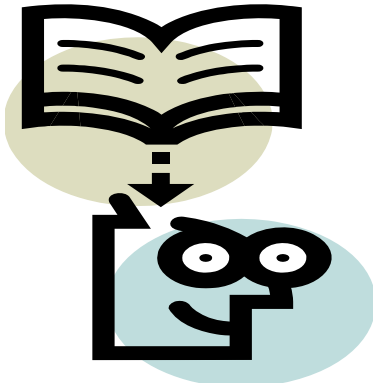
- *Ethics in the Civic Realm: We Are Our World's Keeper*
- *Ethics in the Civic Realm: The Creation of Community through Common Culture and Values*
- *Closing the Achievement Gap: An Educational Imperative*
- *Minority Health Disparities: Complex Issues, Complex Solutions*
- *Belonging(s): Family Re-unions*
- *Hipping the Hype: The Social, Ethical, Scientific, and Political Dimensions of Keeping Our World Healthy*
- *What Is the Nature of Success?*
- *Discipline and Desire: Inspiration to Improvisation*
- *Who Am I: Community, Culture, and Identity*
- *Discovering Self through Service*
- *We Are Here Together: The Pros and Cons of Becoming a Multi-Cultural Society*
- *Cultural Awareness and Critical Creativity: What Is It?*
- *Quality of Life: Water, Water Everywhere and Not a Drop to Drink*

2006-2007 Cluster Themes



- Blocks 1-4:
  - *Communication or (Miss)Communication: Lessons for Life*
- Blocks 5 & 8:
  - *This I Believe…*
- Blocks 6 & 7:
  - *The Browning of America: Are we a Melting Pot or a Tossed Salad?*
- Blocks 9-12:
  - *A Global Outlook: Survival Skills and Concepts*
- Blocks 13 &14:
  - *Leadership for Life*
- Blocks 15-19
  - *What Do You Know About That? The Social, Ethical, Scientific, and Political Dimensions of Keeping Our World Healthy*
- Block 20:
  - *It's Goin' Down: Health in Your Culture*

Designing an Integrated Assignment



Bloom's Taxonomy

This pyramid depicts the different levels of thinking we use when learning. Notice how each level builds on the foundation that precedes it. It is required that we learn the lower levels before we can effectively use the skills above.

Graduate School

Evaluation

Making decisions and supporting views; requires understanding of values.

Synthesis

Combining information to form a unique product; requires creativity and originality.

Analysis

Identifying components; determining arrangement, logic, and semantics.

Undergraduate

Application

Using information to solve problems; transferring abstract or theoretical ideas to practical situations. Identifying connections and relationships and how they apply.

Comprehension

Restating in your own words; paraphrasing, summarizing, translating.

High School

Knowledge

Memorizing verbatim information. Being able to remember, but not necessarily fully understanding the material.

Essential Learning Outcomes

Knowledge of human cultures and physical and natural world

- focused by engagement with big questions, both contemporary and enduring

Intellectual and practical skills

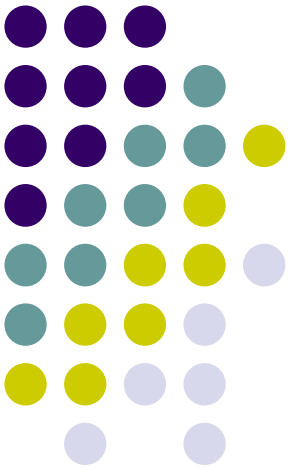
- practiced extensively, across the curriculum, in the context of progressively more challenging problems, projects, and standards of performance

Personal and social responsibility

- anchored through active involvement with diverse communities and real-world challenges

Integrative learning

- demonstrated through the application of knowledge, skills, and responsibilities to new settings and complex problems

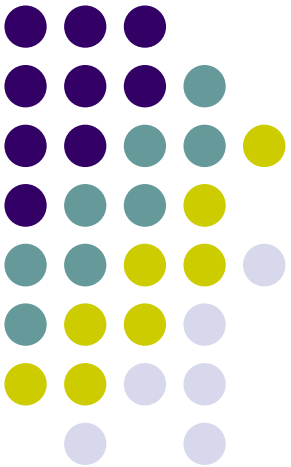


From: AAC&U, LEAP Report, *College Learning for the New Global Century*, p.12

Is there a difference between integrative and interdisciplinary learning?

Working definition

Individuals demonstrate *interdisciplinary understanding* when they integrate knowledge and modes of thinking from two or more disciplines or established fields of knowledge in order to create products, solve problems, and offer explanations of the world around them in ways that would not have been possible through single disciplinary means.



Adapted from Boix Mansilla & Gardner, 2000

Interdisciplinary integrations

- Integrating knowledge and modes of thinking in two or more disciplines to advance understanding

---

- Integrating expert perspectives

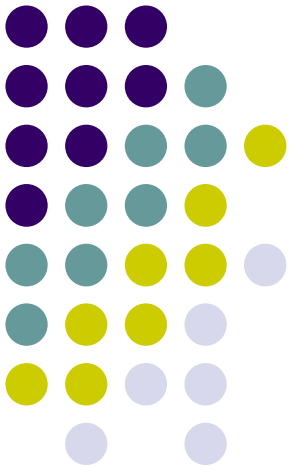
  (e.g. M. Gandhi, J. Sachs, Liberation Theology on poverty)

- Integrating artistic modalities

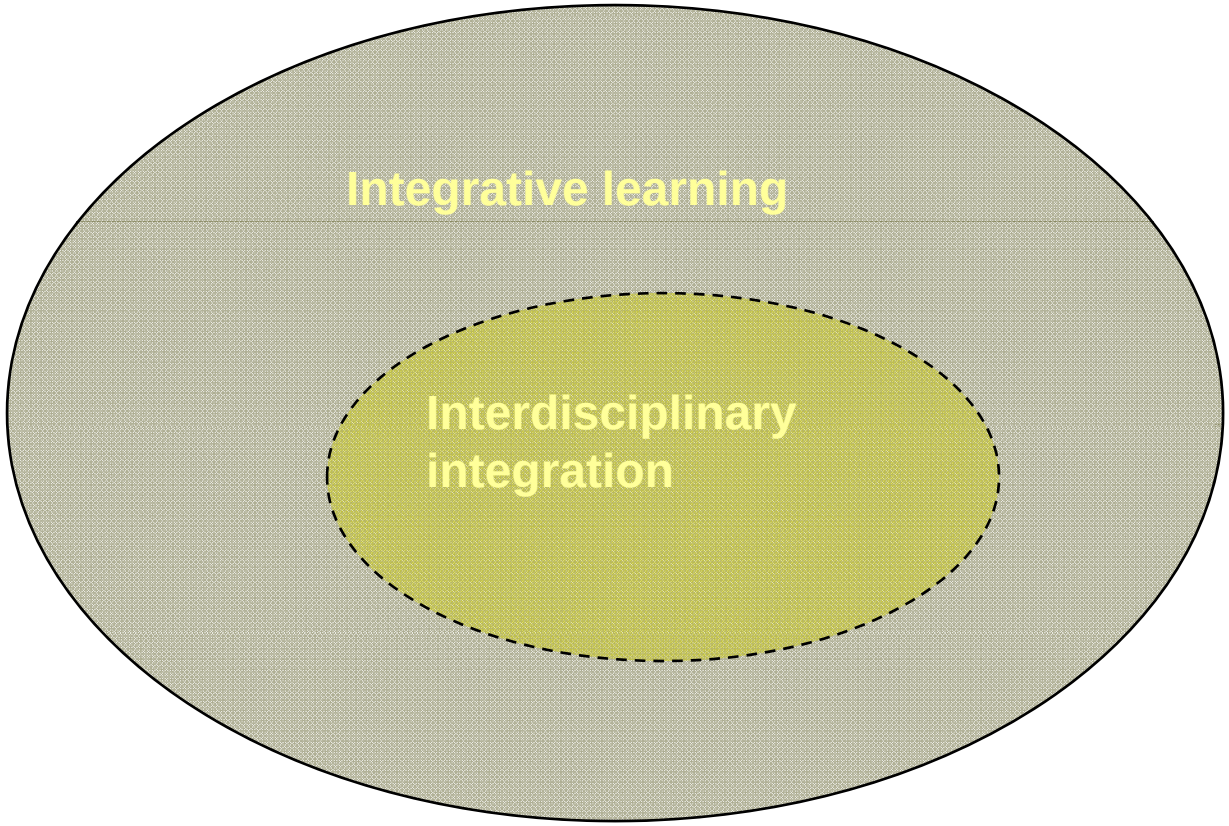
  (e.g., history and sculpture in monument)

- Integrating disciplines to understand experience

  (e.g., life-story placed in the larger sociological, historical, economic context)

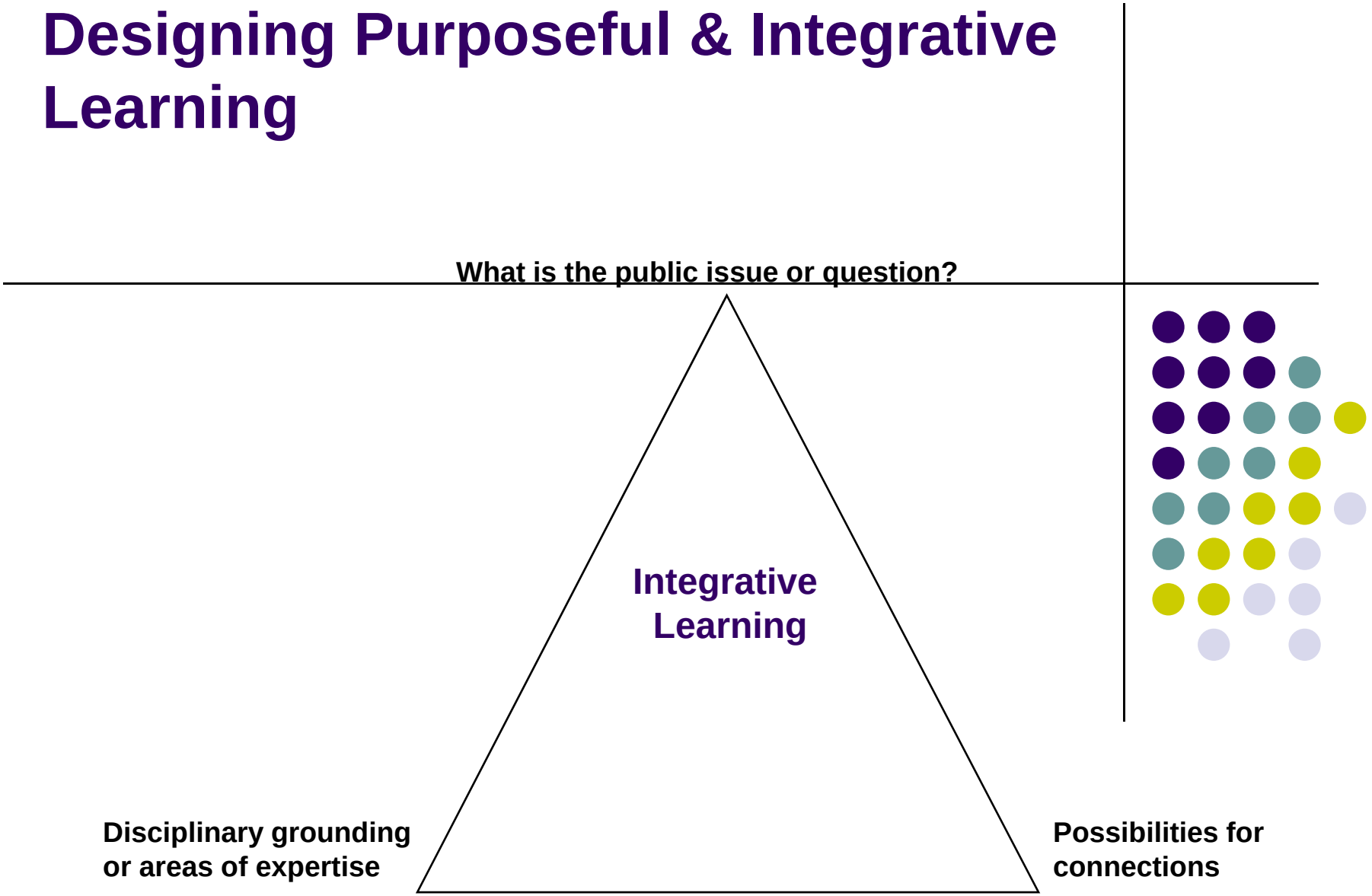


What is the relationship between integrative and interdisciplinary learning?



Washington Center's Heuristic

Designing Purposeful & Integrative Learning

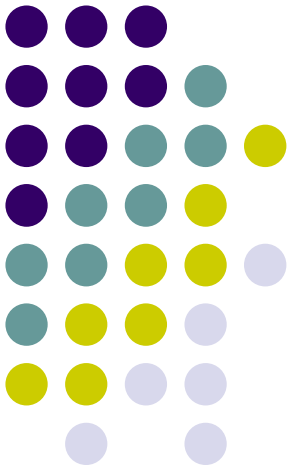


Developing an Integrated Assignment – Think-Group-Share Activity

- At your seat, get into groups of 3 with faculty or staff from different disciplines

- Get at least 3 sticky-notes from the pads on the table (Each person pick up a different color)

- Think-In the context of your discipline, what do you want students to learn most from your course? What do you want them to know, do or perform as a result of your course?
  - Write each response (at least 3) on a separate sticky note
  - In your group, share, compare, and cluster sticky notes by related concepts, content areas, or themes on the table or on a flip chart paper



Integrated Assignment for Interdisciplinary Understanding

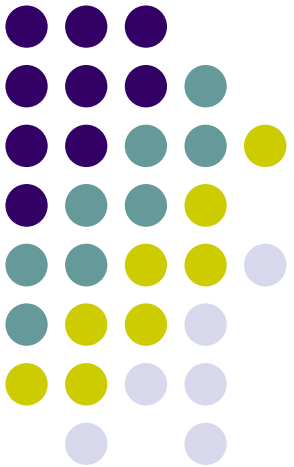
(Adapted from Boix-Mansilla, Harvard University)

- What is a public issue, question or real world problem that matters to students and has a sense of purpose?

- Create an integrative assignment that provides evidence of learning to solve a public issue. What is the goal of the assignment that cuts across disciplines

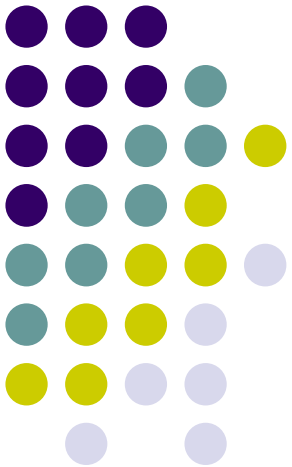
- Develop a sequence of assignments (sub- assignments in the discipline course) for students to demonstrate disciplinary understanding (concepts, theories, insights, knowledge, methods, and language) and contributions to the problem.

- What are students being asked to integrate to leverage their understanding? i.e. appropriate disciplines combined to solve the problem



Integrated Assignment Format

- Purpose
- Disciplinary Grounding
- Leveraging Integration
- Thoughtfulness



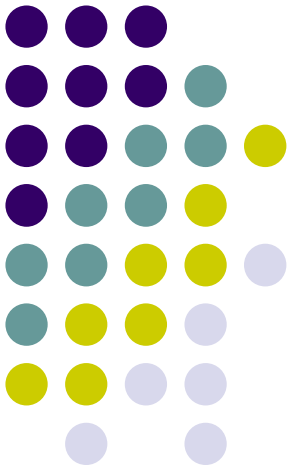
From “Assessing Student Work at Disciplinary Crossroads,” Veronica Boix-Mansilla

Engaged Learning

Student Success

Adapted from Vincent Tinto,

May 12, 2005, JCSU



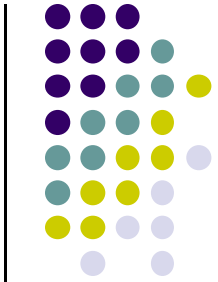
Engaging Students in Learning-Academic

- Academic Engagement
  - Cooperative Learning Activities
  - Collaborative Learning Activities
  - Service Learning Projects
  - Learning Communities
  - Problem Based Learning
  - Supplemental Instruction/Study Groups
  - Classroom Assessment Techniques

Engaging Students in Learning Social

- Social Engagement
  - Co-curricular Activities
  - Internships
  - Experiential activities
  - Study Abroad
  - Student Activities
    - Fraternities & Sororities
    - Discipline Clubs
    - Honor Societies
    - Debate Teams
    - Athletics
    - Band
    - Choir
    - etc

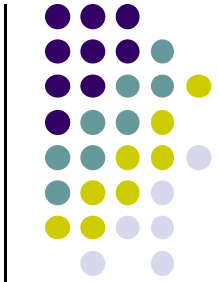
Engaged Student Activities – “Doing” Domain



Engage students with the content of the course by requiring students to “do” or “perform” something

- Writing assignments
- Writing and thinking
- Reading and writing
- Studying and preparing for class
- Using higher order thinking skills
- Asking questions
- Making classroom presentations
- Serving as a peer mentor
- Tutoring others

Student Success Variables

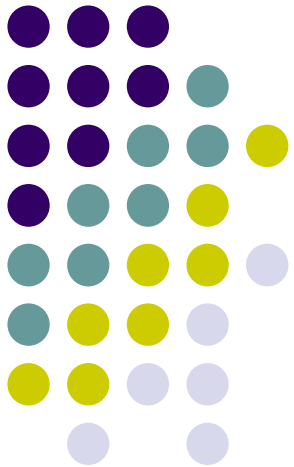


- Setting high expectations
- Providing academic and social support
  - Developing supportive peer groups
- Giving feedback by conducting
  - Placement testing
  - Early warning systems
  - Formative classroom assessment techniques
- Creating a collaborative learning environment
  - Studying together
  - Learning better together

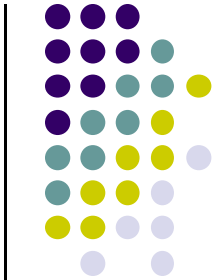
  - Adapted from Vincent Tinto, 2005, JCSU Summer Retreat on Learning Communities

Engaged Faculty: Program Engagement

Learning Communities
Service Learning
Learning Across the Curriculum Program



Seven Best Practices of Undergraduate Learning



A good teacher…

1)Encourages student-faculty contact

2) Encourages cooperation among students

3) Encourages active learning

4) Gives prompt feedback

5) Emphasizes time on task

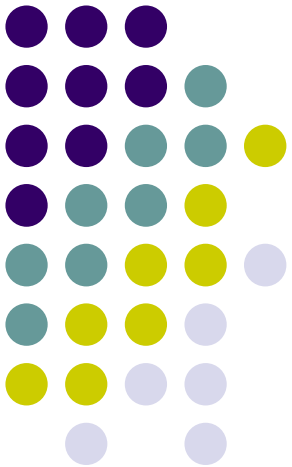
6) Communicates high expectations

7) Respects diverse talents and ways of knowing

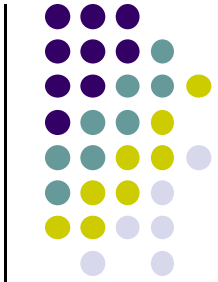
(Arthur W. Chickering and Zelda F. Gamson, 1987)

Social: Co-curricular Activities

Out-of Class Activities to Build a Sense of Community among students and faculty.

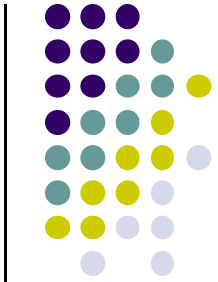


Definition of Co-Curricular Activities



By definition, a co-curricular activity is any activity that compliments an instructional plan in the classroom, a program, or initiative. It can be social or academic. Any prescription for incorporating it into the classroom involves asking questions before and after the activity. Reflections as follow up usually prompt students to use their critical thinking skills.

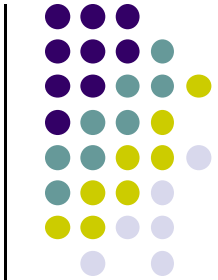
Prescription for Infusion



Students and Instructors…

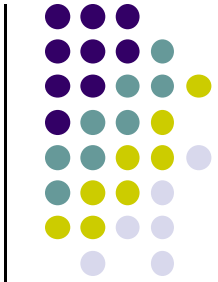
- Pre-read or discuss before engaging in the activity
- Give “Food for thought questions or viewing guide”
- Faculty should actively participate in activity (Do not send students to activity…All participate)
- Reflect or conduct forums on experience

Co-Curricular Activities (On-Campus Examples)



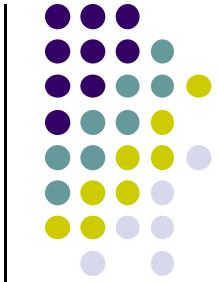
- College Bowl
- Field Trips
- Oratorical Contest
- Spelling Bee
- Scavenger Hunt
- Town Meetings
- Rap Sessions
- Lyceum Programs
- Visits in Residential Halls
- Movie/Popcorn
- Picnics
- Cook Outs
- Ice Breakers
- Common Readings

Co-Curricular Activities – based on Theme (Off-Campus)



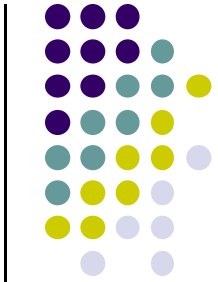
- Dead Sea Scrolls and Atlanta Tour
- Allstate Company in Ballantyne Area
- Dinner and Opera
- Taxonomy (Mecklenburg County Park and Recreation Department & Latta Plantation Nature Center)
- African-American Heritage Tour, International Festival-UNCC,)
- Visit to Charlotte Observer
- Service Learning Projects

Purpose



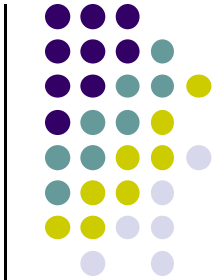
- To quickly build a sense of community
- To deepen learning initiated in the classroom
- To broaden students' perspective on any given topic and develop critical thinking skills
- Create an outlet/forum for teacher/student interaction

Global Reflection Questions



- What did you previously know about …?
- What did you learn about ….?
- Was the activity beneficial ?
- How will we be able to use this ?

Assessment and Evaluation



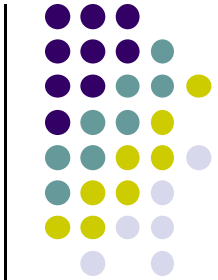
Providing Formative and Summative Feedback

Formative Assessment: Classroom Assessment Techniques (CATs)

Tom Angelo and K. Patricia Cross, Classroom Assessment Techniques and Research

- Assessing Course Related Knowledge Activities
  - One Minute Paper
  - Muddiest Point
  - Memory Matrix
  - Focused Listing
  - Pro and Con Grid
  - One Sentence Summary
  - Problem Recognition Tasks
  - Directed Paraphrasing
  - Student-Generated Test Questions
  - CATS and Technology

Are Learning Communities Effective?

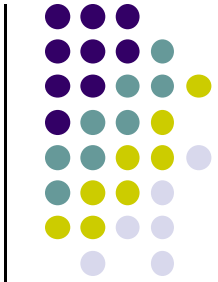


- Student outcomes
  - Student retention, achievement
  - Student involvement, motivation
  - Time to degree, degree completion
  - Intellectual development

- Faculty outcomes
  - Faculty development in terms of expanded repertoire of teaching approaches, revised course content, and new scholarly interests.
  - Faculty mentoring
  - Faculty engagement with beginning students, with general education offerings.

- Institutional outcomes
  - Learning communities as deliberate intervention in curricular trouble spot--courses with low success rates
    - i.e., R&D sites for curriculum development, and
    - the strengthening of teaching and learning

Assessing FALC Operations

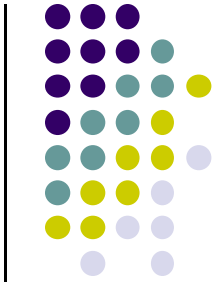


- The Objective is to have students
  - Return as sophomores
  - Fulfill the General Education requirements
  - Move into major courses of study

- The foci of assessment are
  - Monitoring students' academic progress
  - Monitoring the quantity and quality of the services to the students
  - Identifying the issues/areas that need improvement

- Three-level assessment structure
  - Course-level assessment
  - Program-level assessment
  - University-level assessment

Assessing FALC Operation (cont.)



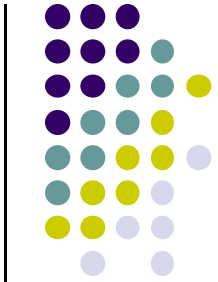
Three level assessment structure

- *Course-embedded assessment*
  Assignment, mid- and final tests
  (measured by term grades and GPA)
  Course Portfolios
  CATs

- *Program level assessment*
  Semester-end surveys on students, Faculty,
  and staff using Flashlight Survey

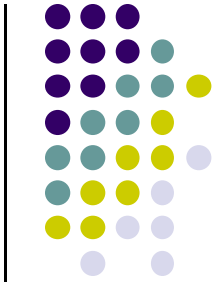
- *University level assessment*
  Academic Profile (AP) or Measure of Academic Proficiency and Progress (MAPP)
  College Student Inventory (CSI)
  National Survey of Student Engagement (NSSE)
  Faculty Survey for Student Engagement (FSSE)
  Classroom Survey for Student Engagement (CLSSE)
  Student Satisfactory Inventory (SSI)

Assessment Tools



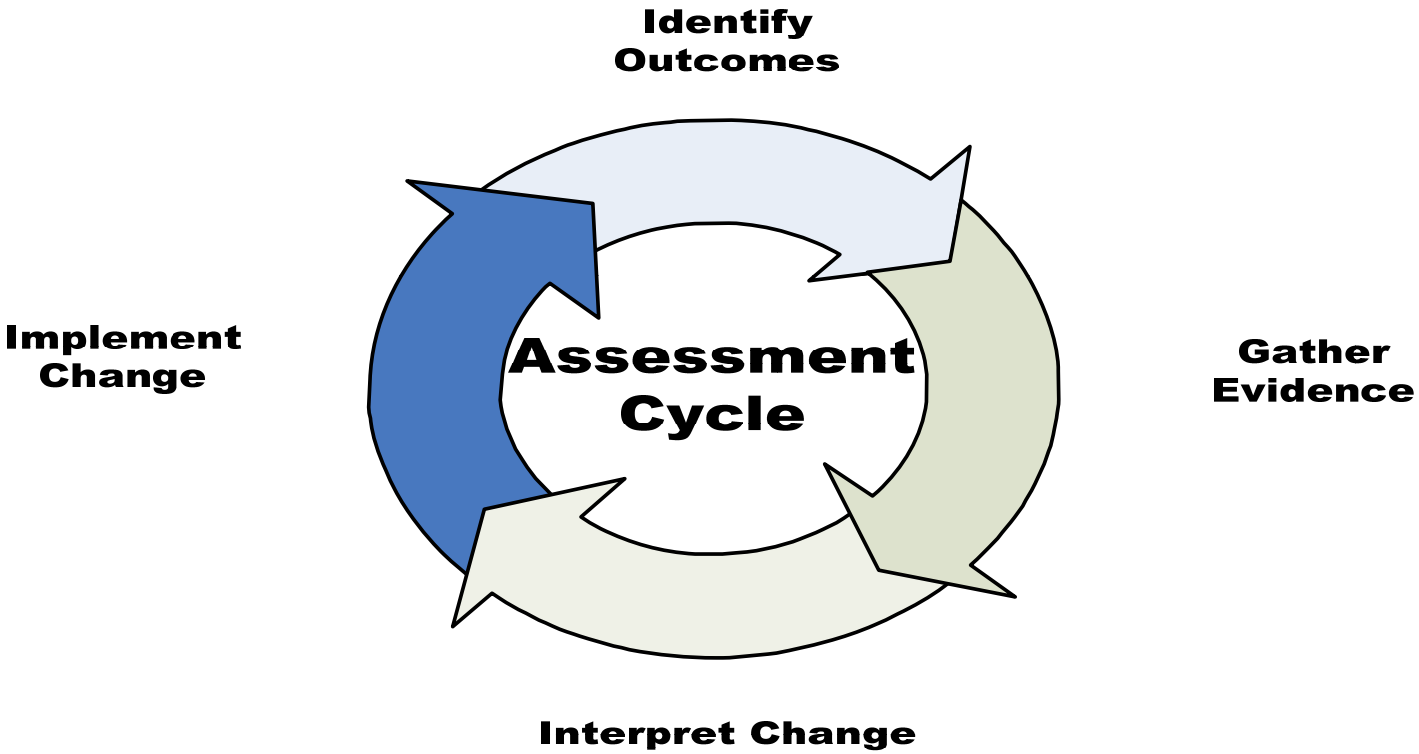
- Classroom Assessment Techniques-for quick and timely feedback (formative)
- Quality Checklist-for cross/integrated assignments
- Course/Teaching Portfolios-for documenting evidence of teaching assignments
- Faculty Learning Community Logs-for monitoring implementation of teaching elements
- Flashlight Surveys-for surveying student attitudes about LC activities
- ePortfolios (TrueOutcomes)

Use Data for Improvement to:



- Improve internal communication to better coordinate various services to students
- Improve communication with students and their parents
- Continue to assess LC operation
- Develop a comprehensive operation plan and an implementation guideline to ensure the LC planning, organization, and management align with the Strategic Plan and assessment plan.
- Refine the scheduling process
- Streamline data collection

Closing the Integrated Assignment loop



Use a rubric to assess integrated assignment report and reflective papers

e.g. Washington State University's Rubric on Critical and Integrated Thinking http://wsuctproject.wsu.edu/ctr.htm

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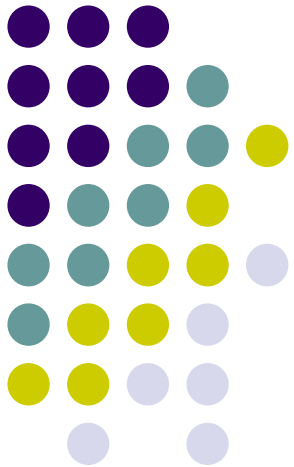

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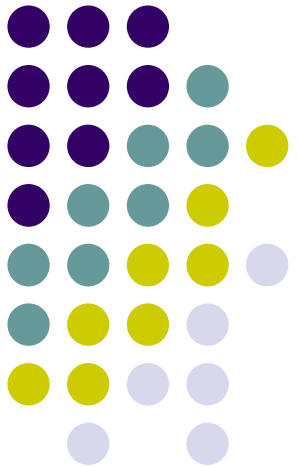
- Yancy, D. C., Sutton-Haywood, M., Hermitte, E., **Dawkins**, P.W., Rainey, K. & Parker, F. (2008). The impact of the Freshman Academy/Learning Communities program on student progression and engagement. *Journal of Negro Education*, 77 (3), 250-263.

Resources

For articles and resources:

- JCSU www.jcsu.edu – Click Academics then Freshman Academy
- Go to www.evergreen/washcenter, then click learning communities/assessing learning/
- Learning Communities Website http://learningcommons.evergreen.edu



Learning Communities: Three Structural Frameworks

By "learning communities" we mean various approaches to *curricular reform* that depart from the usual pattern of teachers teaching separate classes in separate subjects to separate groups of students. They represent an intentional restructuring of students' time, credit, and learning experiences to build community among students, among faculty and their students, and to build curricular connections across disciplines, professional and technical programs, and skill areas.

Learning communities vary based on the degree of curricular integration and degree of collaboration among faculty and staff. Whatever the learning community structure selected, the aim is to foster explicit social and intellectual connections among people and ideas. Three general patterns or structural frameworks include:

- *Learning communities within courses that are unmodified:* Ten to thirty students enroll in two or three larger classes taught by faculty members who do not change their syllabi or classroom practices. The students also enroll in an additional course that only they attend. One adaptation, *freshman interest groups (FIGs),* aims to foster community at large institutions by regrouping students based on shared academic interests: an interdisciplinary theme, a topic-based inquiry, or study in the major. The focus of the additional course ranges from an orientation to campus support services, career exploration tied to academic advising, course-related study groups and skill-based workshops, service learning projects and/or field trips. A teaching assistant, a student peer mentor, academic advisor, counselor, faculty member, or combination of these in a teaching team may facilitate FIGs, whose credit hours range from zero to three. Another adaptation to this structure, the *integrative seminar* or *colloquy,* uses the additional course to deepen student learning and build community through theme-based reading, discussion, research projects, and/or service- or civic-based learning. A faculty team, usually teachers of the larger classes, convene the seminar.

- *Learning communities of linked or clustered classes:* Students co-register in two or more courses that are explicitly linked by content or theme. Faculty coordinate syllabi and assignments, and work intentionally to foster community through social and curricular connections that occur within the linked, but distinct courses. *Linked or paired courses* are often scheduled back-to-back to facilitate collaborative work, the time at the end of one class and the beginning of another an opportunity for the teaching team to be present for project work, seminars, and group presentations. Introductory skill-building classes such as composition, speech, information literacy, and computer applications are often linked to content-heavy courses. When two or more courses are linked they are often referred to as a *cluster.* Both links and clusters enroll a "pure cohort" where approximately twenty-five to thirty students attend each class, and only these students are enrolled in the classes. Some links and clusters connect larger general education courses with smaller classes such as writing, study strategies, or speech, which incorporate the content of the larger class into their curriculum.

- *Team-taught learning communities*: Students enroll in a fully team-planned and team-taught program of study across disciplines and skill areas that usually focuses on an integrating theme, question, issue, or topic. Faculty teaching teams sometimes include counselors, student affairs professionals, and librarians, and the teaching team's preparation for class constitutes their own learning community. The program may earn part-time or full-time credit, last one term, or be designed as a one or two-year program of integrated study. Learning opportunities for students include seminars, internships, laboratory studies, service learning, and extended research projects.

WASHINGTON CENTER
FOR IMPROVING THE QUALITY OF UNDERGRADUATE EDUCATION

EXAMPLES OF INTEGRATIVE ASSIGNMENTS

FROM WASHINGTON STATE LEARNING COMMUNITY COORDINATORS MEETING

Names: Anne Martin (Edmonds Community College)
Debra Olson (Spokane Falls Community College)
Courses: Sociology of the Environment & Pre-Algebra

Public Issue: Should I Shop at Wal-Mart?

Assignment: Oral and written team reports that give pro and con evidence within a subtopic (e.g. environment, labor, social class) answering the theme question using qualitative and quantitative evidence

Learning Outcomes:

- Sense of purpose (in the world and in their world) of the math at hand
- Proficiency of "absolutely necessary" math skills
- Sense of perspective in discriminating "math" and "algebra"
- Ability to use general problem-solving skills to approach quantitative problems
- Sociological perspectives, core concepts, and methods – including interviewing
- Scientific method
- Opportunity to gain compassion through appreciation of power and social forces (e.g. race/ethnicity, class, gender and other differences…immigration, etc.)
- Local/global connections in problems, solutions, power dynamics
- Service learning: who is in community and orientation to Wal-Mart

Resources:

- Community partners in labor/environment/business
- Community members (interviews/surveys)
- Readings
- Guest speakers
- Videos
- Math skills building
- Small group exercises
- Class presentations
- Interviews/ surveys

Student Work:

- Present to each other/guest speakers/interviews

Name: Robin Jeffers (Bellevue Community College)
Rhonda Meyers (Lower Columbia College)
Courses: Composition & Human Genetics

Public Issue: Stem Cell Research

Learning Outcomes:

- Understand issues in genetic and stem cell research
- Ev types/ AC discourse types

Assignment #1: Context-setting

Group task: Library research – varieties of evidence
Current research: gene therapies, organ transplants, organ growth, cloning (explain pros and cons of cloning), cloning of endangered species, ethical issues
Genetics: know how to relate genetics to one's family; understand how genetics ties to society
Evidence sequence: claim – evidence – examples of evidence

Assignment #2: Scientific report of 'experiment'

Group task: Isolate own DNA – know structure of DNA
Field trip: Abernathy fish and Technology Center
Varieties of academic discourse: humanities style; scientific reporting of research
Generating your own evidence and using it

Assignment #3: Position paper

Integrating self-generated evidence with evidence from external sources
Basic element of logic
Analytical prose
Applying academic techniques to see what you don't see in your everyday life

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Name: Sarah Ryan (The Evergreen State College)
Sara Baldwin (South Seattle Community College
Courses: Labor Studies & ESL

Public Issue: Work and Immigration in Our Community

Assignment: Oral history project looking at immigration, work, and living wages. Students will design questions. Each would interview on person and photograph her/him. Write and present stories and data. Together they analyze results and what they show about immigration and the history of working people.

Learning Outcomes:

- Research and research-design in oral and local history
- Basic descriptive statistics and understanding inflation
- Speaking, listening, and forming opinions across level of skill and styles of English
- Understand the community/norms in which they live
- Understand different opinions

Resources:

- Media, photo supplies, computer lab

Student Work:

- Think about one's job and compare it to others
- Form opinions about a topic
- Do research evaluation
- Read and understand in a content area (ESL)
- Discuss the topic and make them understood in speaking and writing (ESL)
- To understand what others say and write (ESL)
- Engage in conversations with people outside of class
- Compare work with work done in the past
- Create questionnaire/survey to learn what the jobs and practices are
- Analyze research

Public Presentation: Campus display – speaking at a public event

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Name: Jane Lister-Reis (North Seattle Community College)
Catherine Crain (Cascadia Community College)
Bill Moore (Washington State Board for Community & Technical Colleges)
Courses: Psychology, Communication, & Math (statistics)

Public Issue: Seeking the In-Between in Political Discourse

Assignment: Observing, analyzing, and providing feedback on an example of public political discourse

Preparations: Use of evidence, quantitative reasoning, dialogic listening, psychological perspectives

Learning Outcomes:
- Move beyond fear of tough/fierce conversations
- Deep listening practice – "Dialogue listening"
- Concept of voice – social construct influenced by RCG
- Conflict resolution – "non-violent communication"
- Role of statistics and probability in real-world decision-making
- Use and misuse of data in reasoning
- Interpreting charts/graphs as context of assignments
- How to think critically about sources (especially popular sources)
- How psychologists answer research questions (major research methodology approaches)
- Ethics of research
- How to ask a research question
- Psychological perspectives (multiple)

Resources: Media, legislative hearings

Name: Jenny McFarland (Edmonds Community College)
Mike Gillespie (University of Washington – Bothell)
Courses: Biology & Philosophy

Public Issue: Biology and Morality of Assisted Suicide

Assignment:
- Letter to children (or loved ones) request an outcome: explain biological and philosophical; for specific terminal disease
- Applies discipline to issue; requires demonstrating and relating of decision; links conceptual and feelings in contexts; see relevance of their studies in life
- Research a disease: biology of death – when terminal?; basic ethical approaches; interview – activist, family, or physician
- In class; poster for public area; public art

Learning Outcomes:
- Get better at challenging our own assumptions w/love and fear
- Connect conceptual to feeling response with issue
- Apply biology knowledge and ways of thinking to real/meaningful issues
- Understand that they already know and use science

- Be able to use/apply reading, writing, and skills to learning biology
- Respond with critical writing improve in this over the quarter
- Relate scientific descriptions and theory to public issues
- Respond honestly and with courage – sense of confidence in varying contexts
- Appreciate different dimensions (values) – scientific, philosophical, aesthetic

Resources:

- Readings/speakers: legal, religious, medical, activists; video (e.g. Moyers); Oregon law and responses

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FROM COLLEGE READINESS DEVELOPMENTAL EDUCATION RETREAT

Issue: **Payday Loans: Who Wins? Who Loses?**
Subjects: **English** ~ research, collect current data, supplement written presentation of information with charts and graphs, facilitate forum, produce lobby letter and campus info poster, write letters to invite forum guests and shame public figures. **Math** ~ apply appropriate formulas, compare data, chart & graph research, extrapolate and interpret data.
What: To use basic math, reading, writing skills to make informed decisions.
How: Evaluate letters, charts, graphs, research. . .

Creativity – varied modes of response
Assessment – math concepts test, public presentation, written documents
Expectations – written description of issue and assignments (we love rubrics)
Challenge comfort – go to loan shark, public presentation, public "real" letter
Support – calendar of events and deadlines
Collaboration – work in groups w/clearly defined roles
Prior knowledge – topic/ skills, autobiography
Intellectual challenges – bridging gap from "classroom stuff" to real world knowledge

English course:
Purpose: The integrated assignment contributes to learning in this specific course in these ways: 1) helping students define and narrow an issue; 2) Researching it factually without bias or faulty argument and 3) using the information to interpret, publish, write letters of change, discuss, collaborate, etc.
Specific tasks: identify problem, narrow plan research, do research, interpret research, make charts and graphs describing issue/facts adequately, and write letters to politicians.

Math course:
Assignment: Part 1 – Visit a payday loan store to find out what rates they charge. (give a specific amount of money and loan time to work with.) Find out basic rates and any penalty fees. Part 2 – Research other ways to get short-term cash. Part 3 – Calculate how much money you have to spend to get the payday loan. Compare this with the other ways of obtaining money. Purpose: To be able to do the calculations of interest, etc in order to make informed decisions, to judge whether or not payday loan rates are "fair.

Issue: OIL: What Does it Cost?
Courses: Reading 096, Math 080, ABE Math
Purpose: An opportunity to read and synthesize information from various resources to develop an informed opinion on a social issue. Discover the relevance of statistical data.

Assignment: Research project in groups. Each group will explore some facet of the larger subject of oil.

Specific tasks:

- Brainstorms subtopics
- Identify places to conduct research
- Carefully read articles and evaluate validity of sources
- Collaborate with group members
- Collect quantifiable data from family, co-workers, friends, and acquaintances.
- Aggregate the data – Identify key points to present
- Visually present aggregated data using a table, histogram, stem & leaf diagram
- Apply and present basic measures of central tendency
- Presentation of research, data, and topics to the class

Curricular resources: Library – periodicals, journals, newspapers, government documents/ Energy Outreach Center/ Government Offices/ Voter's Pamphlets/ Videos/ Intercity Transit/ Bicycle Advisory Board

Learning expectations:

- Gather information from reliable sources
- Understand information gathered
- Apply measures of central tendency/ create an articulate, informed opinion
- Synthesize information for public presentation

Other: Math class and reading class to meet jointly to plan/choose research topic. Create teams that will match qualitative with quantitative.

FROM CAMPUSES

Faculty at American River College

Courses: Anatomy and Physiology and Reading

Issue: Can students, faculty and staff eat a "heart healthy" diet on campus?

Resources: RDA's food guide pyramid, journal articles (Am. Heart Assoc.), Health Center, Campus food services, library
Project: Students work in small groups: investigation, analysis, conclusion, and consequences
Preparation: Learn about structure and function of heart, "heart healthy" diet, consequences of a poor diet on the heart/heart disease, structure of text, how to read charts and graphs, crafting questions.

Courses: Chemistry and Biology

Issue/Question: Analyze your personal "footprint" (impression left by your actions) choices

Resources: Suzuki website, compact website, films (Future of food, Supersize me, etc.), Waste Management and Health programs
Projects: Choose 1 of 3: Waste (environment), Diet (body), Consumer (society)
Preparation: Evaluate problem and develop hypothesis; gather data; extend hypothesis 50 years; conclusions/assumptions/validity; group analysis

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Faculty at Sacramento State University

Courses: Criminal Justice I & Freshman Seminar

Public Issue: Impact of illegal use of drugs & alcohol on freshman students.

Integrative Assignment:

In the CRJ class, students will read & discuss the legal, social, and educational consequences of the illegal use of drugs and alcohol. The freshman seminar course will focus on the illegal use of drugs and alcohol as it impacts the student's ability to be successful in school.

Describe what students will do in each course to prepare for this project:

Students will work in research groups –

1. Drugs used most on college campuses
2. Drugs used most at CSUS
3. In California, what are the consequences of getting caught with illegal drugs?
4. What are the physiological impacts of drug use?

What learning outcomes does this project support for each of your classes?

- Group work
- Library Research /Information Competency
- Oral Presentation
- Better Understanding of self
- Importance of understanding what they really want out of higher education
- Ability to think critically

How will you invite students to adopt an incremental theory about their own intelligence in the context of their work, with you (individually and as a team)?

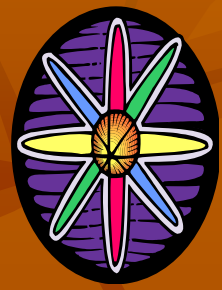
As students begin to get new information and develop an understanding of what is important to them, they may begin to change their attitudes about substance abuse.

How will students work become public?

The EOP CRJ learning community students will present a Power Point presentation of their findings and recommendations at the learning community closing event attended by all EOP Learning Community students.

Learning Communities: Administration

Norfolk State University, May 12, 2009



Phyllis Worthy Dawkins, Ph.D.
Associate Provost, Dillard University

Former Dean and CAO, College of Professional Studies
Former Director, Faculty Development
Johnson C. Smith University

Resource Faculty
The Washington Center for the Improvement of Undergraduate Studies
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Outline

- Planning and Administration
- Faculty Development
- Assessment and Evaluation

Planning and Administration

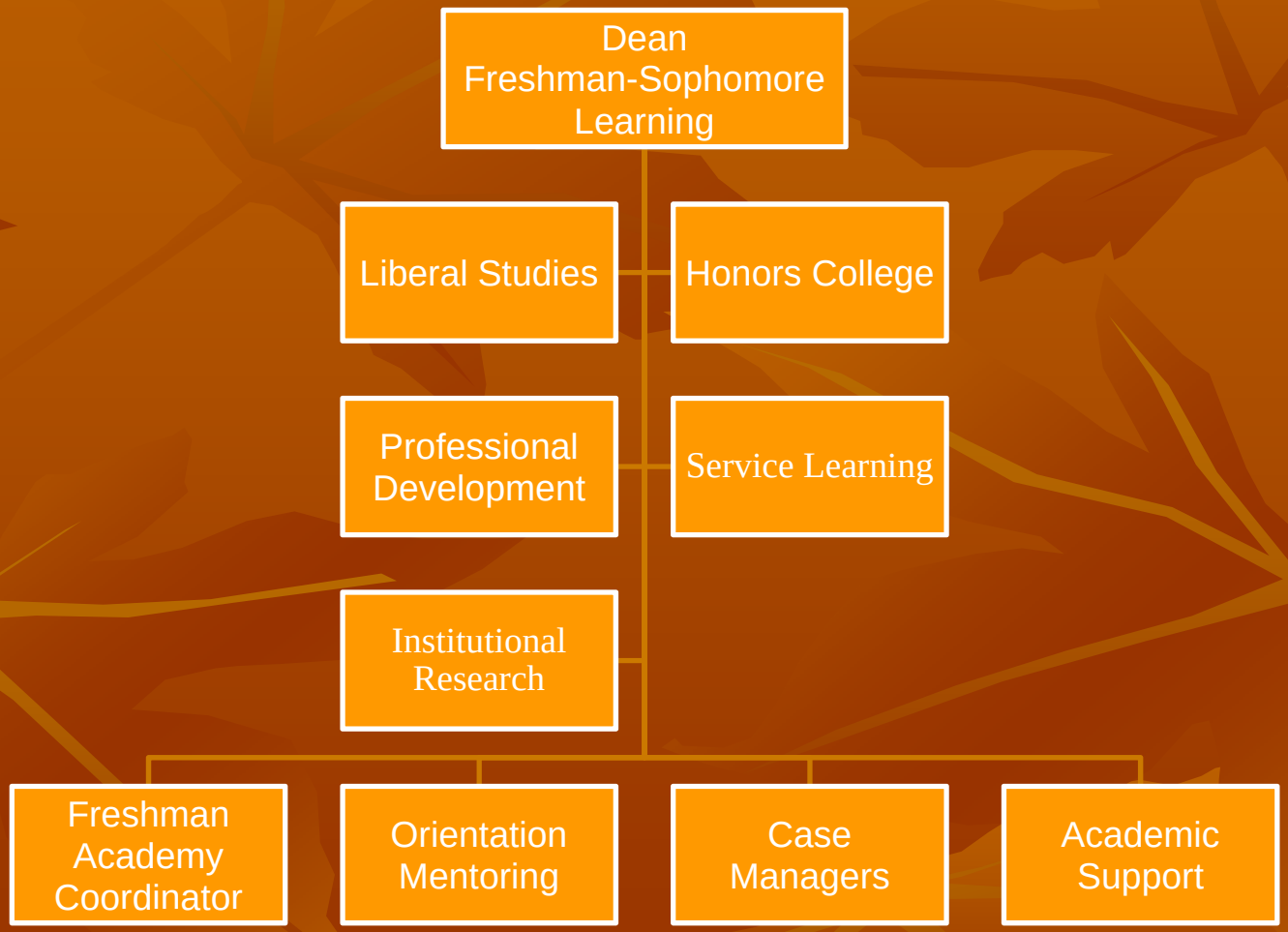
A University effort…

JCSU Scheduling Classes

- Department Chairs create schedules
- Classes scheduled in blocks (5 courses)
- Blocks grouped into clusters (3-4 blocks)
  - Honors
  - STEM
  - Early schedule
  - Et cetera
- Faculty assigned to single cluster

JCSU Organization Learning Communities

JCSU Organization
Learning Communities Support



Successful Learning Community Implementation

Successful Learning Community implementation requires extensive cross-unit coordination:

Critical Elements of the Change Process

Impetus for Change

Administrative Support

Leadership Team

Comprehensive View/Shared Vision

Strategic Plan

Inclusive Planning

Student-Focused Goals

Faculty Involvement

Project Director

Information

Networks

Resources

Incentives and Rewards

Resource Support for Learning Community Programs

Support varies from nothing, to all of the following.

Support in start-up years is especially critical.

1. A clear locus of leadership, with a steering committee.
2. Planning support for faculty and staff members
   - planning stipends
   - released time before or during the LC offering
   - curriculum planning retreats
3. Faculty development for LC
   - locatable, accountable site for faculty development
   - curriculum planning retreats
   - annual LC institutes
   - various skill-building and sharing opportunities
4. Reduced enrollment for pilot LC classes
5. Special publicity for LC offerings
6. Support (or released time) for LC coordinator
7. Assessment/evaluation support

Support: Human Resources (JCSU)

- LC Advisory Committee
- LC Coordinators(s)
  - Freshman Coordinator
  - Upper and in the Major LC Coordinators
- Faculty Development Director
- Administrative Assistant
- Mobile Computers (Laptops for All Faculty)
- Educational Technologist
- Mentors for Students and Faculty
- FALC Assessment Committee

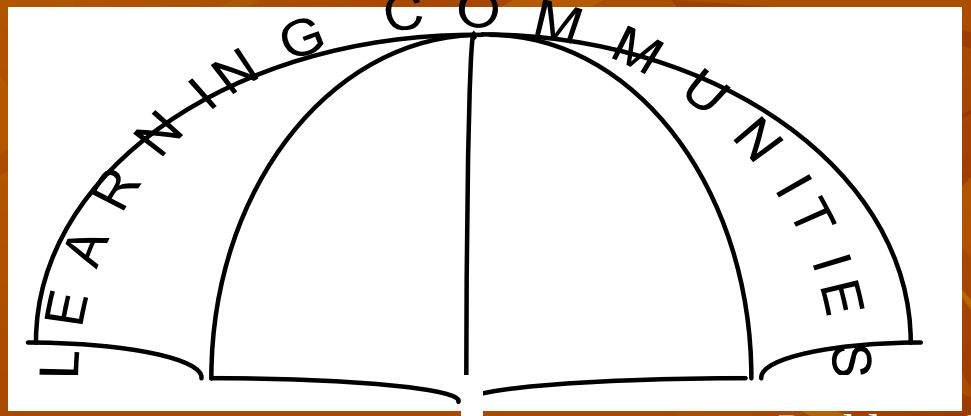
Others who may participate in LC teaching teams besides faculty members:

- Learning support specialists
- Academic advisors
- Residence life staff
- Librarians
- Computer technology specialists
- Students! Both undergraduate and graduate students frequently serve as teachers, peer advisors and facilitators

Faculty and Staff Development

Core Practices

Learning Communities Invite an Array of Pedagogical Approaches:



Collaborative/
Cooperative Learning

Peer Teaching

Discussion Groups &
Seminars

Experiential Learning

Labs and Field Trips

Problem-Centered
Learning

Lectures and
Demonstrations

Writing and Speaking
Across-the-Curriculum

Ongoing Reflection,
Metacognitive Activities,
Self-evaluation

Faculty Involvement

- On a LC team (2 or more faculty)
- On a LC Committee
- On a LC Advisory Board to coordinate program offerings
- As a workshop leader
- As a grant writer
- As a consultant

Retaining Faculty

- Incentives
  - Mini Grants
  - Stipends
  - Summer Pay
  - Release Time
  - Resources (Books, videos, software, etc.)
  - Others?
- Recognition
  - Certificates
  - Plaques
  - Newspaper Announcements
  - Others?

Retaining Faculty continued…

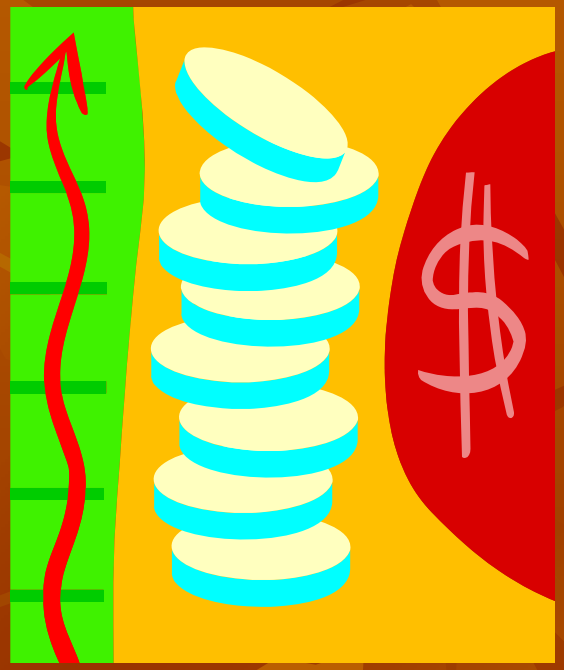
- Professional Growth Opportunities
  - Serving as a consultant on and off campus
  - Presenting in campus workshops and at conferences
  - Disseminating program outcomes at workshops and conferences
  - Traveling to attend and participate in conferences
    - Purchasing books and other resources
    - Taking educational expeditions (tours, outings, etc.)
    - Bonding as a team (travel in groups) for retention and future involvement
  - Publishing Results

Retaining Faculty continued…

- Personnel Decisions
  - Promotion
  - Tenure
  - Post-tenure Review
  - Merit
  - Salary increases

Learning Communities Mini Grants

- Grant provides:
  - Stipends as an incentive to get started
  - Funding for co-curricular activities or resources
  - Time to bond and work with team members
  - Faculty development training



Benefits of Mini Grants

- Enhance changes in programs
- Inspire course revisions
- Contribute to faculty growth
- Provide incentive
- Yield quicker results

Funding Learning Communities

Funds Allocated 2005-2006

- JCSU Board of Trustees $250,000
- HBCU-UP $250,000
- The Duke Endowment $500,000 per yr/3yrs

Other Contributors

- The Andrew Mellon Integrated Studies Grant
- The MBRS RISE Program
- Title III

The Budget Allocations

- Faculty and overload salaries
- Staff salaries
  (Assessment Coordinator)
  (Financial Aid Counselor)
- Fringe Benefits
- Case Manager
- Team Leader Stipends
- Faculty Development Activities
- Block Co-curricular
- Service Learning Activities
- Technological Advances

The Budget Allocations

- New faculty and overloads
- New staff
  (Assessment Coordinator)
  (Financial Aid Counselor)
- Fringe Benefits
- Case Manager
- Team Leader Stipends
- Faculty Development Activities
- Block Co-curricular
- Service Learning Activities
- Technological Advances

General Funding Sources

- Federal Grants: Faculty Development Components
  - Department of Education
  - National Science Foundation
    - http://www.nsf.gov/home/grants/grants_opps.htm
  - National Endowment for the Humanities
    - http://www.neh.gov/grants/grants.html
  - National Endowment for the Arts
    - http://www.nea.gov/guide/GAP04/GAPindex.html
  - NASA
    - http://www.nasa.gov
  - Department of Defense, FIPSE, Title III, others
  - NIH MARC Ancillary Training Grants
    - http://grants1.nih.gov/grants/index.cfm

General Funding Sources continued...

- Foundation Grants
  - Ford Foundation
  - Kellogg Foundation
  - Philip Morris
  - Lumina
  - Keck
  - Bell South Foundation and other Bell Foundations
  - Carnegie Foundation
  - Andrew Mellon Foundation
  - Private foundations within the city, across the state, and nationally
  - Others

Assessment and Evaluation

Providing Formative and Summative Feedback

Collaborative Assessment Protocol

- Examines students' work for ***evidence*** of integrative and interdisciplinary learning
- Prompts more considered and intentional feedback to students on their work
- Focuses attention on assignments and what we are inviting students to learn
  - Malnarich and Lardner, AAC&U 2007

Formative Assessment: Classroom Assessment Techniques (CATs)

Tom Angelo and K. Patricia Cross, Classroom Assessment Techniques and Research

- Assessing Course Related Knowledge Activities
  - One Minute Paper
  - Muddiest Point
  - Memory Matrix
  - Focused Listing
  - Pro and Con Grid
  - One Sentence Summary
  - Problem Recognition Tasks
  - Directed Paraphrasing
  - Student-Generated Test Questions
  - CATS and Technology

Are Learning Communities Effective?

- Student outcomes
  - Student retention, achievement
  - Student involvement, motivation
  - Time to degree, degree completion
  - Intellectual development
- Faculty outcomes
  - Faculty development in terms of expanded repertoire of teaching approaches, revised course content, and new scholarly interests.
  - Faculty mentoring
  - Faculty engagement with beginning students, with general education offerings.
- Institutional outcomes
  - Learning communities as deliberate intervention in curricular trouble spot--courses with low success rates
    - i.e., R&D sites for curriculum development, and
    - the strengthening of teaching and learning

Assessing FALC Operations

- The Objective is to have students
  - Return as sophomores
  - Fulfill the General Education requirements
  - Move into major courses of study
- The foci of assessment are
  - Monitoring students' academic progress
  - Monitoring the quantity and quality of the services to the students
  - Identifying the issues/areas that need improvement
- Three-level assessment structure
  - Course-level assessment
  - Program-level assessment
  - University-level assessment

Assessing FALC Operation (cont.)

Three level assessment structure

- *Course-embedded assessment*
  Assignment, mid- and final tests
  (measured by term grades and GPA)
  Course Portfolios
  CATs

- *Program level assessment*
  Semester-end surveys on students, Faculty,
  and staff using Flashlight Survey

- *University level assessment*
  Academic Profile (AP) or Measure of Academic Proficiency and Progress (MAPP)
  College Student Inventory (CSI)
  National Survey of Student Engagement (NSSE)
  Faculty Survey for Student Engagement (FSSE)
  Classroom Survey for Student Engagement (CLSSE)
  Student Satisfactory Inventory (SSI)

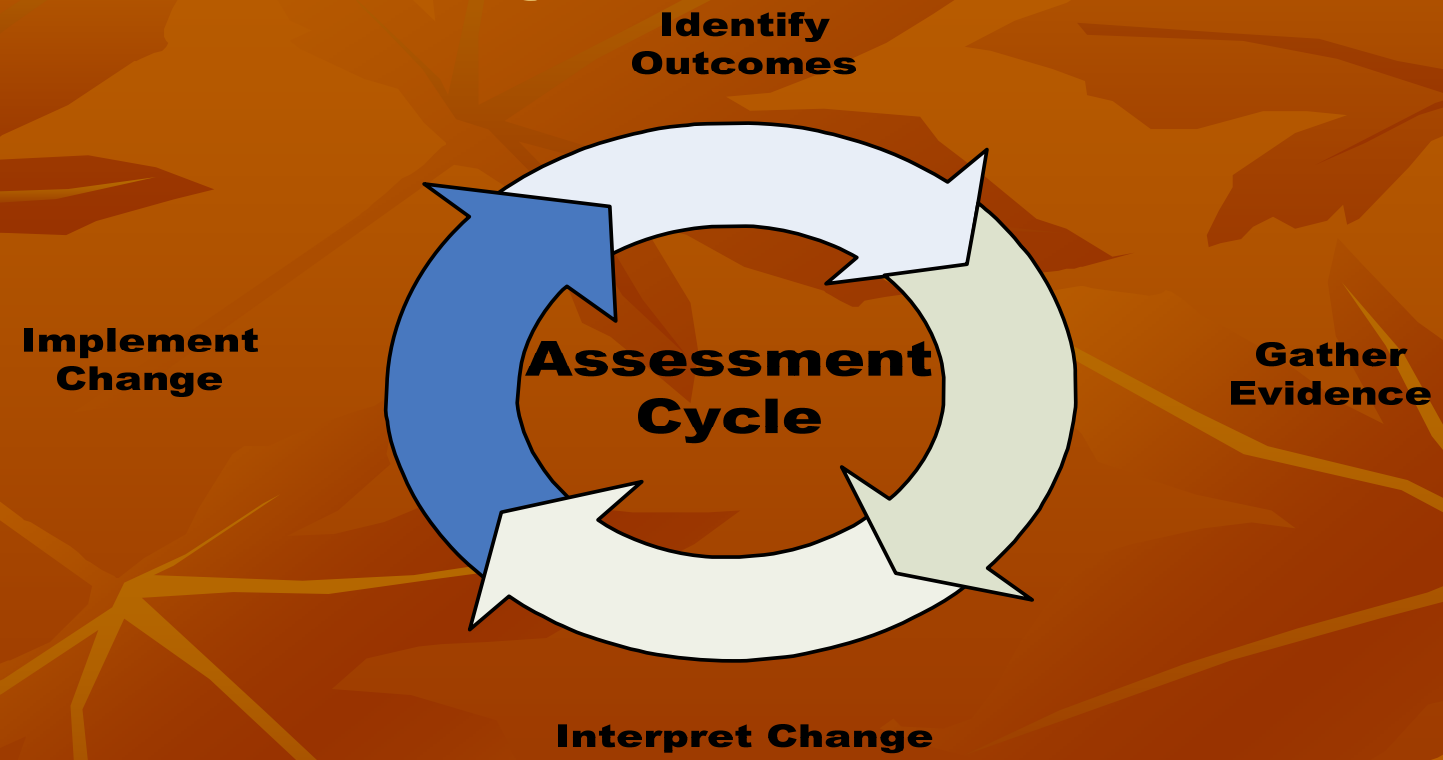
Assessment Tools

- Classroom Assessment Techniques-for quick and timely feedback (formative)
- Quality Checklist-for cross/integrated assignments
- Course/Teaching Portfolios-for documenting evidence of teaching assignments
- Faculty Learning Community Logs-for monitoring implementation of teaching elements
- Flashlight Surveys-for surveying student attitudes about LC activities
- ePortfolios (TrueOutcomes)

Use Data for Improvement to:

- Improve internal communication to better coordinate various services to students
- Improve communication with students and their parents
- Continue to assess LC operation
- Develop a comprehensive operation plan and an implementation guideline to ensure the LC planning, organization, and management align with the Strategic Plan and assessment plan.
- Refine the scheduling process
- Streamline data collection

Closing the Integrated Assignment loop



Use a rubric to assess integrated assignment report and reflective papers

e.g. Washington State University's Rubric on Critical and Integrated Thinking
http://wsuctproject.wsu.edu/ctr.htm

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Resources

For articles and resources:

- JCSU www.jcsu.edu – Click Academics then Freshman Academy
- Go to www.evergreen/washcenter, then click learning communities/assessing learning/
- Learning Communities Website http://learningcommons.evergreen.edu

Transformation is a metamorphic process.

Your institution starts out as one thing....

And ends up
as something else.

STEM Learning Communities

Phyllis Worthy Dawkins, Co-Writer, HBCU-UP, JCSU
Associate Provost, Dillard University
Project Director, January – June 30, 2008
Dawn McNair, Assistant Professor of Math, JCSU
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Historically Black Colleges and Universities with Learning Communities (30/105)

- Benedict College
- Bennett College
- Bethune-Cookman College
- Central State University
- Clark Atlanta University
- Delaware State University
- Fayetteville State University
- Florida A&M University
- Hampton University
- Howard University
- Johnson C. Smith University
- Jackson State University
- LeMoyne-Owen College
- Mississippi Valley State University
- N.C.A&T State University
- N.C. Central University
- Philander Smith College
- Prairie View A&M University
- Shaw University
- Spelman College
- St. Augustine's College
- Southern University, NO
- Talladega College
- Tennessee State University
- Tougaloo College
- Winston Salem State University
- Xavier University, NO
- University of Central Arkansas-Pine Bluff
- University of the District of Columbia
- Voorhees College
- Others…

HBCUs with LCs by Type of Institution

Public Universities (15)

- Central State University
- Delaware State University
- Fayetteville State University
- Florida A&M University
- Howard University
- Jackson State University
- Mississippi Valley State University
- N.C.A&T State University
- N.C. Central University
- Prairie View A&M University
- Southern University, NO
- Tennessee State University
- Winston Salem State University
- University of Central Arkansas-Pine Bluff
- University of the District of Columbia

Private Universities (15)

- Benedict College
- Bennett College
- Bethune-Cookman College
- Clark Atlanta University
- Hampton University
- Johnson C. Smith University
- LeMoyne-Owen College
- Philander Smith College
- Shaw University
- Spelman College
- St. Augustine's College
- Talladega College
- Tougaloo College
- Xavier University, NO
- Voorhees College

FIPSE Funded Learning Community Programs

LC and Faculty LC

- Howard University
- Jackson State University
- Talladega College
- Xavier University

Learning Communities

- Bennett College
- Benedict College
- Greensboro College
- Talladega College

Curriculum Planning Retreat on Learning Communities at JCSU

Co-sponsored and funded by the UNCF-Mellon Grant, Washington Center, Bush-Hewlett Foundation and HBCU Faculty Development Network

- 2001 CPR Retreat
  - Benedict College
  - Bennett College
  - Central State University
  - Johnson S. Smith University
  - North Carolina A&T State University

Curriculum Planning Retreat on Learning Communities at JCSU

co-sponsored by the Washington Center continued...

2007 CPR Retreat

- Clark-Atlanta University
- Coosa Valley Technical College
- Concordia College
- Johnson C. Smith University
- Queens University of Charlotte
- Prairie View A&M University
- Sandhill Community College
- Villa Julie College
- Voorhees College

2008 CPR Retreat

- Benedict College
- Bethune Cookmen University
- Florida A&M University
- Johnson C. Smith University
- Prairie View A&M University
- Spartanburg Technical College
- Villa Julie College
- Voorhees College
- Winston Salem State University

Washington Center for Undergraduate Learning Summer Institute on Learning Communities Participants

- Johnson C. Smith University, 2002
- Tougaloo College, 2002
- University of the District of Columbia, 2007, 2008
- Delaware State University 2007, 2008
- Bethune Cookman College, 2003
- Florida A&M University, 2007
- Mississippi Valley State University, 2007
- Southern University of New Orleans, 2008
- Fayetteville State University, 2008

Theme
CSI: Community of STEM Inquiry

Dawn McNair, Assistant Professor of Mathematics

Problem Based Learning

- Pose a question or create a real world problem that students can connect to and process
- Teach the content or knowledge to solve the problem
- Conduct problem solving workshops or seminars to solidify the learning of concepts or theories
- Use resources to supplement course information
- Apply knowledge to solve complex problem by drawing from different disciplines

A STEM Learning Community Snapshot
CSI: Community of STEM Inquiry

1. Community of Research and Experiential Education

The C.O.R.E. project is designed around four goals:
- Promote deeper, interactive teaching and learning to support STEM
- Implement a Learning Community to increase student engagement
- Implement a Learning Community to increase faculty capacity; and
- Promote both faculty and student participation in STEM research

2. Creating Curricular Learning Community

The four objectives to promote deeper, interactive teaching are:
- Implementing interdisciplinary model
- Standardizing required, first-year STEM and composition courses
- Incorporate Inquiry and problem-based learning
- Utilize educational technology

3. STEM Learning Community

Faculty and students are blocked into a cohort that:
- Consists of three to four linked courses
- Has a common theme
- Requires Service-Learning
- Requires co-curricular activities
- Develops cross course interdisciplinary assignment

Cross Course Integrated Interdisciplinary Assignment

Theme: CSI (Community of STEM Inquiry)

Faculty Learning Community Team/Linked Courses

Courses linked based on STEM major include:
- English Composition
- Algebra
- Biology
- Computer Science

Disciplinary Content and Key Learning For Students

Faculty team develop key goals that students:
- Will be able to evaluate information from a variety of sources
- Will be able to draw from multiple learning strategies intertwined in STEM disciplines
- Will be able to think and communicate more critically and effectively

Cross-Course Integrated Assignments

Refers to linked course assignments for which:
- Credit is received in more than one learning community course
- There are defined student learning outcomes
- Active and Collaborative Learning activities are assigned
- Students engage in co-curricular activities
- Students engage in service-learning

Evaluation of Learning Community

Assessments that measure student learning include:
- Reflective Essays
- Flashlight
- Clickers
- Critical Thinking Rubrics
- Problem-Based questions

JOHNSON C. SMITH UNIVERSITY HOME

Sample Cross-Course Integrated Assignment

Students will be assigned to participate in an investigation where inquiries of death are open to investigation. Students will utilize the scientific method, mathematical equations/theories, case report writing, and technical visuals to resolve and report findings on the commission of a crime.

Mystery at the McNair Hotel

Objective: Determine time of death using:
- Scientific method
- Newton's Law of Cooling
- Data Collection
- Report Writing
- Excel and PowerPoint

Staging: Abbey Grange Case Study used to:
- Put project into context
- Engage students in problem-based learning
- Have students collaborate
- Hypothesis, predictions, reevaluation—scientific method

Group Roles:
- Detective – moderates team discussion; research
- Investigator – records team activities; research
- Forensic scientist – groups spokesperson/expert; analysis
- Lab technician - gather data; analysis

Procedure:
- Data Collection
- Data analysis

Product/Assessment:
- Case Report – Grading rubric
- Creative Narrative – Grading rubric

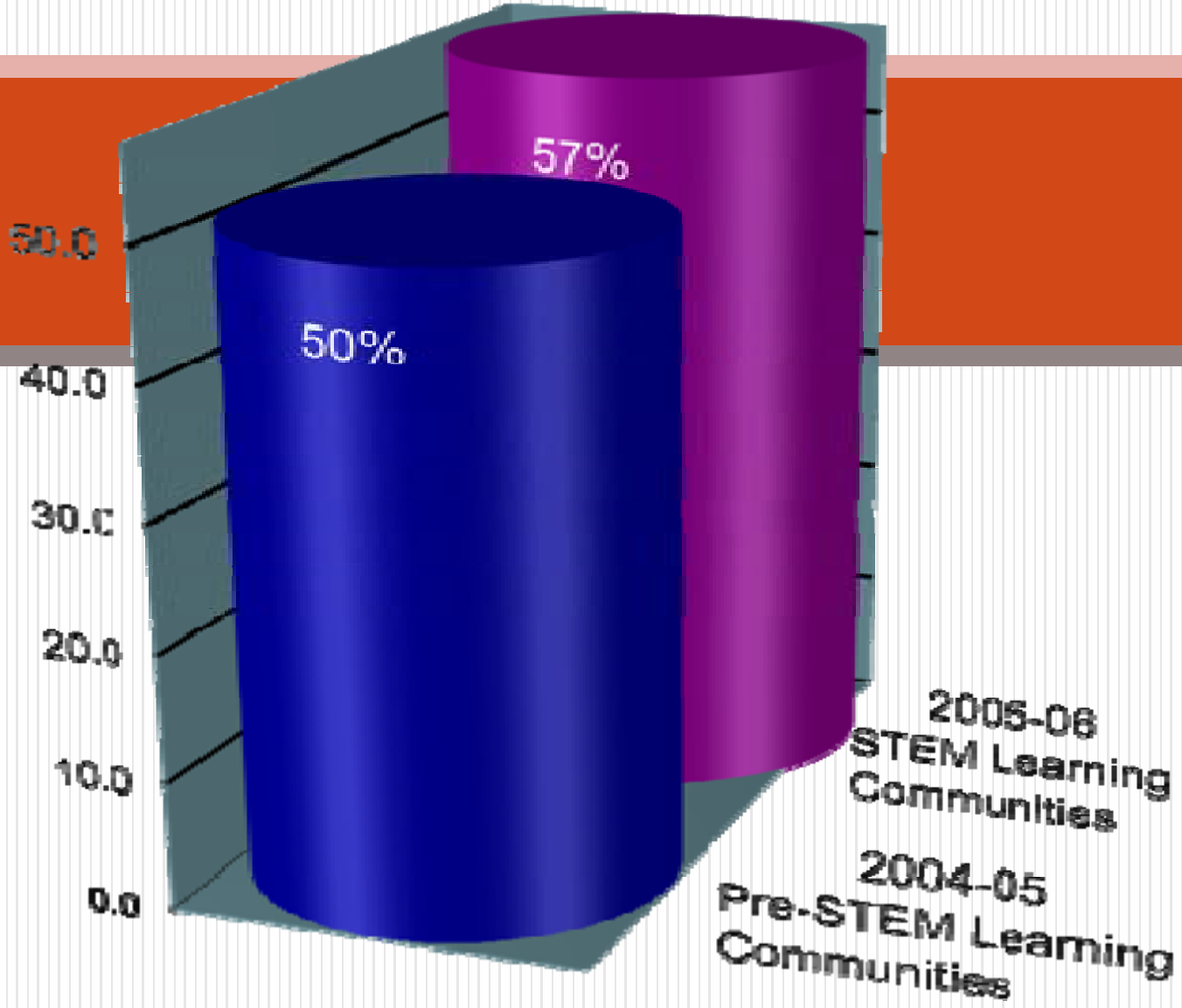
Student Reflections:
- **"[This] activity required me to change my hypothesis a lot because events would happen that forced me to change my original hypothesis."**
- **"It was amazing how well we worked together to try to solve the mystery. The activity gave everyone a chance to feel included."**
- **"In my science class we learned about the scientific method. This was the first time I used it in a situation where it related to subjects besides science."**

Did the STEM Learning Community impact student retention in the STEM disciplines?

Poster

RESULTS

Retention for STEM Students



Did the STEM Learning Community impact student performance in STEM gateway courses?

Results

Student Performance

Students in the Learning Community Pre-Calculus I and Programming I performed at a higher level than students in Non-Learning Community Pre-Calculus I and Programming I.

Program Results

- Credit Hour pass rate approximately 3-4% higher than pre-Freshman Academy year
- Overall, grade-point average increased from a pre-Freshman Academy level to a higher level
- Increase in the number of students on the President (4.00), Dean (3.00>) and Honors (12 credit hours and 3.00>) Lists

Classroom Engagement

Norfolk State University Faculty Development Retreat
May 12, 2009

Presenter:
Dr. Lawrence G. Dotolo, President.
Virginia Tidewater Consortium for Higher Education

Determining Objectives

- Recall and recognize
- Comprehend
- Apply
- Analyze
- Synthesize
- Evaluate

Bloom's Taxonomy

Summary of Relevant Learning Theory

- It is better for college students to be active participants than passive recipients of learning.
- For students to be fully engaged in learning, their attention must be focused on the material.
- Differences in intellectual ability among college students will influence their speed of learning.

Summary of Relevant Learning Theory (Cont.)

- It is difficult to learn ideas that are very similar unless the differences are emphasized.
- Students learn images as well as words.
- Students enter every class with positive and negative emotional attitudes that can enhance or interfere with learning.

Summary of Relevant Learning Theory (Cont.)

- A moderate amount of anxiety or challenge motivates most students and increases learning; however, excessive anxiety interferes with learning.
- Students will learn and remember information better if they have many cognitive associations with it.

Engaging Students

- It Includes:
  - Role Playing/Simulation
  - Demonstration
  - Peer Teaching
  - Cooperative Learning
  - Classroom Discussion
  - Unstructured Group Discussion
  - Brainstorming

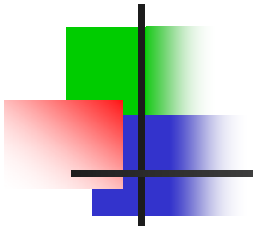
Engaging Students (cont.)

- Open ended problems
- Student Debates
- Keeping Journals or Logs
- Student-Led Review Sessions
- Analyze Case Studies

The Role of the Teacher in Engaged Classroom

- Teachers do learning tasks less
- They do less telling
- Teachers do more design work
- Faculty do more modeling
- Faculty do more to get students learning from and with each other
- Faculty work to create climates for learning
- Faculty do more with feedback

Questioning Skills



Word Question Clearly

Provide “wait time”

Respond appropriately

Ask convergent and divergent questions

Ask lower and higher cognitive questions

Benefits of Discussion

- It helps students see different perspectives.
- It helps students understand ambiguity.
- It helps students develop their assumptions.
- It encourages attentive, respectful listening.
- It increases intellectual agility.
- It helps students connect to the topic.
- It shows respect for students' experiences.
- It helps develop skills of synthesis.

Benefits of Discussion

- It helps students develop communication skills.
- It helps develop a sense of community.
- It develops habits of collaborative learning.
- It makes students tolerant of other opinions.

Classroom Assessment Techniques

1. Focused listing
2. Minute paper
3. Muddiest point
4. Directed Paraphrasing
5. The one-sentence summary
6. Application guide
7. Student-generated test questions

Effects of Classroom Assessment on Students

1. Increases active involvement in learning
2. Increases cooperation and sense of "the learning community"
3. Increases student satisfaction
4. May improve course completion rates

Selected Findings From National Survey of Student Engagement: Pathways to Collegiate Success

- When faculty members expect students to study more and arrange class toward this end, students do so
- Students at historically Black colleges are more likely to participate in community service related to a course and report gaining more in personal, social, and ethical development

Time on Task

Student Time Usage
Hours Spent Per Week

	First-Year Students		Seniors	
	Part-time	Full-time	Part-time	Full-time
Studying	9	13	10	14
Working on-campus	2	3	3	4
Working off-campus	18	5	20	10
Participating in co-curricular activities	1	5	2	5
Relaxing and socializing	10	12	10	11
Caring for dependents	13	2	12	4
Commuting to class	5	4	5	5

Grades

- About two-fifths of all students reported that they earned mostly A grades
- Another 41% reported grades of either a B or B+
- Only 3% of students reported Cs or lower

College Activities

- A "substantial amount" of engagement is defined to be at least 50% of all students reporting "often" or "very often"

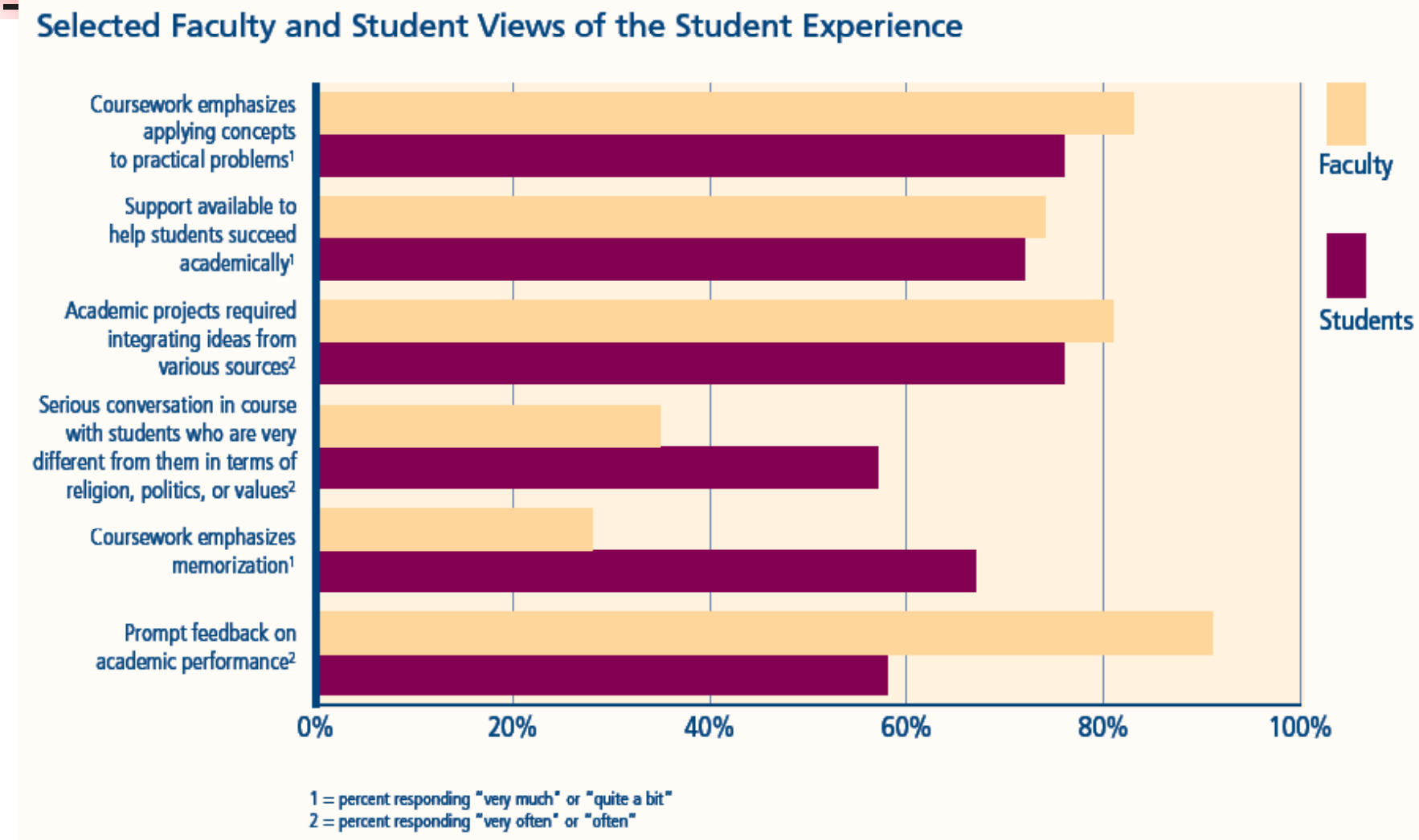
Most Frequent Activities	First-Year Students*	Seniors*
Worked on a paper or project that required integrating ideas or information from various sources	75%	87%
Used e-mail to communicate with an instructor	69%	79%
Asked questions in class or contributed to class discussions	60%	75%
Discussed ideas from your readings or classes with others outside of class (students, family members, coworkers, etc.)	58%	66%
Received prompt feedback from faculty members on your academic performance (written or oral)	56%	67%
Included diverse perspectives (different races, religions, genders, political beliefs) in class discussions or writing assignments	58%	61%

* Percent responding "Very often" or "Often"

Faculty Survey of Student Engagement

- Designed to complement the NSSE, the Faculty Survey of Student Engagement (FSSE) measures faculty priorities and expectations of students
- As it turns out, faculty and students disagree on several issues regarding their classroom experiences

Faculty Survey of Student Engagement



Faculty Survey of Student Engagement

- Class preparation
  - Students spend about half as much time studying as instructors expect (3 hours per class per week, vs. the 6 hours expected)
  - Faculty in physical sciences, engineering, biological sciences expect more time per class, and students actually do spend more time on those courses

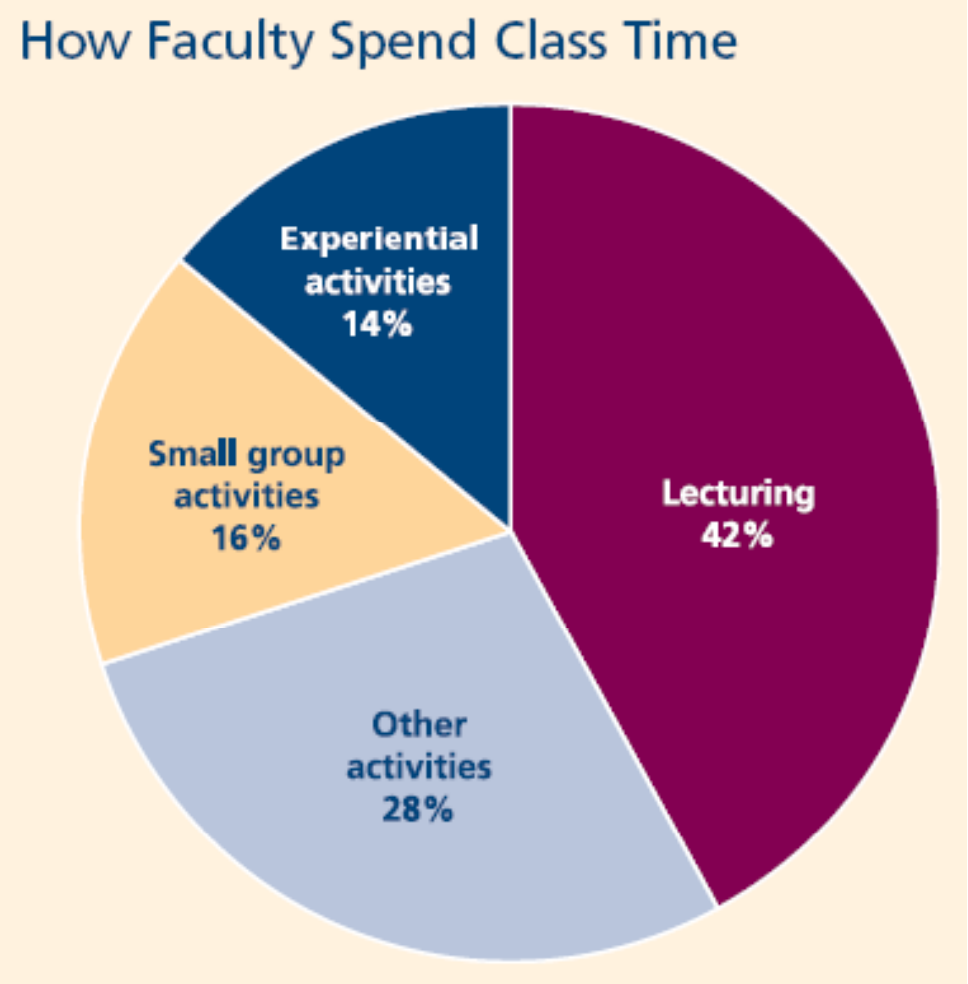
Faculty Survey of Student Engagement

- How faculty spend class time
  - Sciences and engineering report more time (59%) lecturing, while education faculty spend the least time lecturing (25%)
  - There is little difference in time spent lecturing based on course level overall, though in the social sciences, more time is spent lecturing in lower level courses (53%) than higher level courses (44%)

Faculty Survey of Student Engagement

- Full-time versus part-time faculty
  - Part-time faculty expect students to study about one hour less than full-time faculty, five hours vs. six hours, respectively
  - Part-time faculty expect that students spend less than 3 hours studying for their courses, while full-time faculty expect their students to spend 3.5 hours per week on their classes
  - Full-time faculty spend less time on small group activities and more time lecturing than part-time faculty

Faculty Survey of Student Engagement



Lecture Observations

Lecture Duration	Observations
15 min.	1/3 of the audience was fidgeting
35 min.	Everyone was inattentive
45 min.	Trance-like state was more noticeable than fidgeting

A casual check 24 hours later revealed that the audience recalled only insignificant details and those were generally incorrect.

Improving

Inter-departmental Engagement @ NSU

Ed Sykes - The Sykes Group
(757) 427-7032
www.thesykesgrp.com
info@thesykesgrp.com

Group Activity

- What are the characteristics of great engagement?

Barriers to I.E. @ NSU

- Sandbox
- “Us vs. Them” Mentality
- Job Responsibilities
- Fear

Benefits of I.E. @ NSU

- Creates Synergy
- Elevates Attitude
- Increases Productivity & Efficiency
- Improves Customer Service
- Crystallizes The Mission

Six I.E. Secrets

For Additional Resources

Visit us on the web at
www.thesykesgrp.com
- or -
via e-mail at info@thesykesgrp.com

Preparation of a Competitive Research Grant Application

May 12th, 2009

Dr. Joseph C. Hall, Ph.D., Director, Center for Biotechnology and Biomedical Sciences, and Interim VP for Research & Economic Development

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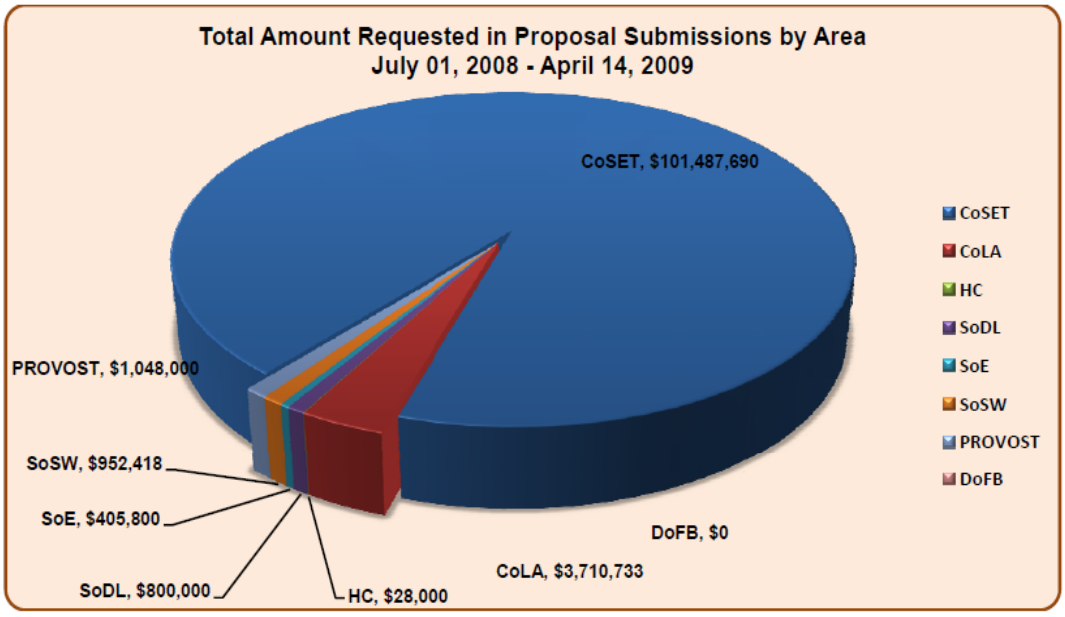

Schools/units submitted a significant increase - from $71M this time last year to $101M the same time this year - the results of many are still pending.

A Critical Idea

- The hallmark of a good researcher is the possession of a good, critical idea.
- There is no substitute for a critical idea.
- However, in a poor presentation a critical idea can be disguised in a thousand ways.
- The result is an unfunded application.

A Very Important Step in Preparing a Competitive Grant Application

- read the instructions
- Read the Instructions
- READ THE INSTRUCTIONS
- Read the **correct** instructions, i.e., those that pertain to the grant for which you are applying
- Read **all** of the instructions and the **most current** instructions

The Written Presentation

- Information is interpreted more easily if it is placed where most readers expect to find it.
- For clarity, use simple declarative sentences.
- Avoid complicated words, unusual abbreviations, and poor syntax.
- The application should be easy to read and comprehensible.

Conceptual Structure of a Grant Application

- IDEA
- SUPPORTING IDEAS
- DETAILS OF THE PLAN
- APPENDICES

Typical Proposal Sequence for Reading

- **Title page and abstract**
- **Introduction and the problem (need)**
- **Specific aims or objectives**
- **Significance (literature review and background)**
- **Progress report**
- **Research plans (research plans and methodology)**
- **Budget**
- **Biographic sketch**

Typical Sequence for Proposal Development

- The problem or need
- Significance
- Specific aims
- Research plan
- Progress report
- Budget
- Biographical sketch
- Abstract

Requirements for a Good Specific Aims Section

- **Brief introduction including the long range goal of the project**
- **The goal or objective of this particular application**
- **The central hypothesis to be examined**
- **Rationale for the project**
- **Specific aims**
- **Anticipated results**

Brief Introduction

- Underscores the importance of the proposed studies.
- Should convey the most important findings in the field of study.
- Should highlight the problem that the proposed studies will address.

Long-range Goal

- It *is* the goal of the overall program of which the current application is a part.
- It is *not* the goal of the current application.

Central Hypothesis

- The proposed research *should* be hypothesis driven!
- The hypothesis must be testable and should select an experimental outcome from among various possibilities.
- The hypothesis should not present a predetermined conclusion.

Rationale

- This is the underlying reason for the studies you propose.
- The rationale *must* be relevant to the problem that has been presented in the introduction.

Specific Aims

- **They should be brief, focused, and limited in scope.**
- **Each aim should flow logically into the next aim.**
- **Each should be briefly expanded upon.**
- **Be realistic: do not overestimate your abilities or capabilities for completing the work proposed in your application in the time requested.**

Background

THE PURPOSE OF THE BACKGROUND:

- To establish a solid foundation on which to build your proposal.
- Is *not* to impress reviewers with your comprehensive knowledge of the field.

Preparation of the Application

Problem or Needs Statement

- **What Exists Now**
- **What Is**
- **Present Level of Knowledge**
- **What Should Be**
- **What Ought To Be**
- **Desired State of Knowledge**

Problem or Needs Statement continued

The problem or needs statement is the *disparity between what is and what should be, that created the GAP which your proposed project will attempt to close or make smaller.*

Preliminary Studies

- Describe published studies in limited detail and include the most important figures and/or tables.
- Describe unpublished studies in more complete detail, including newer data.
- Do not duplicate the preliminary studies with the proposed studies.

Preliminary Studies

- *Include* the results of your recent work that have direct relevance to the studies proposed in your grant application.
- *Exclude* any studies in which the relationship to your proposed study is not relevant.

Editorial Considerations for Preliminary Studies

- **Supporting data should be placed as close as possible to where it is referenced in the text of the application.**
- **All figures/graphs and tables should be clearly legible.**
- **Provide original photographs of gels; xerox copies are not easily interpretable.**
- **Methodology should be placed in the figure/table legends, not in the text.**

Technical Considerations for Preliminary Studies

- Graphs should be uncomplicated…the simpler, the better.
- Each table or figure should be designed to convey a single point or idea.
- Extraneous or irrelevant data should be avoided.

THE RESEARCH DESIGN

This is the “heart and soul” of the application.

In this section state precisely:

- **What you propose to do.**
- **How you plan to do it.**
- **What the result will mean in terms of the overall project.**
- **What pitfalls you might encounter.**
- **Alternative approaches to cope with anticipated problems.**

Research Design: Organizational Structure

Restate Each Specific Aim and For Each, Provide:

1. Introduction
2. Methods of approach
3. Anticipated findings or results
4. Potential pitfalls/alternative approaches

Research Design continued

1. INTRODUCTION

Each section of the research design should restate the hypothesis to be tested, the rationale for the study, overall approaches to be taken, and the anticipated results.

Research Design continued

2. METHODS OF APPROACH

- **Separate sections based on the specific aim should be used to develop each of the planned set of studies.**
- **This section is not intended to be a materials and methods manual; therefore avoid emphasis on routine methods.**
- **Use detailed methods only for unfamiliar technology.**

Research Design continued

3. ANTICIPATED RESULTS

- Summarize your results.
- Emphasize only the most important results.
- Do not over-inflate or over-interpret the results.
- If limitations exist, they should not be ignored, but should be discussed in a positive manner.

Research Design continued

4. POTENTIAL PROBLEMS

- Anticipate potential problems, and discuss them but do not overemphasize them.
- Offer alternative strategies.
- Reconcile the results of differing approaches.

Biographical Sketch

- **Document your credentials accurately.**
- **Provide aspects of your training and expertise that are relevant to the application.**
- **Give full citations in the bibliography, *but do not "inflate" the bibliography.***
- **Include citations that are relevant to the subject of your proposal.**
- **Do not include unimportant or non-relevant entries.**

The Budget

- **The budget should never drive the proposal.**
- **Justify all personnel with respect to effort and expertise.**
- **The equipment request must be congruent with the resource statement and stem from the proposed methodology.**
- **Don't ask for a Mercedes when a Saturn will do.**
- **Justify strongly all equipment requested.**
- **The supply request should match your research design, and be strongly justified.**

Most Common Reasons for Failure

- **Lack of a good original idea.**
- **Unimportant or unresponsive problem.**
- **Unacceptable rationale.**
- **Lack of expertise, experience, or resources.**
- **Superficial or unfocused approach.**
- **Unrealistic amount of work proposed.**
- **Uncertain outcomes and/or lack of future directions.**

Tips for Writing Proposals

- **Write with the reader in mind because readers do not simply read, they interpret.**
- **Remember that readers may make his/her most interpretative decisions about the substance or prose based on the clues they receive from the structure of the presentation.**
- **Remember that information is interpreted more easily and uniformly if it is placed where most readers expect to find it.**

THE ABSTRACT: Content

- **It should be written last after the project has been completed because the writer will have a clear idea of exactly what information is to be distilled and summarized.**
- **It should be succinct and motivating because it is one of the most often read sections of a grant application.**
- **It is a summary of the proposal; it does not list objectives, it summarizes them.**

THE ABSTRACT: Types

Qualitative **abstracts are usually used in review papers and surveys because they are essentially a succinct summary of the work.**

Quantitative **abstracts are used with a specialized audience and are essentially a condensation of the work without discussion or interpretation.**

THE ABSTRACT: Types cont.

Qualitative-Quantitative abstracts provide the reader with specific information about the results, as well as information about the rest of the project. This is the kind of abstract which usually accompanies scientific articles or research proposals.

THE ABSTRACT continued

A GOOD ABSTRACT:

- States the problem or needs to be addressed.
- Outlines specific objectives to be pursued.
- Outlines the activities to meet those objectives.
- Outlines the results.
- States the project's contribution.

The Research Plan: Summary of General Considerations

- **Read and follow instructions carefully.**
- **Specific aims are statements of end results. They are measurable statements, not means to an end.**
- **Make the logic very clear and write a focused research plan.**
- **Don't ramble--give sufficient background to make the significance of the proposed research very clear.**
- **Frame questions in terms of testable hypotheses.**

The Research Plan: Summary of General Considerations cont.

- **Clearly delineate the problem and the purpose of the research.**
- **Emphasize the specific advantages of doing the research as you propose.**
- **Consider alternative strategies--there is concern when only a single approach is given or a single uncertain result serves as the basis for the project.**
- **Include preliminary data if possible.**
- **Don't over-interpret or misinterpret data.**

The Research Plan: Summary of General Considerations

- **Don't detail routine methods, but include comments that can convey your expertise to the reader.**
- **List relevant intellectual and physical resources available to you.**
- **Consider and discuss all variables that will impact the outcome. That is, which ones need to be controlled, which ones don't, and how this will affect the outcome.**

The Research Plan: Summary of General Considerations, cont.

- **Discuss the limitations of your conclusions, if any.**
- **Prioritize the tasks proposed and provide time estimates.**
- **Use shorter words rather than longer ones unless they are technical.**
- **Use short sentences and avoid jargon.**
- **Make sure the proposal flows logically from section to section, i.e. methods proposed = logical extension of the specific aims.**

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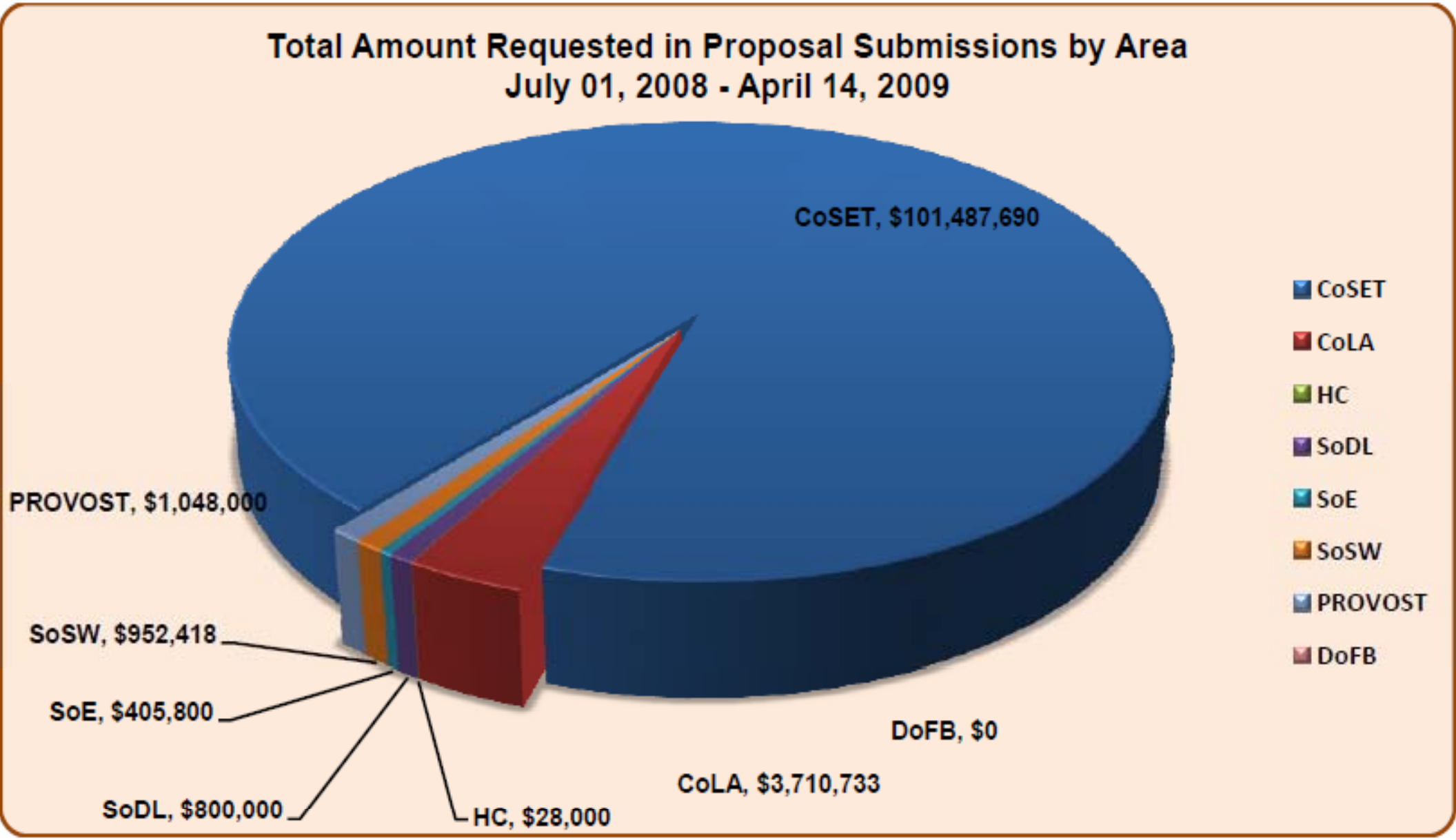
Chart One



Schools/units submitted a significant increase - from $71M this time last year to $101M the same time this year - the results of many are still pending.

A Critical Idea

- The hallmark of a good researcher is the possession of a good, critical idea.
- There is no substitute for a critical idea.
- However, in a poor presentation a critical idea can be disguised in a thousand ways.
- The result is an unfunded application.

A Very Important Step in Preparing a Competitive Grant Application

- read the instructions
- Read the Instructions
- READ THE INSTRUCTIONS
- Read the **correct** instructions, i.e., those that pertain to the grant for which you are applying
- Read **all** of the instructions and the **most current** instructions

The Written Presentation

- Information is interpreted more easily if it is placed where most readers expect to find it.
- For clarity, use simple declarative sentences.
- Avoid complicated words, unusual abbreviations, and poor syntax.
- The application should be easy to read and comprehensible.

Conceptual Structure of a Grant Application

- IDEA
- SUPPORTING IDEAS
- DETAILS OF THE PLAN
- APPENDICES

Typical Proposal Sequence for Reading

- **Title page and abstract**
- **Introduction and the problem (need)**
- **Specific aims or objectives**
- **Significance (literature review and background)**
- **Progress report**
- **Research plans (research plans and methodology)**
- **Budget**
- **Biographic sketch**

Typical Sequence for Proposal Development

- The problem or need
- Significance
- Specific aims
- Research plan
- Progress report
- Budget
- Biographical sketch
- Abstract

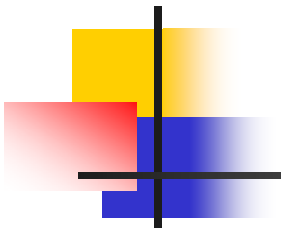
Requirements for a Good Specific Aims Section

- **Brief introduction including the long range goal of the project**
- **The goal or objective of this particular application**
- **The central hypothesis to be examined**
- **Rationale for the project**
- **Specific aims**
- **Anticipated results**

Brief Introduction

- Underscores the importance of the proposed studies.
- Should convey the most important findings in the field of study.
- Should highlight the problem that the proposed studies will address.

Long-range Goal



- It *is* the goal of the overall program of which the current application is a part.
- It is *not* the goal of the current application.

Central Hypothesis

- The proposed research *should* be hypothesis driven!
- The hypothesis must be testable and should select an experimental outcome from among various possibilities.
- The hypothesis should not present a predetermined conclusion.

Rationale

- This is the underlying reason for the studies you propose.
- The rationale ***must*** be relevant to the problem that has been presented in the introduction.

Specific Aims

- **They should be brief, focused, and limited in scope.**
- **Each aim should flow logically into the next aim.**
- **Each should be briefly expanded upon.**
- **Be realistic: do not overestimate your abilities or capabilities for completing the work proposed in your application in the time requested.**

Background

THE PURPOSE OF THE BACKGROUND:

- To establish a solid foundation on which to build your proposal.
- Is *not* to impress reviewers with your comprehensive knowledge of the field.

Preparation of the Application

Problem or Needs Statement

- **What Exists Now**
- **What Is**
- **Present Level of Knowledge**
- **What Should Be**
- **What Ought To Be**
- **Desired State of Knowledge**

Problem or Needs Statement continued

The problem or needs statement is the *disparity between what is and what should be, that created the GAP which your proposed project will attempt to close or make smaller.*

Preliminary Studies

- Describe published studies in limited detail and include the most important figures and/or tables.
- Describe unpublished studies in more complete detail, including newer data.
- Do not duplicate the preliminary studies with the proposed studies.

Preliminary Studies

- *Include* the results of your recent work that have direct relevance to the studies proposed in your grant application.

- *Exclude* any studies in which the relationship to your proposed study is not relevant.

Editorial Considerations for Preliminary Studies

- **Supporting data should be placed as close as possible to where it is referenced in the text of the application.**
- **All figures/graphs and tables should be clearly legible.**
- **Provide original photographs of gels; xerox copies are not easily interpretable.**
- **Methodology should be placed in the figure/table legends, not in the text.**

Technical Considerations for Preliminary Studies

- Graphs should be uncomplicated…the simpler, the better.
- Each table or figure should be designed to convey a single point or idea.
- Extraneous or irrelevant data should be avoided.

THE RESEARCH DESIGN

This is the “heart and soul” of the application.

In this section state precisely:

- **What you propose to do.**
- **How you plan to do it.**
- **What the result will mean in terms of the overall project.**
- **What pitfalls you might encounter.**
- **Alternative approaches to cope with anticipated problems.**

Research Design: Organizational Structure

Restate Each Specific Aim and For Each, Provide:

1. Introduction
2. Methods of approach
3. Anticipated findings or results
4. Potential pitfalls/alternative approaches

Research Design continued

1. INTRODUCTION

Each section of the research design should restate the hypothesis to be tested, the rationale for the study, overall approaches to be taken, and the anticipated results.

Research Design continued

2. METHODS OF APPROACH

- **Separate sections based on the specific aim should be used to develop each of the planned set of studies.**
- **This section is not intended to be a materials and methods manual; therefore avoid emphasis on routine methods.**
- **Use detailed methods only for unfamiliar technology.**

Research Design continued

3. ANTICIPATED RESULTS

- Summarize your results.
- Emphasize only the most important results.
- Do not over-inflate or over-interpret the results.
- If limitations exist, they should not be ignored, but should be discussed in a positive manner.

Research Design continued

4. POTENTIAL PROBLEMS

- Anticipate potential problems, and discuss them but do not overemphasize them.
- Offer alternative strategies.
- Reconcile the results of differing approaches.

Biographical Sketch

- **Document your credentials accurately.**
- **Provide aspects of your training and expertise that are relevant to the application.**
- **Give full citations in the bibliography, *but do not "inflate" the bibliography.***
- **Include citations that are relevant to the subject of your proposal.**
- **Do not include unimportant or non-relevant entries.**

The Budget

- **The budget should never drive the proposal.**
- **Justify all personnel with respect to effort and expertise.**
- **The equipment request must be congruent with the resource statement and stem from the proposed methodology.**
- **Don’t ask for a Mercedes when a Saturn will do.**
- **Justify strongly all equipment requested.**
- **The supply request should match your research design, and be strongly justified.**

Most Common Reasons for Failure

- **Lack of a good original idea.**
- **Unimportant or unresponsive problem.**
- **Unacceptable rationale.**
- **Lack of expertise, experience, or resources.**
- **Superficial or unfocused approach.**
- **Unrealistic amount of work proposed.**
- **Uncertain outcomes and/or lack of future directions.**

Tips for Writing Proposals

- **Write with the reader in mind because readers do not simply read, they interpret.**
- **Remember that readers may make his/her most interpretative decisions about the substance or prose based on the clues they receive from the structure of the presentation.**
- **Remember that information is interpreted more easily and uniformly if it is placed where most readers expect to find it.**

THE ABSTRACT: Content

- **It should be written last after the project has been completed because the writer will have a clear idea of exactly what information is to be distilled and summarized.**
- **It should be succinct and motivating because it is one of the most often read sections of a grant application.**
- **It is a summary of the proposal; it does not list objectives, it summarizes them.**

THE ABSTRACT: Types

Qualitative **abstracts are usually used in review papers and surveys because they are essentially a succinct summary of the work.**

Quantitative **abstracts are used with a specialized audience and are essentially a condensation of the work without discussion or interpretation.**

THE ABSTRACT: Types cont.

Qualitative-Quantitative abstracts provide the reader with specific information about the results, as well as information about the rest of the project. This is the kind of abstract which usually accompanies scientific articles or research proposals.

THE ABSTRACT continued

A GOOD ABSTRACT:

- States the problem or needs to be addressed.
- Outlines specific objectives to be pursued.
- Outlines the activities to meet those objectives.
- Outlines the results.
- States the project's contribution.

The Research Plan: Summary of General Considerations

- **Read and follow instructions carefully.**
- **Specific aims are statements of end results. They are measurable statements, not means to an end.**
- **Make the logic very clear and write a focused research plan.**
- **Don’t ramble--give sufficient background to make the significance of the proposed research very clear.**
- **Frame questions in terms of testable hypotheses.**

The Research Plan: Summary of General Considerations cont.

- **Clearly delineate the problem and the purpose of the research.**
- **Emphasize the specific advantages of doing the research as you propose.**
- **Consider alternative strategies--there is concern when only a single approach is given or a single uncertain result serves as the basis for the project.**
- **Include preliminary data if possible.**
- **Don’t over-interpret or misinterpret data.**

The Research Plan: Summary of General Considerations

- **Don’t detail routine methods, but include comments that can convey your expertise to the reader.**
- **List relevant intellectual and physical resources available to you.**
- **Consider and discuss all variables that will impact the outcome. That is, which ones need to be controlled, which ones don’t, and how this will affect the outcome.**

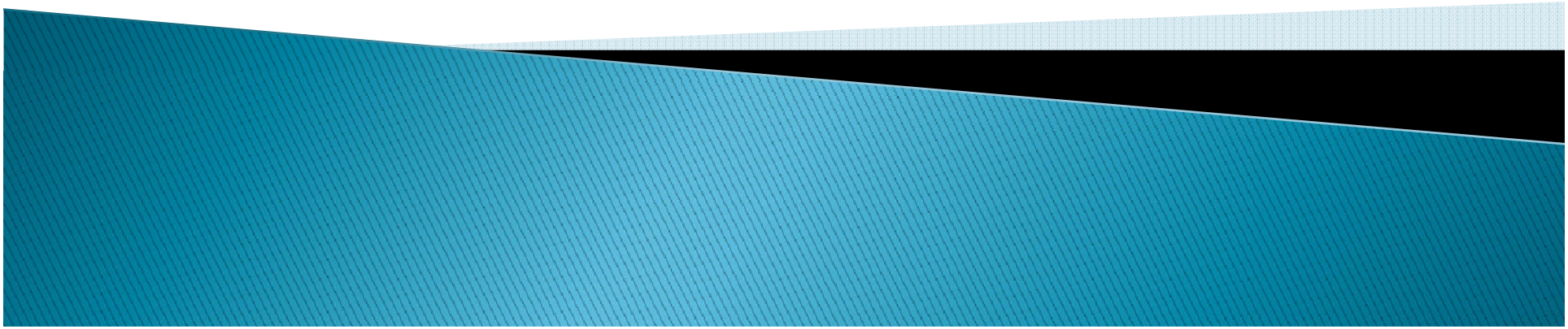
The Research Plan: Summary of General Considerations, cont.

- **Discuss the limitations of your conclusions, if any.**
- **Prioritize the tasks proposed and provide time estimates.**
- **Use shorter words rather than longer ones unless they are technical.**
- **Use short sentences and avoid jargon.**
- **Make sure the proposal flows logically from section to section, i.e. methods proposed = logical extension of the specific aims.**

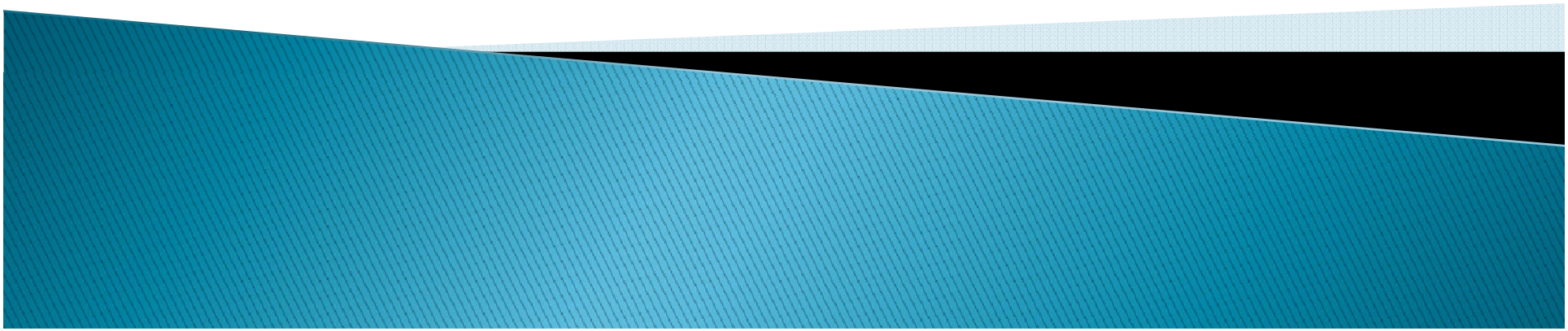
Best Practices: Teaching College Students with their Brains in Mind

Dr. William Owings, Professor
Old Dominion University

Presented at Norfolk State University – May, 2009



It helps if students bring their brains and we teach knowing how brains work!



Overview

- Basic Brain Facts
- How the Brain Processes Information
- Memory, Retention, and Learning
- Transfer

Part 1 – Basic Brain Facts

- The brain is a fascinating organ.
- Without it you would not really be the same person!
- Much of what we know about its functioning comes from brain injury research.

Facts

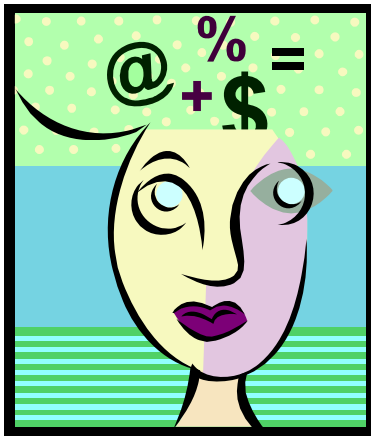
- Brain works constantly
- Size of a small grapefruit
- Represents 2% of human body weight
- Consumes 20% of our calories

Cerebrum

- Largest area of the brain, jelly-like substance, wrinkled (fissures) representing more than 80% of the overall weight.
- One large fissure runs from front to back and divides the cerebrum into cerebral hemispheres.
- For an unknown reason, the nerves from the right side of the body cross to the left side of the brain
- The corpus callosum connects the hemispheres

Cerebrum, continued

- Corpus callosum has more than 250 million nerve fibers connecting the hemispheres!



- The cortex of the cerebrum is where we believe most of the reasoning and thinking takes place.

- The cortex is about 1/10th of an inch thick, composed of six layers with more than 30,000 miles of connecting nerve fibers!

Cerebrum, continued

- We are not certain of what occurs beneath much the cortex – probably much more than we think now.
- Thinking, memory, speech, and movement are controlled in the cerebrum.
- Deep within the cerebrum lies the limbic system – sometimes called the old brain.
- This deals with emotional responses and allows for interplay of emotion and reason.

Hippocampus, continued

- Greek for “seahorse” (shape).
- Lies deep at the base of the cerebrum.
- Consolidates memory from short-term capacity and long-term retrieval.
- It apparently works constantly checking information relayed to working memory and compares it to stored experiences.

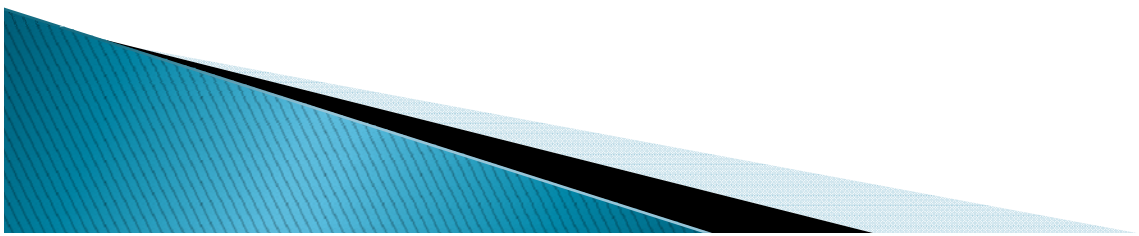
Hippocampus, continued

- Essential to meaning and memory.

- Brain-damaged patients involving hippocampus structure remember everythi *before* the injury but not afterwards.

Amygdala

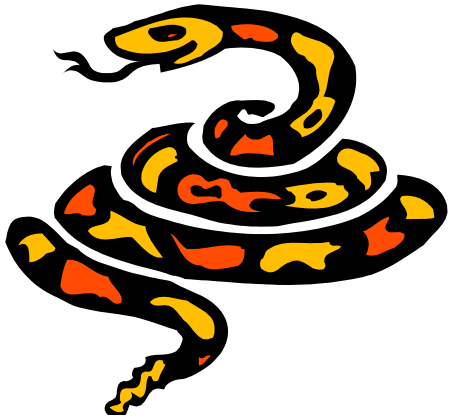
- Greek for “almond” (shape).
- Plays an important role in **emotions** and ***stress – like venetian blinds!***
- Stimulation results in ***extreme emotions***.
- PET scans reveal that the amygdala encodes emotional messages in learning that transfer to long-term storage.
- Powerful emotion-cognitive connection!



Cerebellum

- Greek for “little brain” (shape, again).
- Coordinates movement, but initiates nothing on its own. It monitors impulses from muscle nerve endings.
- Cerebellum may store memory of rote movement – walking, touch-typing, etc.

Brain Stem

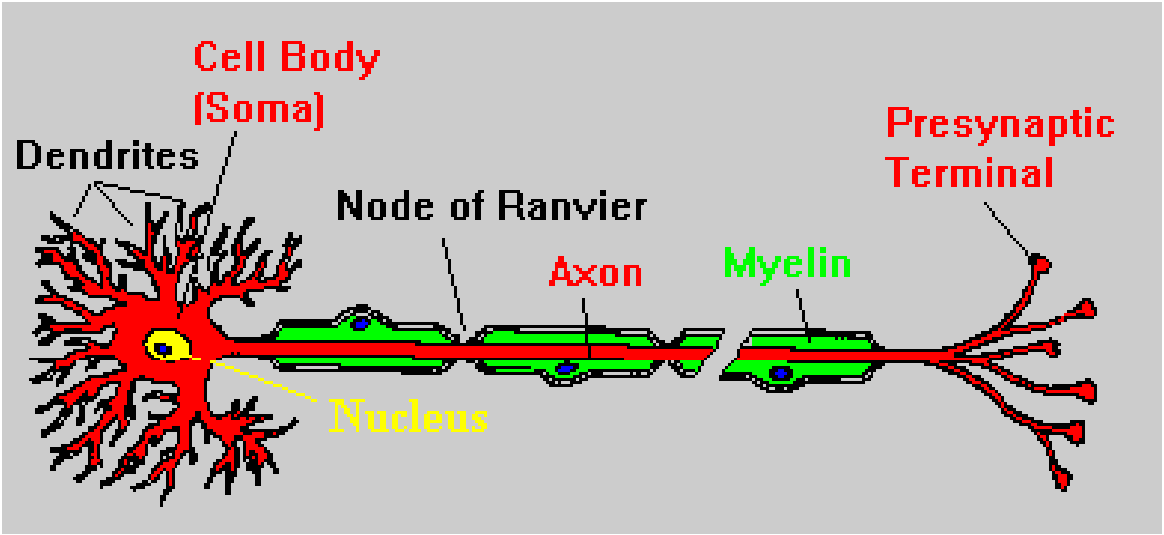


- Often called reptilian brain (it resembles one).
- Of the 12 major body nerves that go to the brain, 11 end in the brain stem. The other one?
- Smell – it goes directly to the cerebrum.
- All body functions are controlled here.

Brain Cells

- The brain has approximately 1 trillion cells.
- Two major types – glial and neurons.
- Glial (glue) hold neurons together and filter harmful substances out of the neurons. 90% of brain cells are glial.
- Neurons are the functioning core of the brain.

Neurons


Cell Body
(Soma)
Dendrites
Node of Ranvier
Axon
Myelin
Presynaptic
Terminal
Nucleus

Live Neuron

Neurons

- Size – about 1/100 of a period in a textbook
- Unlike any other cell in the body, neurons have branches – dendrites (Greek for tree) extending from the core.
- Dendrites receive electrical/chemical impulses from other neurons and send them along a pathway – axon.
- One axon per neuron, usually.

Neuron, continued.

- A fatty sheath (myelin) surrounds and insulates each axon – increasing the speed of transmission.
- Each neuron can transmit between 250 and 2,500 impulses per second
- Let's do the Math at the low end
  - Minimal 100 billion neurons transmitting 250 impulses = 25 trillion transmission per second!

Neuron Development

- When a mommy and daddy neuron love each other very much …

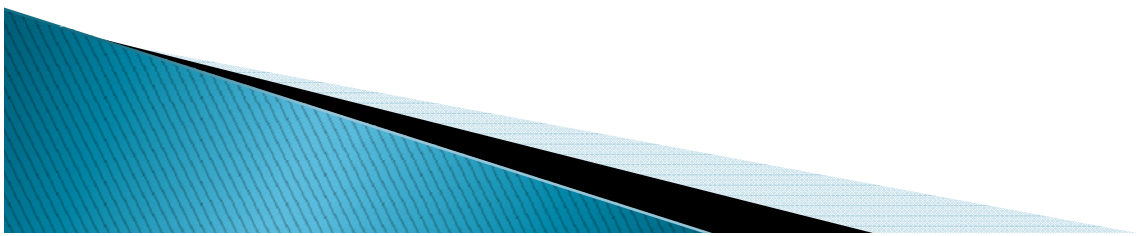
..wrong story!

Neuron Development, cont'd.

- Children's neural activity is more active and less streamlined than adults.
- Around the age of 6-10 the brain starts to cut out unused neural pathways (pruning) and use dominant highways – hardwiring.
- Cat story… not for sensitive cat lovers!

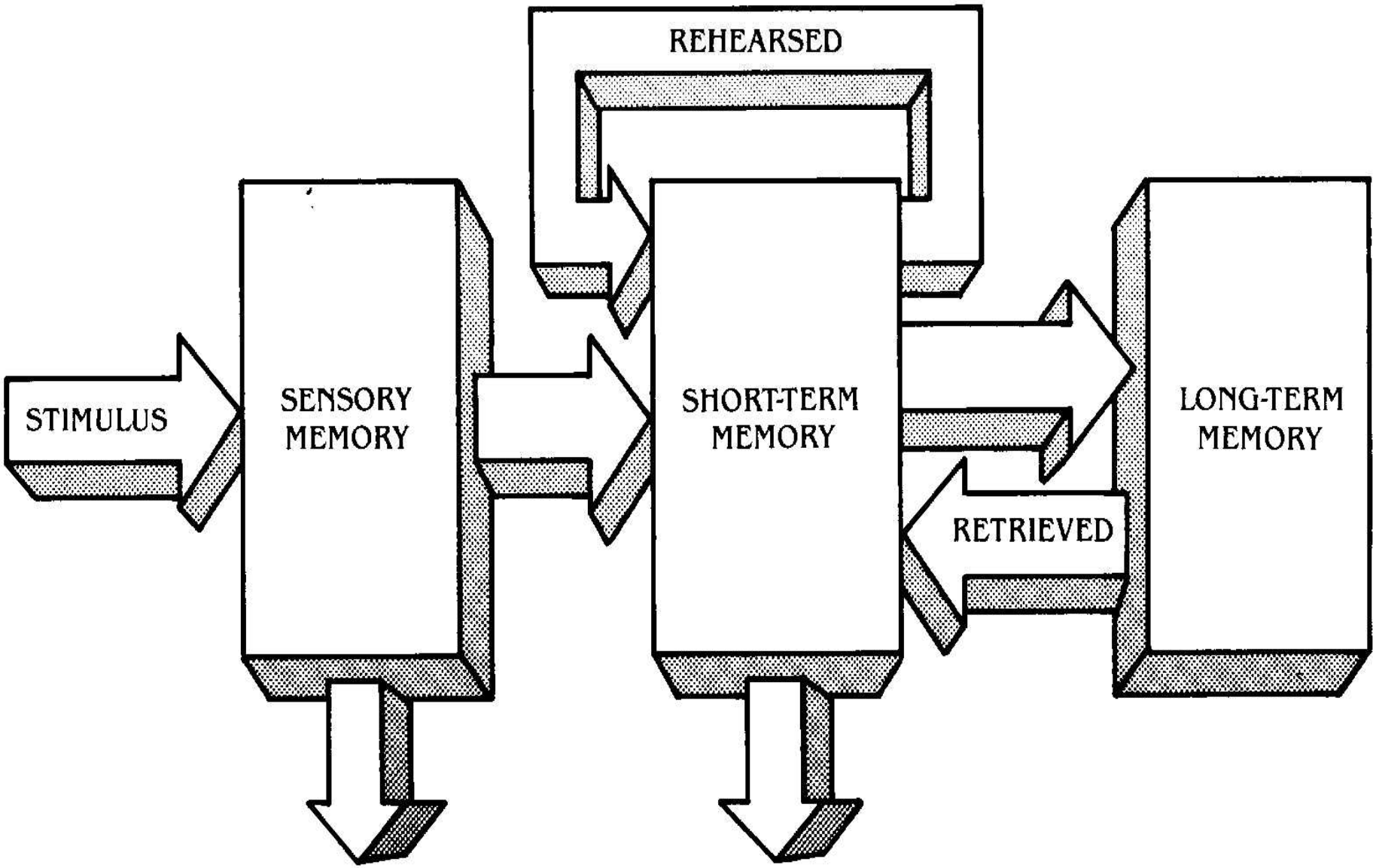
Part 2 – How the Brain Processes Information

- Several different models
- Best may be the information processing model
- Our best understanding of brain function in processing information comes from PET scans and MRI.
- Memory and learning are not mechanistic – the process is biologic and chemical.



Definitions First

- Information
- All the data taken into the senses – not just content.
- Thinking
- Mental activities we use to process information.
- Memory
- Mental process we use to code, store, retrieve, and integrate information.

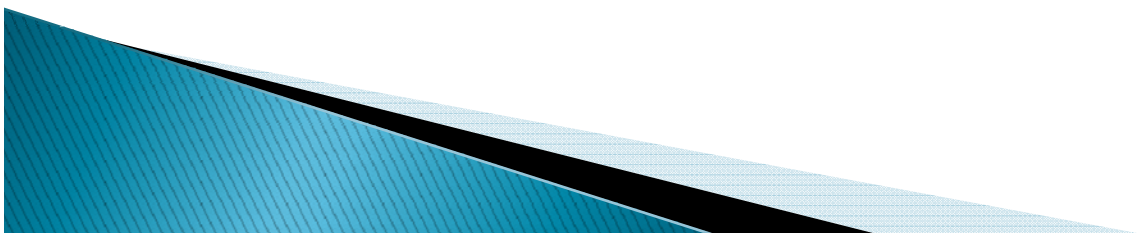

REHEARSED
STIMULUS
SENSORY MEMORY
SHORT-TERM MEMORY
LONG-TERM MEMORY
RETRIEVED
NOT TRANSFERRED TO NEXT STAGE
AND THEREFORE FORGOTTEN

Sensory Memory

- Incredible capacity to record in detail
- Includes all senses input to brain – about 40,000 per second
- Lasts about .07 of a second
- Moves from sensory memory to short term memory or it is dropped (forgotten)
- Information must be eliminated from sensory memory or information overload

Key Point

- Attention determines if information is dropped or moved into the next memory system
- It is not a conscious decision on your part
- The mind filters this a majority of the time through the perceptual register – a filter
- Sensory memory is the only time your mind attends to multiple stimuli at the same time

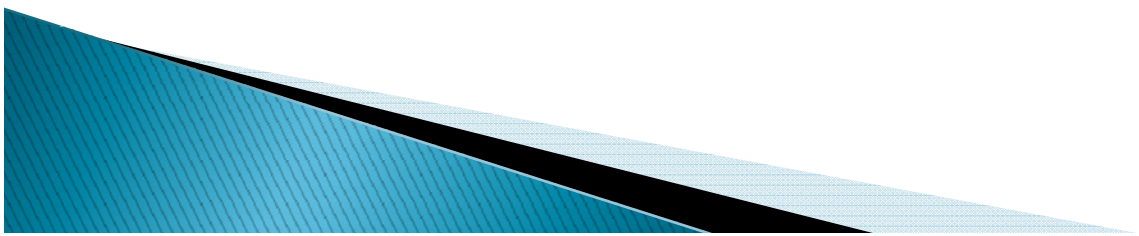


Cocktail Party Effect

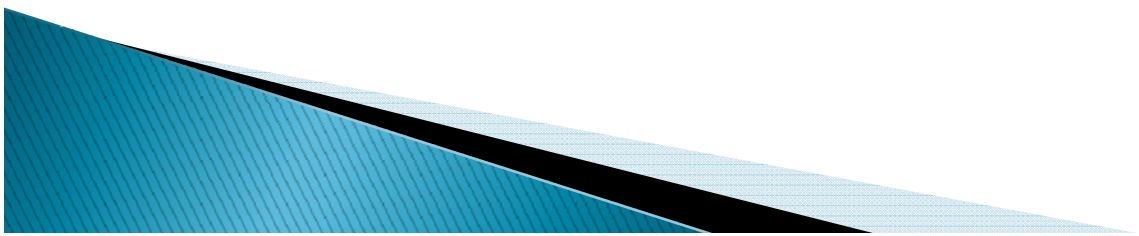
- In performing an experiment like this on attention, man it is critically car important house that boy the hat material being shoe candy read should man be car relevant house to the task and boy coherent hat as shoe well as candy cohesive so man the car information house can boy be hat afforded full concentration shoe by the candy reader.

Short Term Memory

- Working memory
- Where you are now
- Stays in short term memory about 18-20 seconds unless rehearsed
- Limited in terms of capacity



Without writing anything down try and remember the following bits of information



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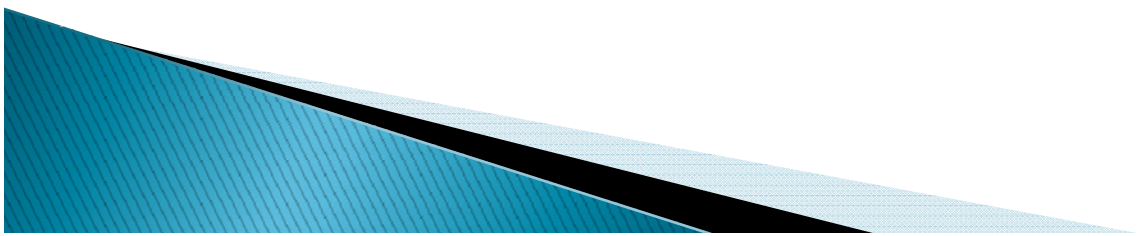

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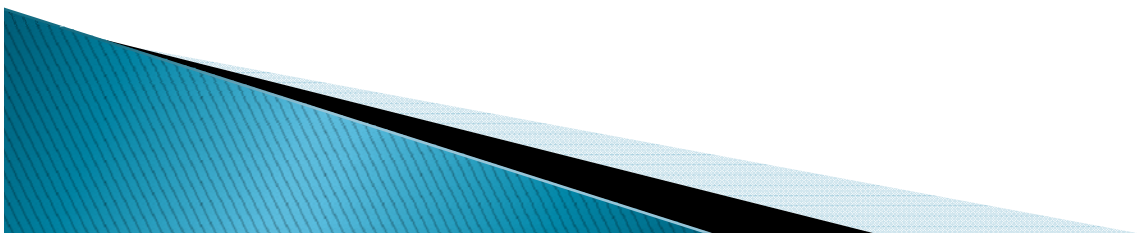

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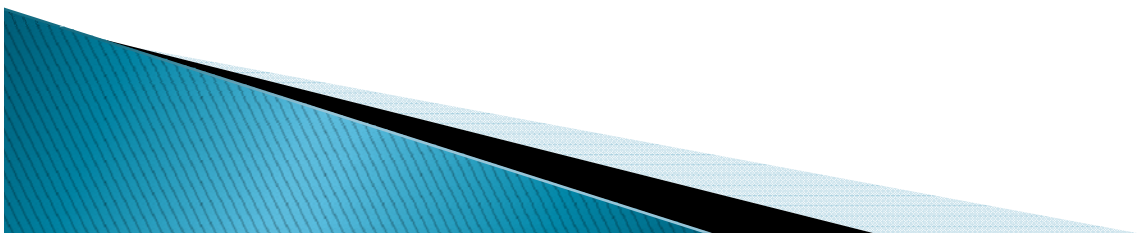

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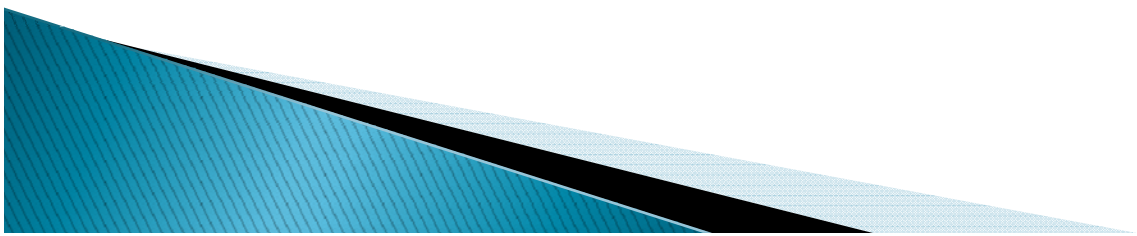

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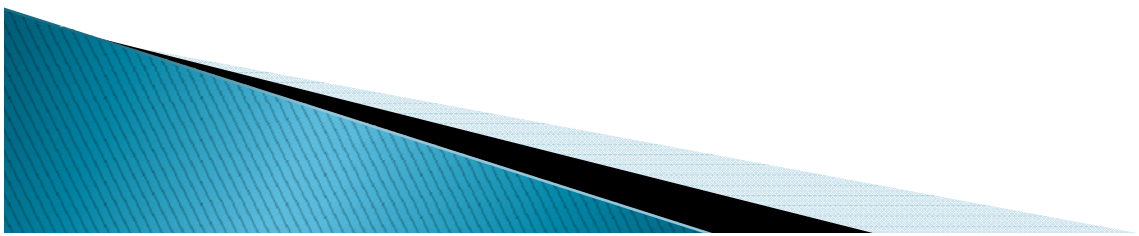

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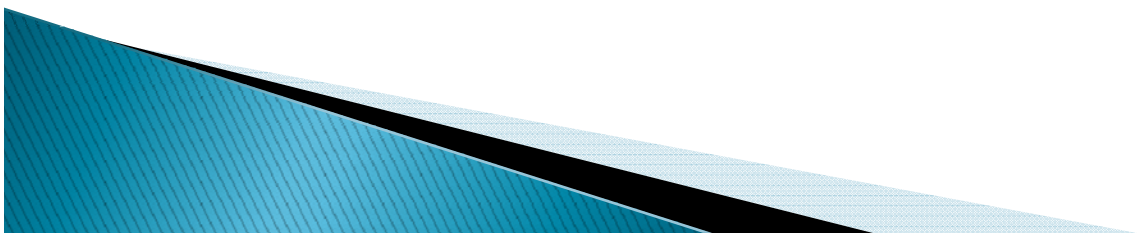

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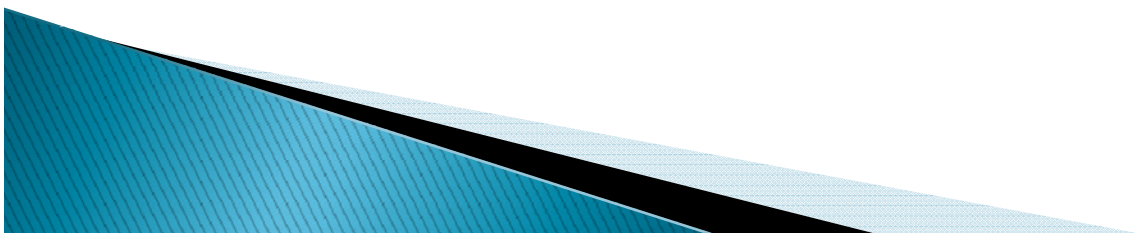

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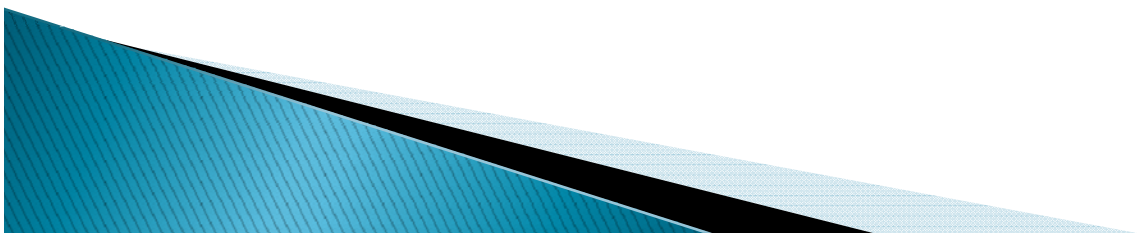

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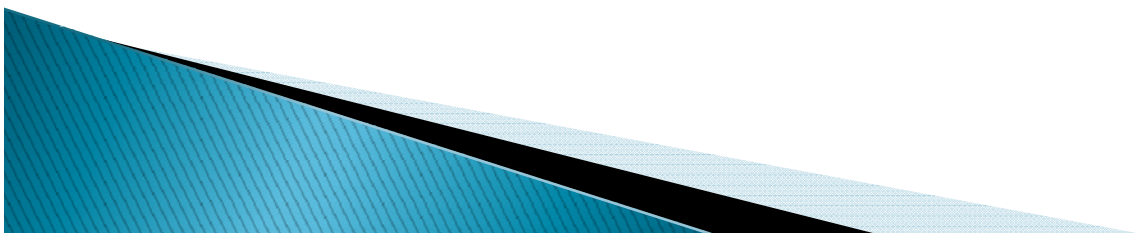

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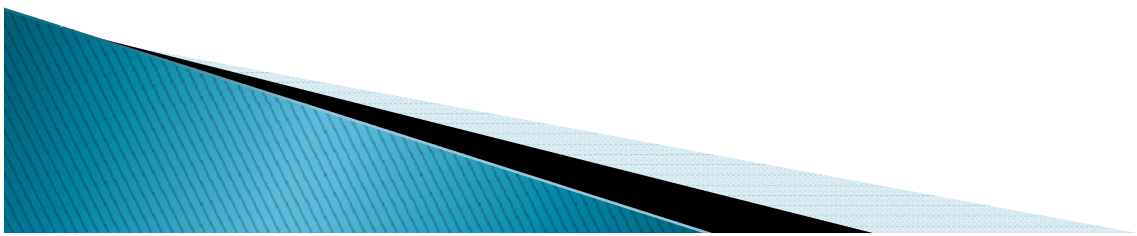

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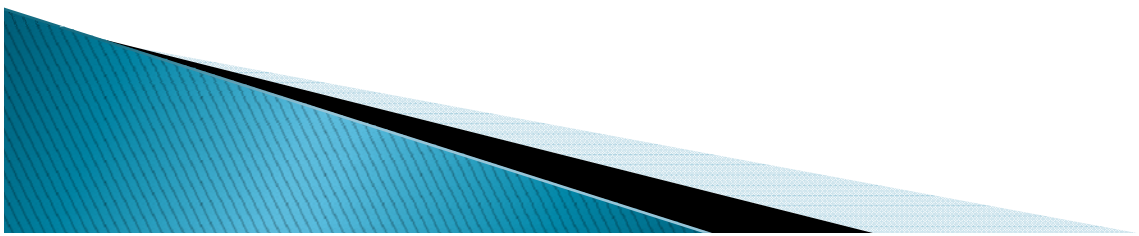

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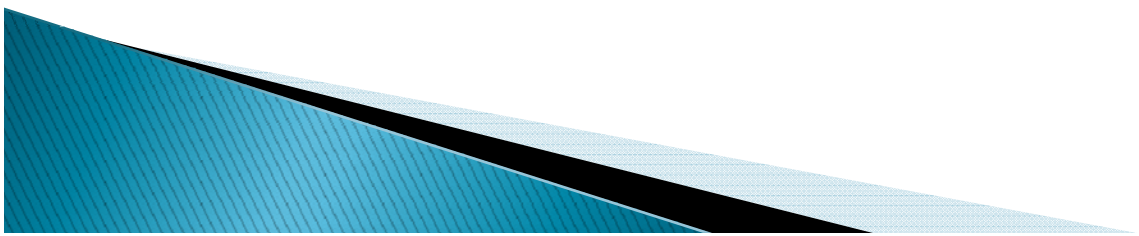

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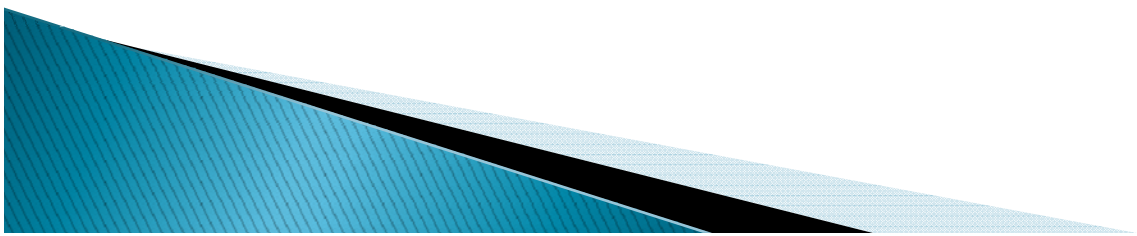

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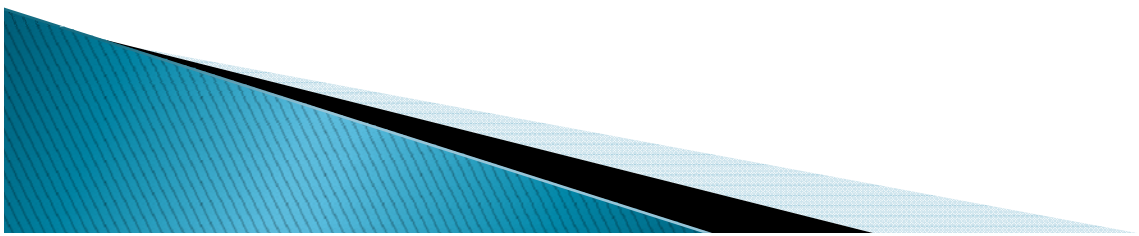

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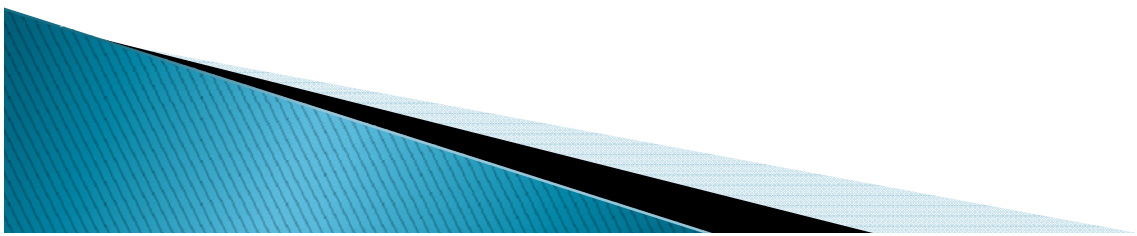
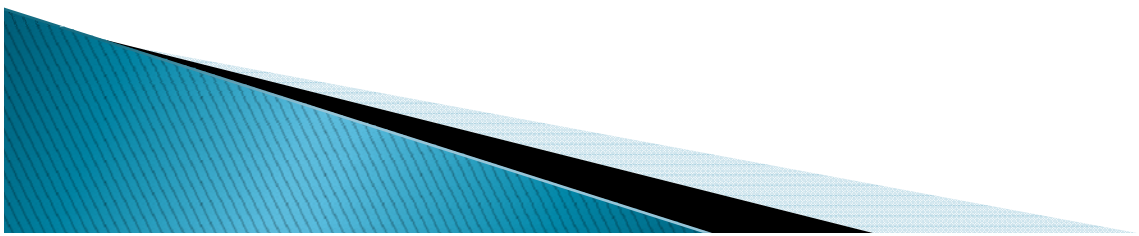


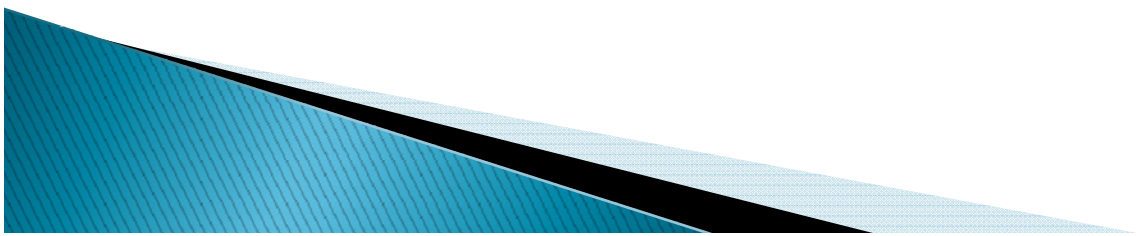
Memory Span Task

- Well researched
- With numbers and objects
- Memory can work with **seven** bits of information plus or minus two
- Seven days in a week, seven notes in a scale, the seven seas, seven digits in a phone number
- How can we remember more than 7 things?



Chunking

- A process by which the mind is able to extend memory capacity
- With rehearsal, chunking can help increase memory capacity significantly
- Example…



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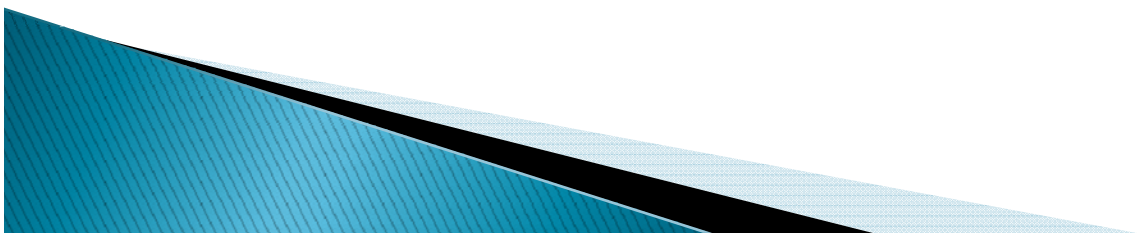

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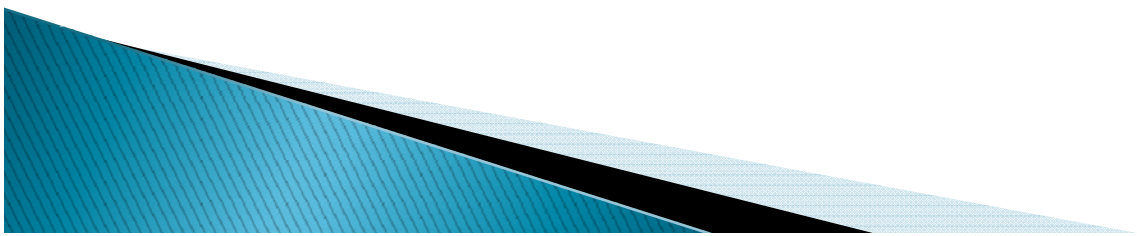

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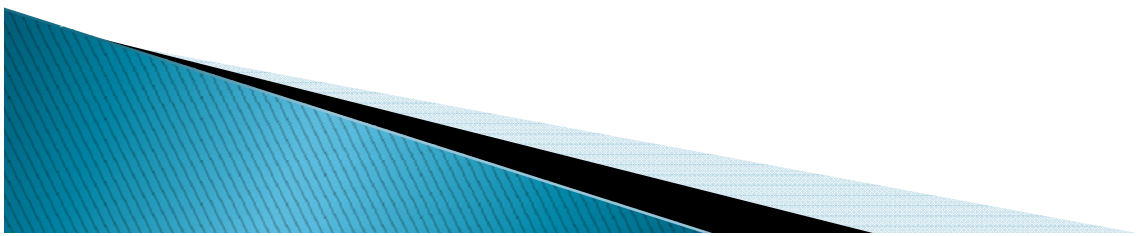
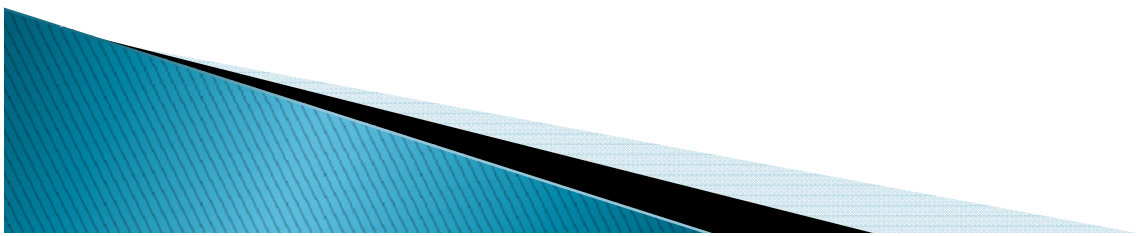


KU



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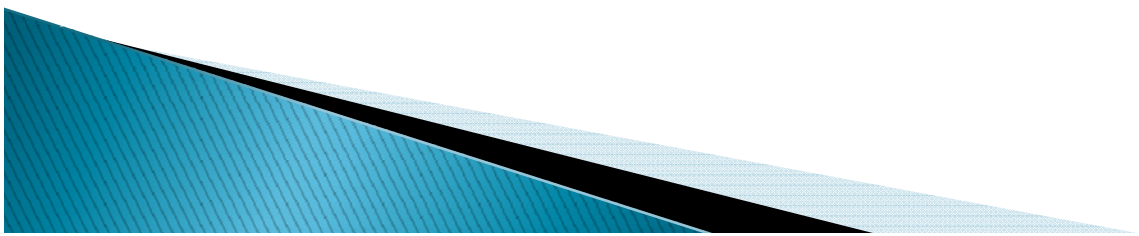
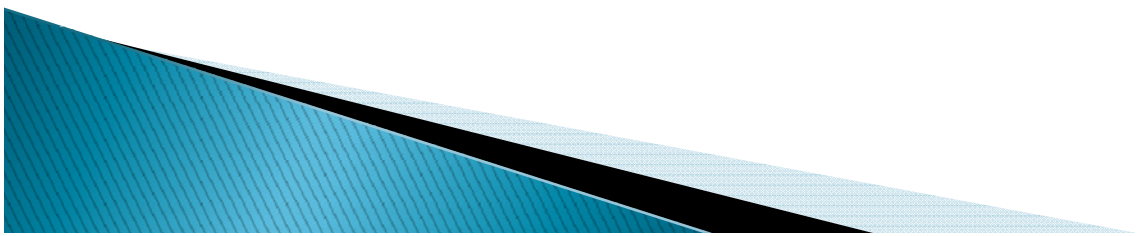


Now write down the letters.



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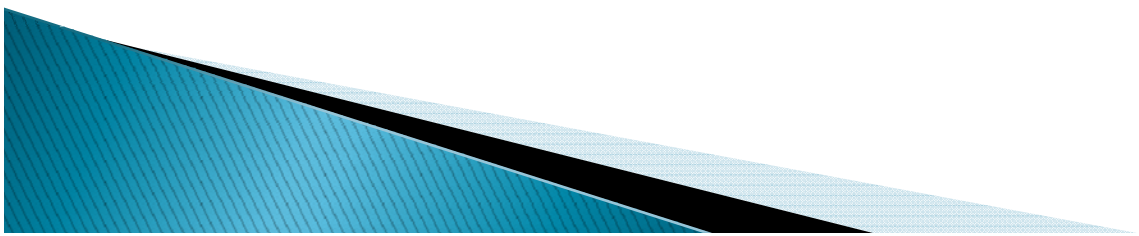
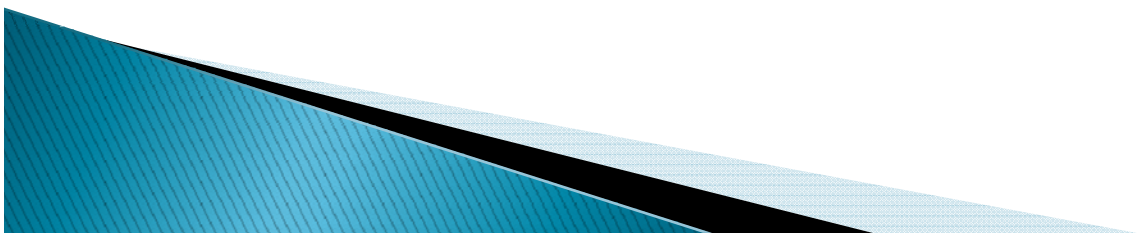
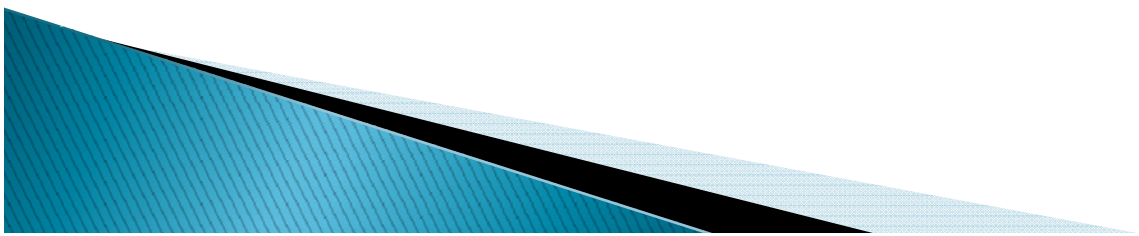


Now, Let's try it again!

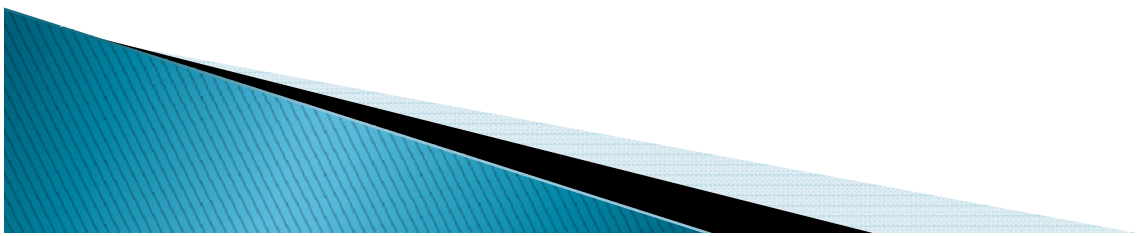
This time it may be easier



LSD



TV



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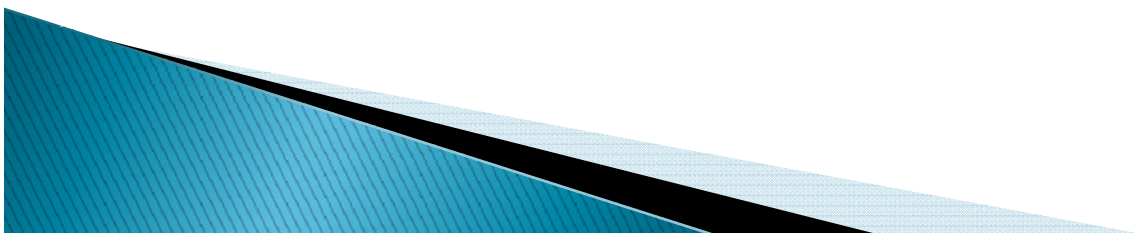
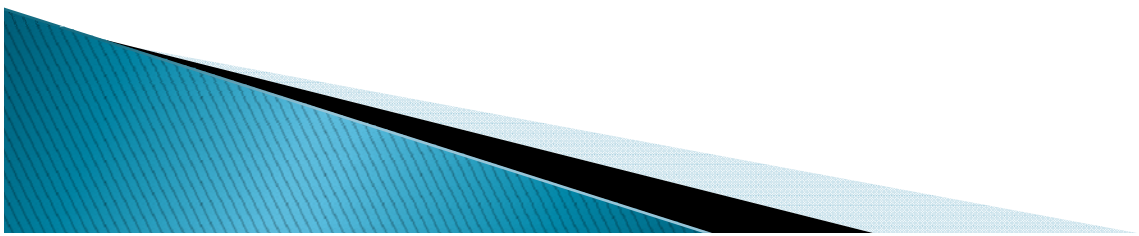


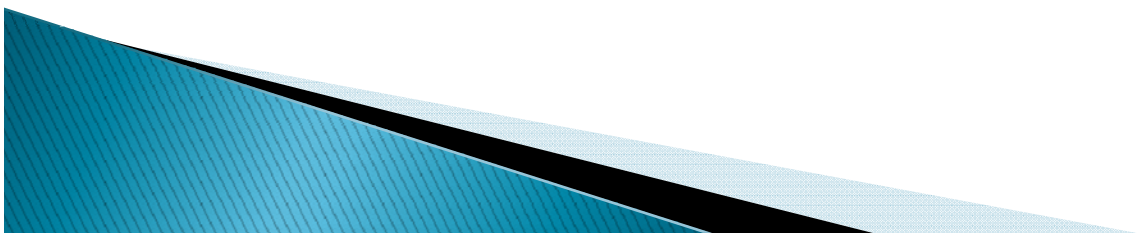
JFK



USA

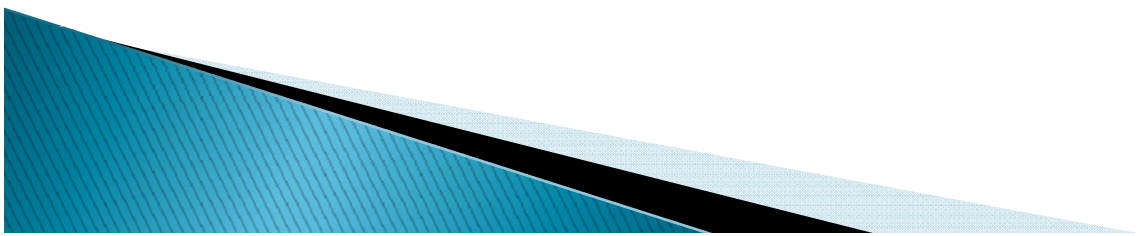
Easier?

- The first bits of information were 14 bits of unfamiliar information
- The second group involved working with only five bits of familiar information
- The process of breaking new, unfamiliar information into smaller groups of information that make sense is **chunking**.



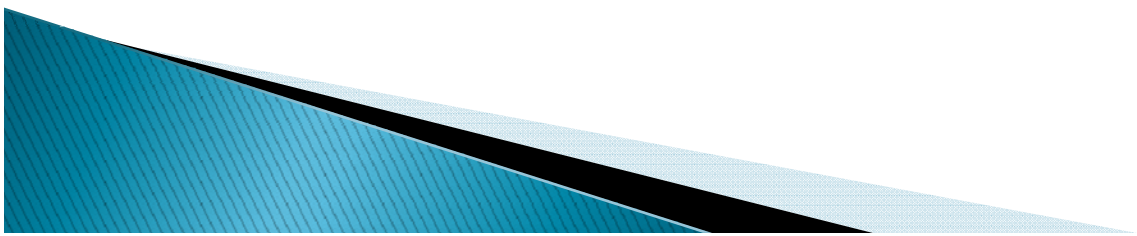
Chunking, continued.

- Morse Code
- Dits and dots
- Groups dashes and dots
- Words become easier as dots and dashes become a meaningful word



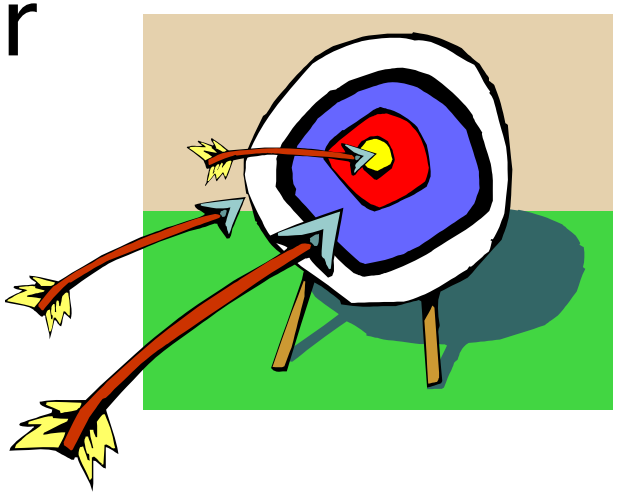
Memory

- Memory is increased as we "**chunk**" information and use it with increased frequency.
- We still work in seven (plus or minus two) items, now we increase what is included in the bits of information



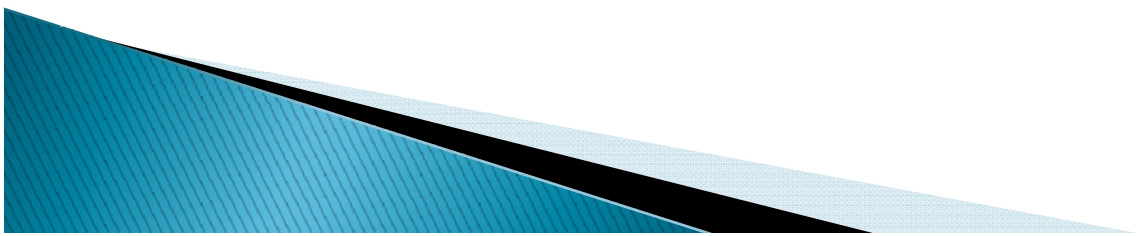
Increasing Length of Memory

- Rehearsal
- Repeating over and over
- Practice
- Phone number that was busy
- Social Security number



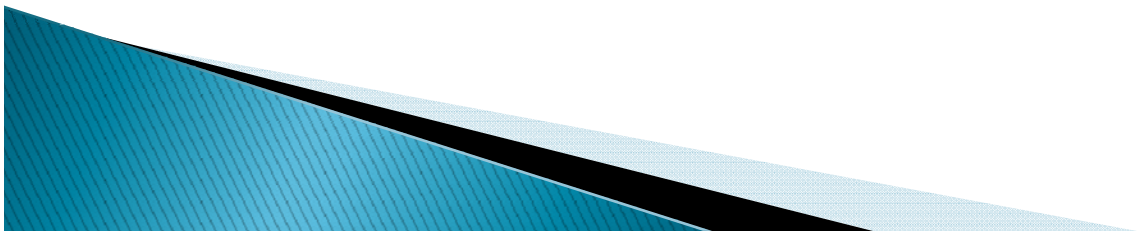
Long Term Memory

- Information is not learned unless it is moved to the Long Term Memory
- All that is rehearsed is not learned



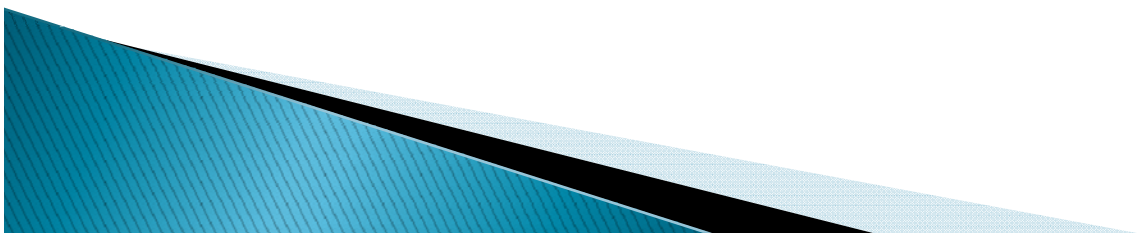
Increasing Memory

- Increase amount held by **chunking**
- Increase length held by **practice**



Long Term Memory

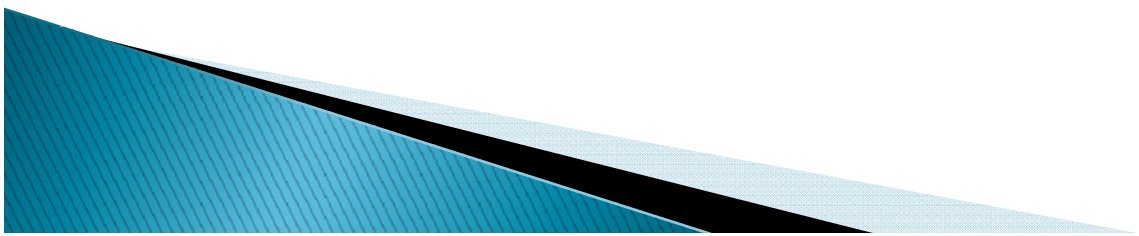
- Storage for thoughts
- Very organized – drawn by association
- Huge capacity
- Estimates are 100 trillion bits of information is stored in the LTM
- Retrieval is problem



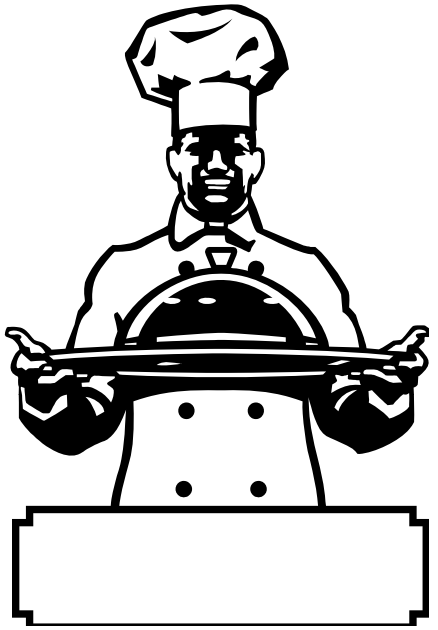
Retrieval of Information

- In STM, to recall something, you scan the bits to see if what you are looking for is there – 7 bits at a time
- In LTM, if you scanned everything in LTM it would take 400 years to answer,

  "What is your name?"
- LTM can not be organized like STM



Analogy



- Chef preparing feast
- Table is working memory
- Pans and food brought out from storage is LTM
- STM is where we work and information must be retrieved from LTM

LTM

- Organized by associations, connections
- Example – answer the following questions immediately

- What color is this piece of paper?
- What do cows drink?

LTM Searches for Connections

White

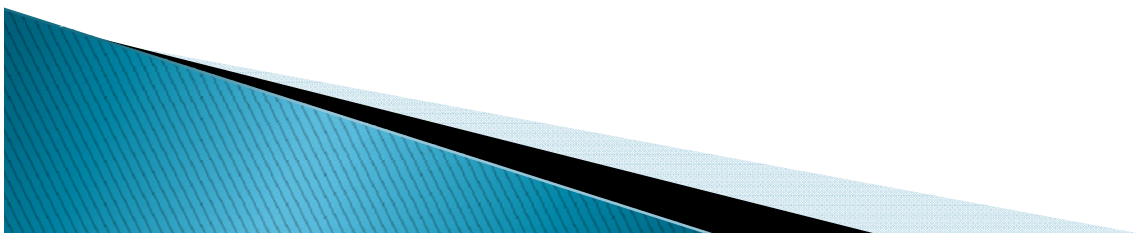
Cow

Drink

Milk

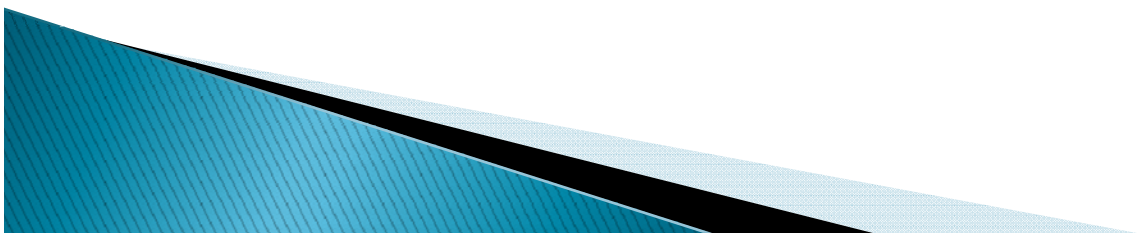
Our Job

- To provide as many associations, links, and connections as possible to information already stored
- Usefulness is a key factor in LTM



Continued

- Usefulness is a key factor in learning
- As teachers, we should never just provide information for the test – it should have value – it must relate back to personal experience (meaning) and make sense to the learner

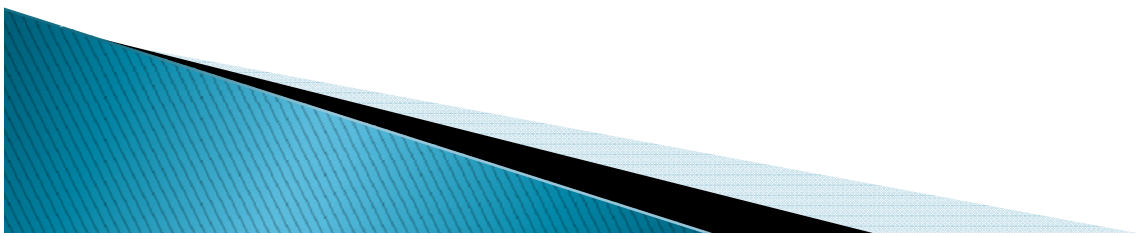


Meaning and Sense

- Information must have meaning and sense to be stored in long-term memory
- Sense and meaning are independent of each other – sense without meaning and vice versa
- Trivial Pursuit
- Jabberwocky

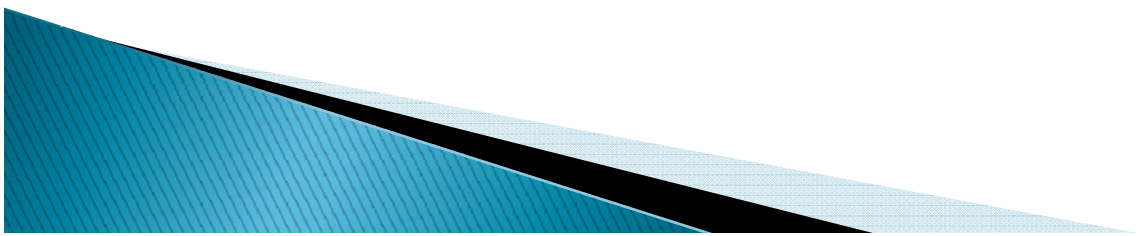
Sense and Meaning

- Meaning has a greater impact on the probability of learning
- TV shows as an example
- Classroom – every day students hear content that makes sense, but has little meaning
- Sense and meaning are both important, but meaning has a deeper impact on learning



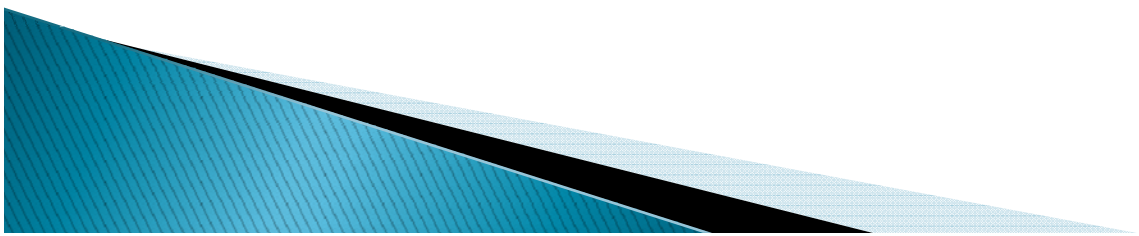
Self-Concept

- Within the cognitive belief system is how we see ourselves in the world
- Praise (appropriate) or reprimands
- 12:1 ratio (pats to kicks)
- Remember the amygdala?
- Self-concept is directly related to receptivity of new learning
- Math phobics?



Effects

- Self-concept shut down results in withdrawal or negative behavior
- We tend to reteach the material
- Remember the *venetian blinds*?
- If they are closed, reteaching is like shining a brighter light outside the blinds.
- Open the perceptual register

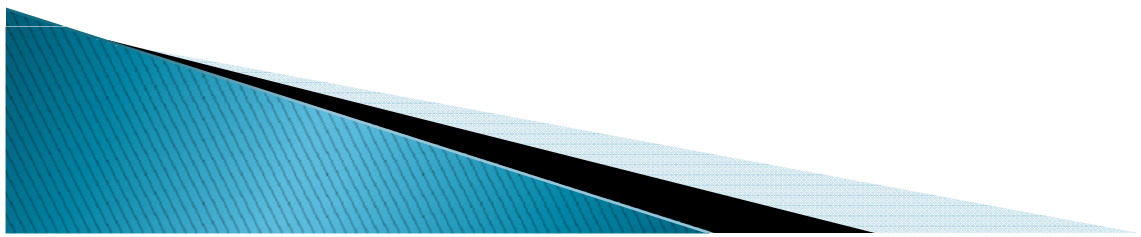


Part 3 – Memory, Retention, and Learning

- Old couple story

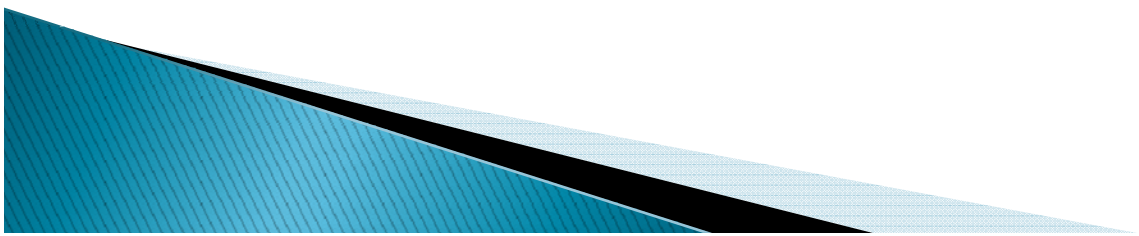
- Memory makes us what we are
- Or,
- You just wouldn't be the same person without your mind!

QuickTime™ and a
decompressor
are needed to see this picture.



Memory

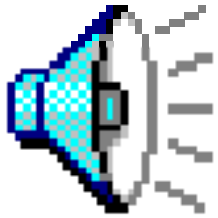
- What is memory?
- Where is it stored? How is it stored?
- How does it work?
- How is it I can not remember where I parked my car at the mall, but when a song from the 1960's comes on the radio I have not heard for 30 years, all the words come back?



Example

- Ever have trouble remembering the name of someone you just met?

- Who is singing?



- What was the name of the girl in the song?

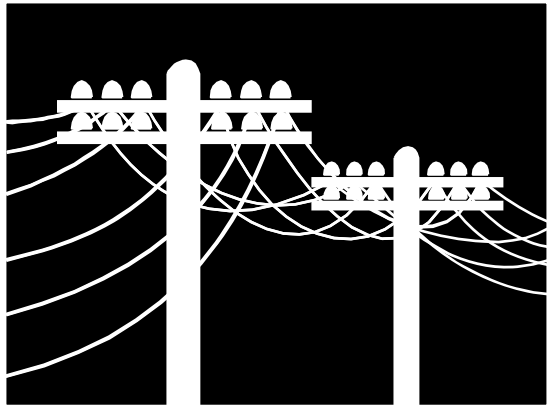
Memory Trace (engrams)

- Remember neurons?
- Axon – synapse – dendrite connection
- Dendrites are covered with spines (bumps) known as receptor sites
- With repeated signals more sites and stronger reception forming memory trace known as engram
- Traces eventually form networks – like a well-worn road

Memory Trace, continued

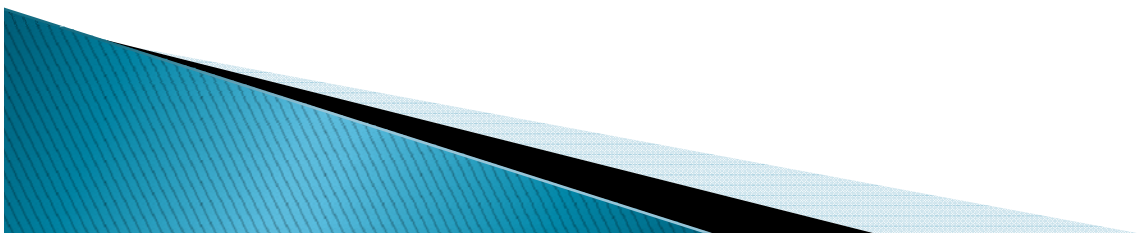
- Traces associate and strengthen networks
- Memories become consolidated
- Alternate pathways to memories are formed
- Memories become more easily retrieved

- Utility grid analogy



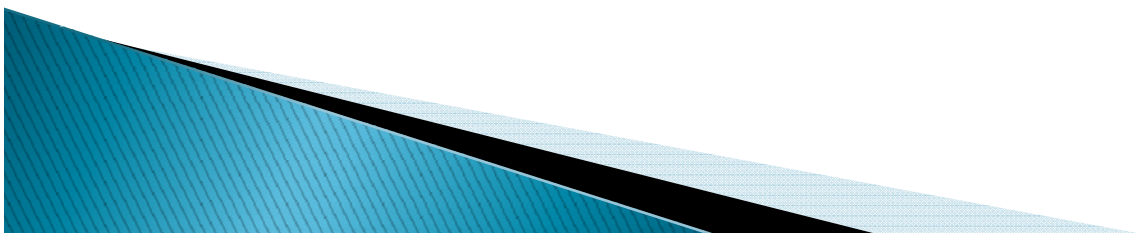
Remember Sense & Meaning?

- When we combine episodic and semantic memories, we increase significantly the probability that events will be stored in long-term memory.



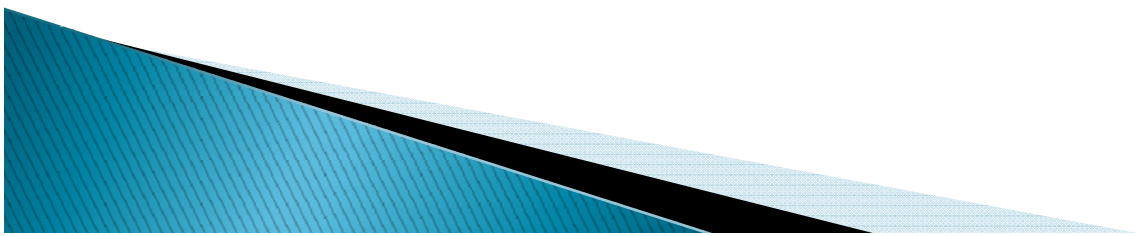
Factors in rehearsal

- Assignment of sense and meaning only comes with adequate time to process
- Time is the critical factor in rehearsal
- Initial and secondary rehearsal
  - Initial – information first enters working memory
  - Secondary – review, make sense, elaborate on details, assign value and relevance, closure

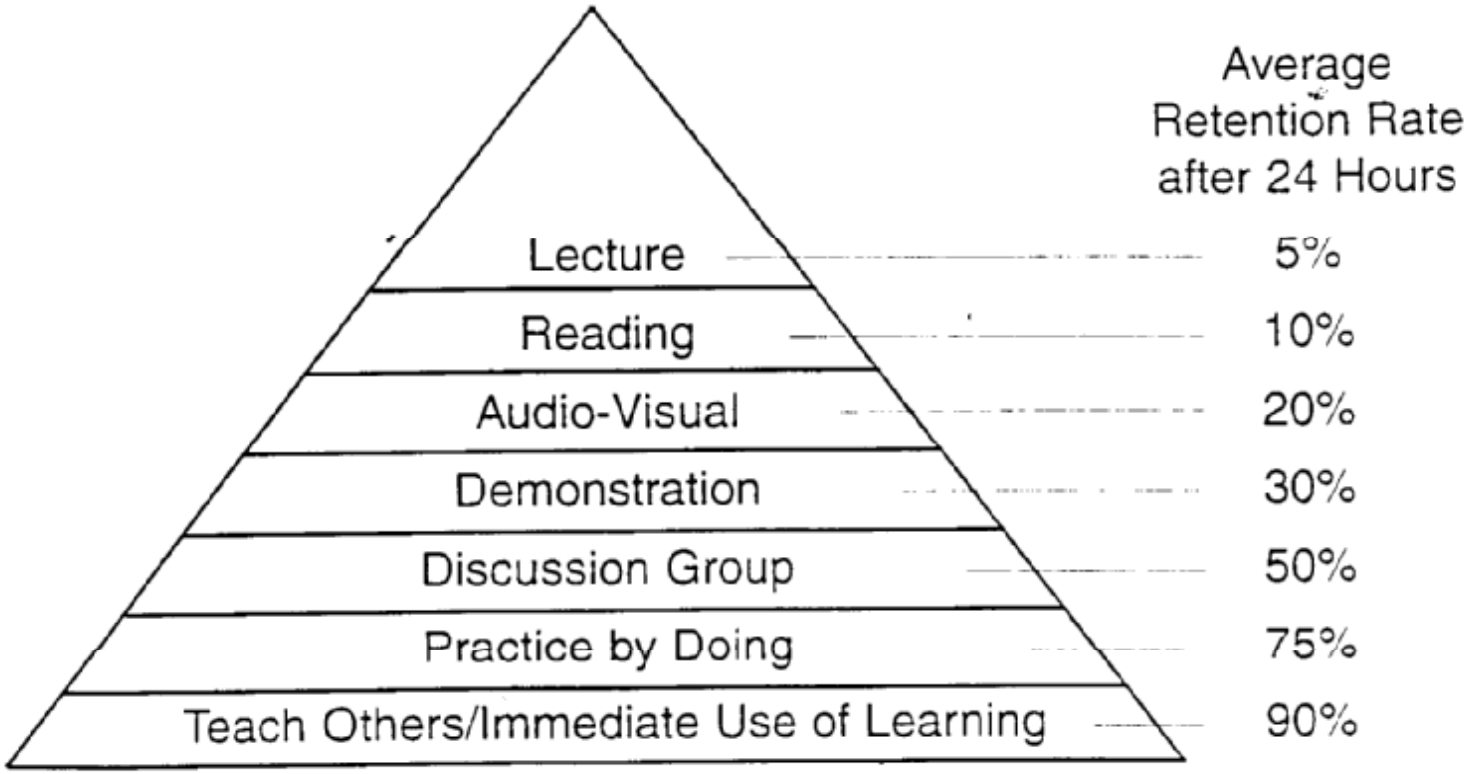


Two Types of Rehearsal

- Rote – store information exactly as entered into the working memory
- Elaborative – not needed to be stored exactly as rote. Associations, connections, relationships, or interpret meaning.
- Both are important. We tend to stress rote over elaborative in classrooms. Only good for about 20% of students.



Learning Pyramid

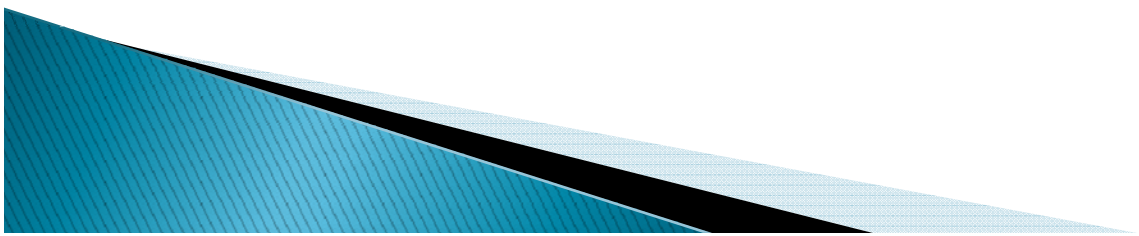


Practice

- "Perfect practice makes perfect." *Vince Lombardi*
- Conditions for successful practice – *according to Madeline Hunter*
  - Learner must have all knowledge necessary to understand options in applying new skills
  - Learner must understand the steps in the process of applying new skills
  - Learner must analyze results of application and know what needs to be changed for future improvement

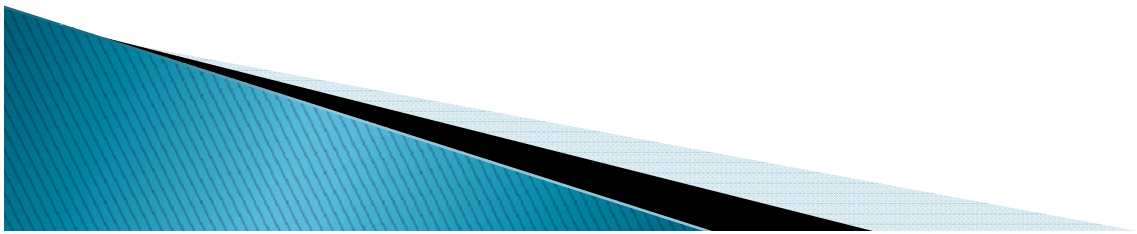
Teachers Help Students When:

- Start by selecting the smallest amount of material with maximum meaning
- Model the application process – rubrics
- Insist that the practice occur in short periods of time in the class while focused on material (guided practice)
- Provide prompt, specific feedback for improvement



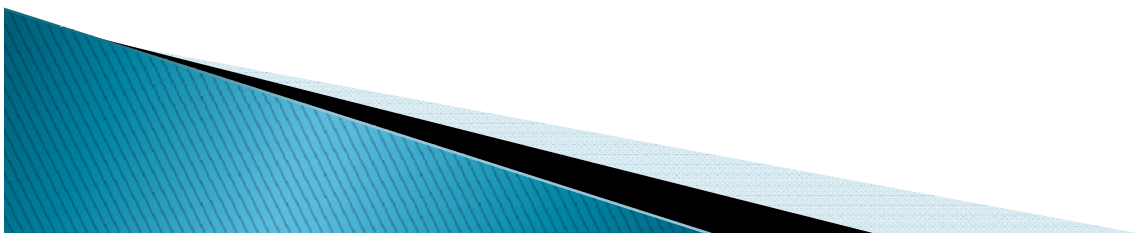
Different types of Practice

- How do we usually do it? Be honest!
- Cramming
- Versus sustained or distributed practice

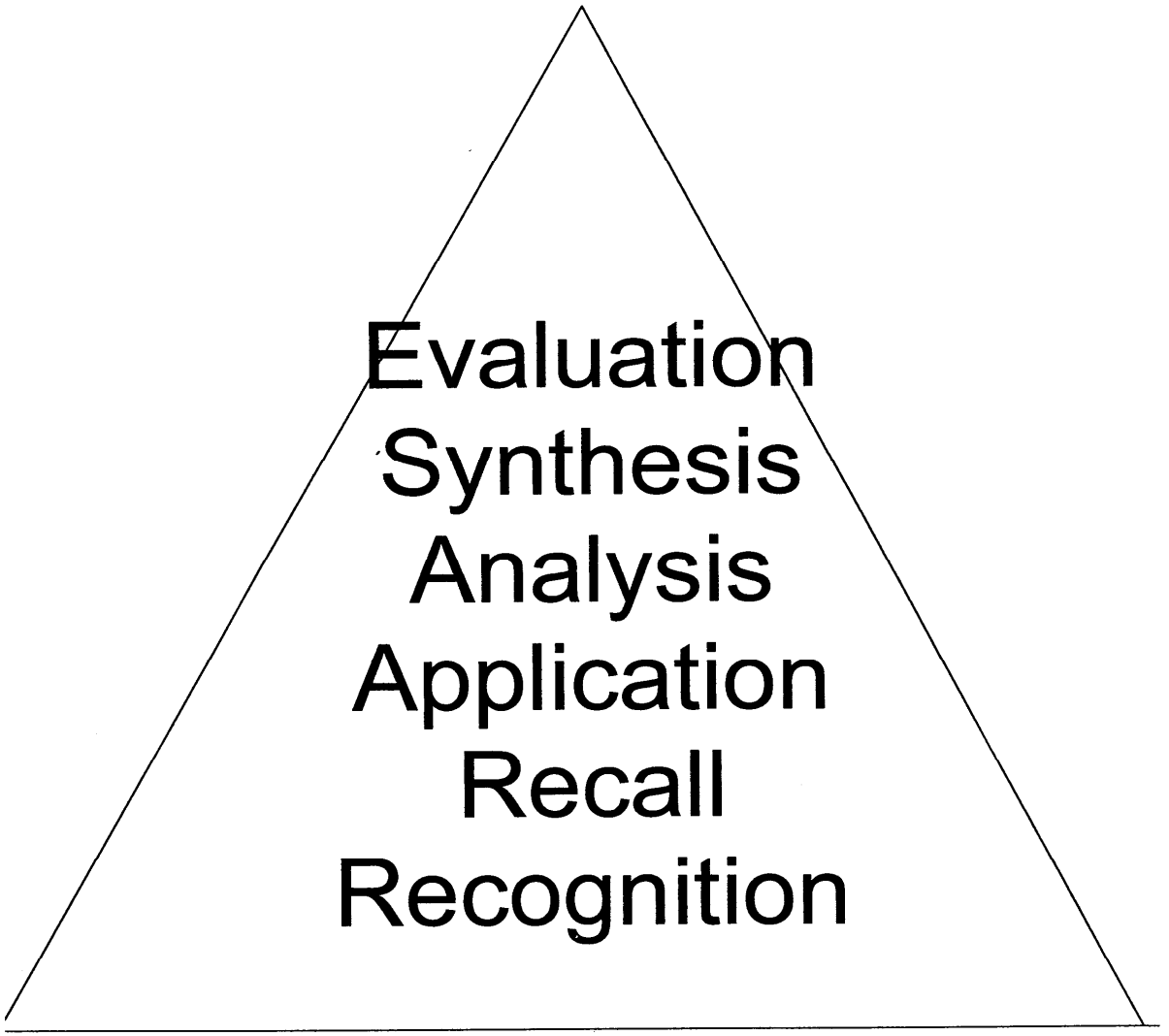


Intelligence and Retrieval

- What does the rate of retrieval have to do with intelligence?
- One overarching definition of intelligence might be rate of learning something – physical, musical, etc. (Gardner)

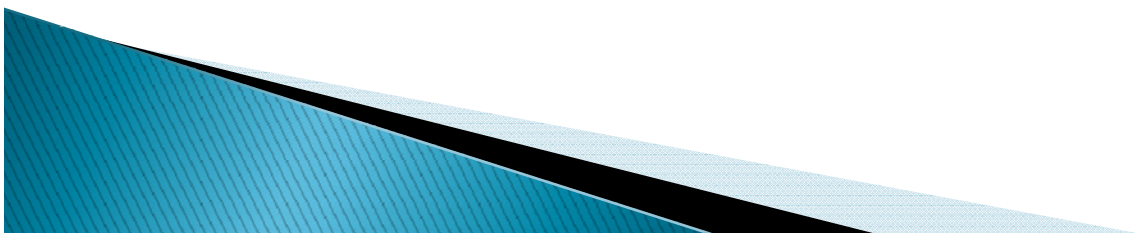


Implications



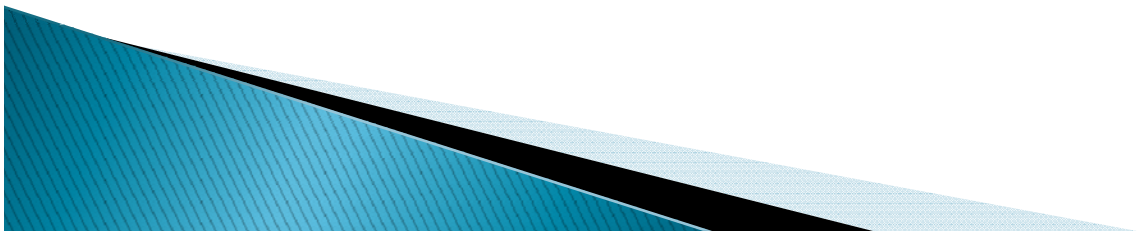
Bloom's Taxonomy

- Recognition and recall
  - Use sufficient time for all students to establish sense and meaning
  - Make certain concepts are established
  - Allow time for rehearsal
  - THEN, let the students apply, analyze with input towards future improvement
  - Synthesis allows to make connections



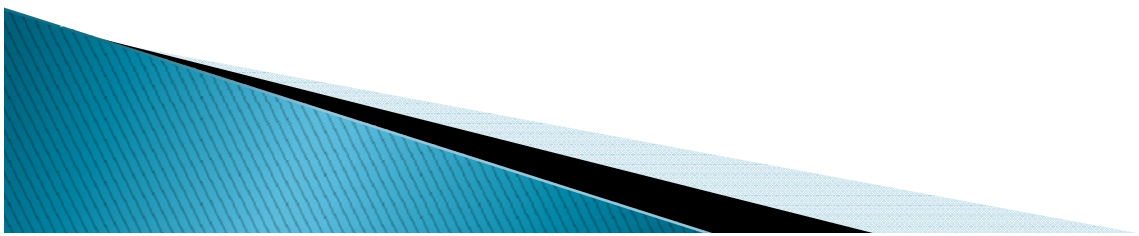
Information Retrieval

- It takes about one millisecond, 1/1000th of a second, to retrieve information from WM
- Information retrieval from LTM is a more complex matter
- Sorting by common factors
- Sorting by dissimilarities



Recognition

- Matches outside stimulus with stored information (multiple choice/guess)
- Helps lower-achieving students
- Rather simple



Recall

- Much more complex process
- Remember white, cow, drink? MILK
- Students store information in various networks, depending on how they link information to prior learning
- Students need time to access information
- When we call on the first hands…we cut off processing time for many of our students

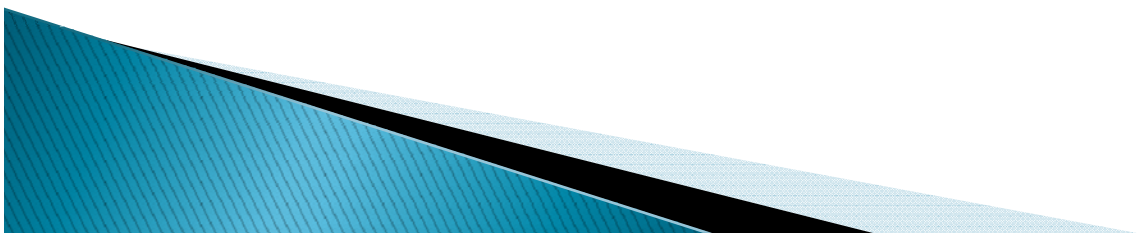
Implications

- Allow time to process information
- Don't call on the first ones to raise their hands – it signals slower learners to stop the retrieval process
- Each time we retrieve information to the working memory, we relearn it and establish a network not likely to be obscured by others

Important Thought!

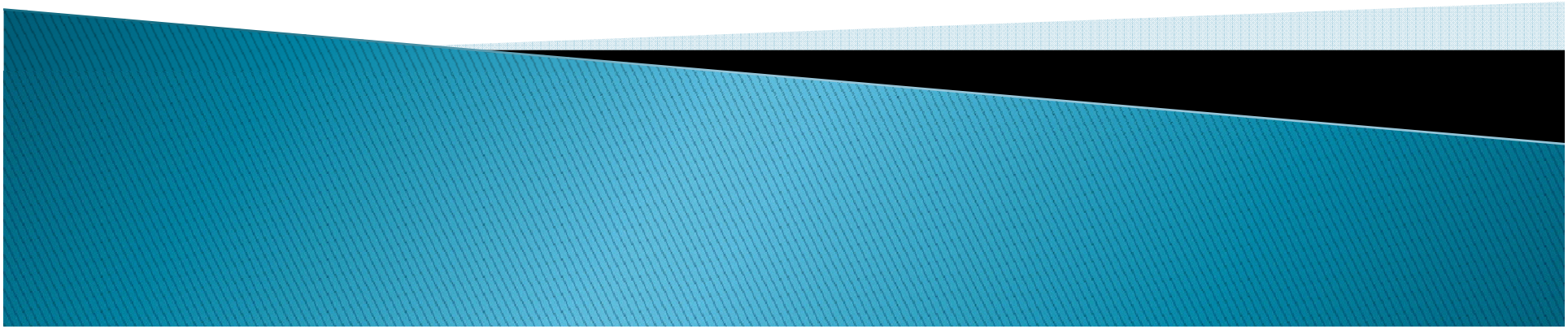
The rate of learning and the rate of retrieval are independent of each other.

We each need different amounts of time to process and retrieve information.



Too often we interpret “slow learner” to mean “unable to learn.”

It is just not so.

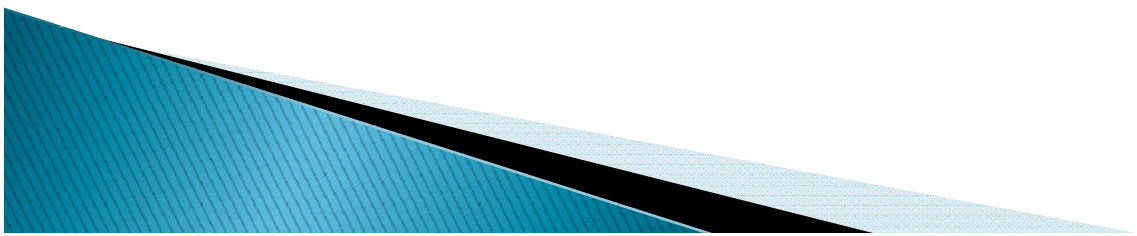


A thought…

- A fast learner and a fast retriever is called a
- Genius

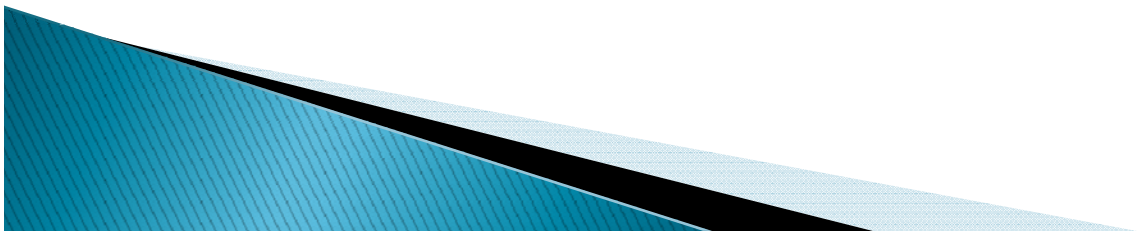
- A fast learner and a slow retriever is called
- An underachiever

- A slow learner and a slow retriever is called
- ***Each of us at one time or another!***



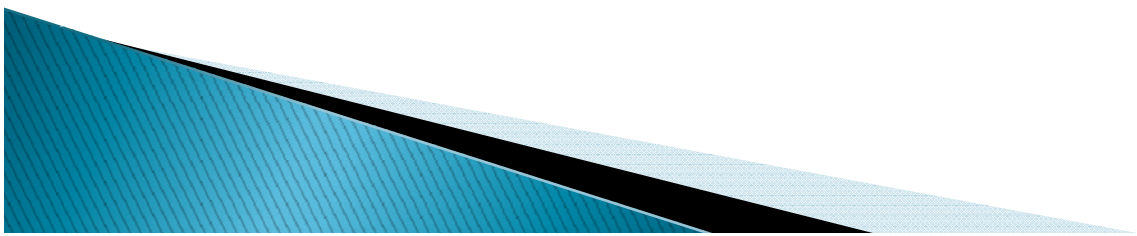
Part 4 – The Power of Transfer

- Transfer is the basis of all creativity, problem solving, and the making of all satisfying decisions.
  - Madeline Hunter, *Mastery Teaching*



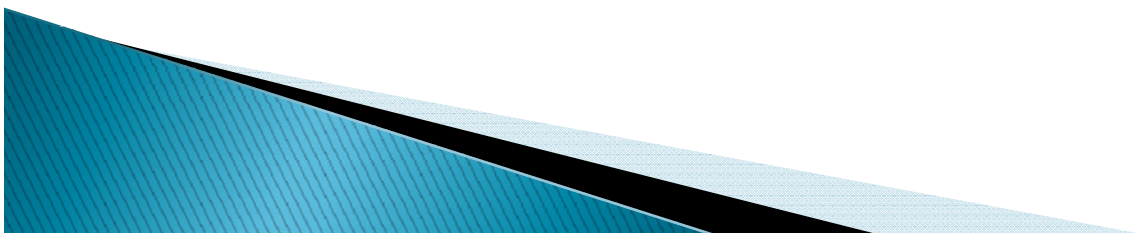
What is Transfer?

- *Two-part process:*
- The effect that past learning has on the process of new learning, and
- The degree to which the new learning will be useful to the learner in the future.



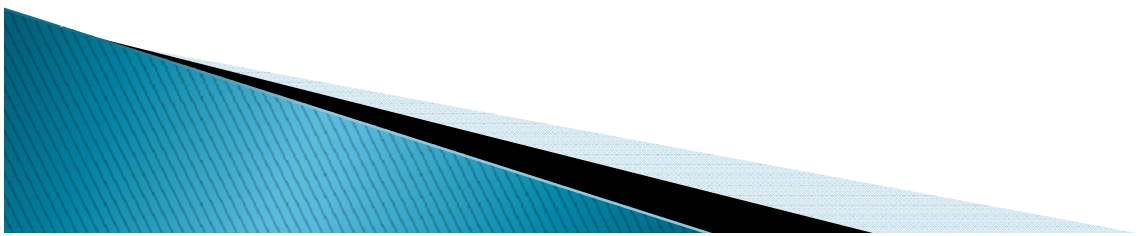
So, what's that mean to me?

- Whenever new learning moves into the working memory, the brain searches in long-term memory for any past learning that is similar (probably signaled by the hippocampus)
- If these experiences exist, they are also brought into the working memory
- The degree to which past learning influences new learning is called transfer



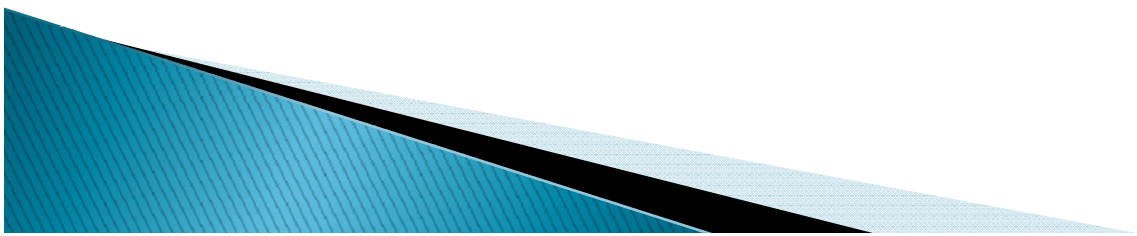
Positive and Negative Transfer

- *Positive transfer* helps new learning. Learning one word processing program may make learning a new version easier.
- *Negative transfer* interferes with new learning. If you had a bad experience with subtraction just wait until you are taught division – repeated subtraction!



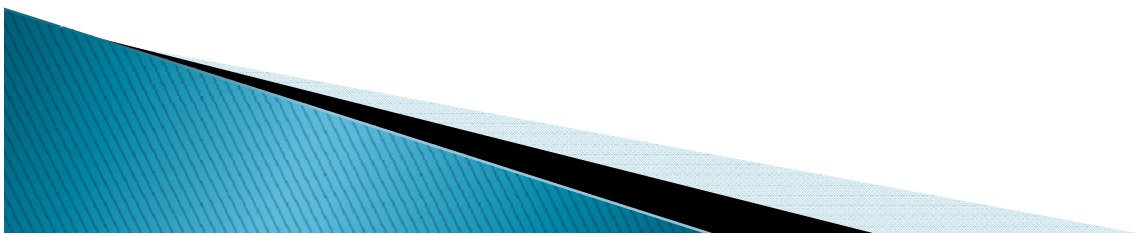
Our job …

- Make certain there is transfer in the curriculum
- Remember that positive transfer will make your the students' learning more successful and will make your life easier!
- Transfer occurs by environmental factors – how lessons are produced environmentally (Diary of Anne Frank)



Thoughts

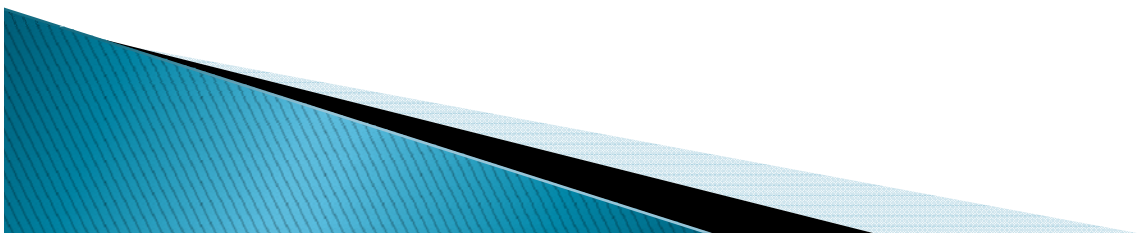
- Today's learning is tomorrow's transfer. If it is worth teaching, it is worth teaching well.
- Most importantly,
- The quality of learning rarely exceeds the quality of teaching.



Recognition (Knowledge)

- Lowest level

- What did Goldilocks do in the three bears' house?
- What was the date of the bombing of Pearl Harbor?



Recall (Comprehension)

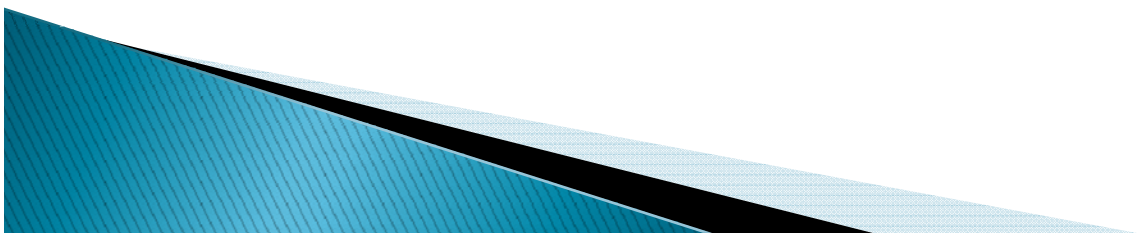
- Ability to make rudimentary sense of the material – still low-level functioning

- Why did Goldilocks like the baby bear's things best?
- Why did the Japanese bomb Pearl Harbor?

Application

- This is the start of upper-level thinking. Ability to use learned material in new situations

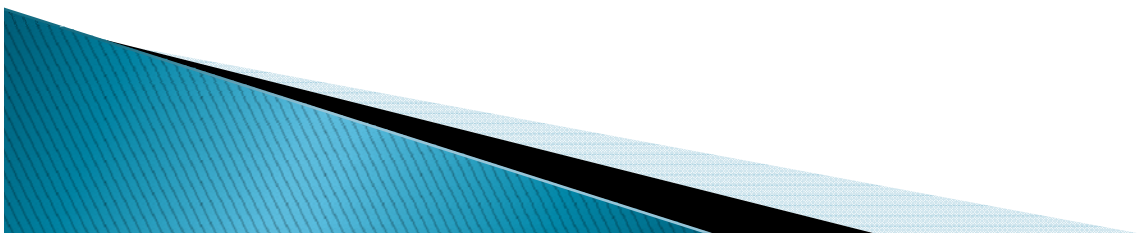
- If Goldilocks came to your house today, what things might she do?
- If you had been responsible for the defense of the Hawaiian Islands, what preparation would you have made against attack?



Analysis

- Ability to break material into component parts and examine parts to whole. Involves organizing and reorganizing material.

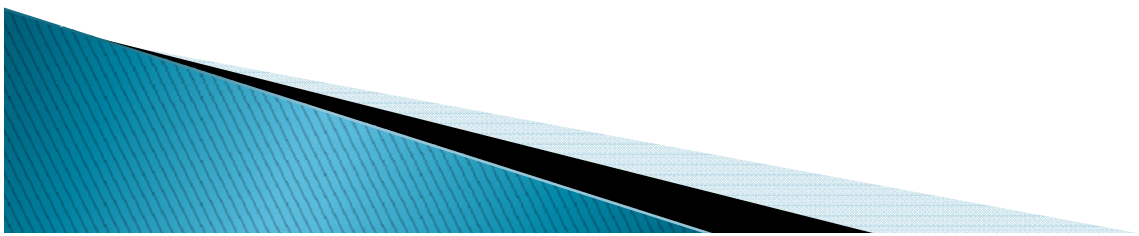
- What things in Goldilocks could have really happened?
- What lesson did our country learn from Pearl Harbor?



Synthesis

- Ability to put parts together into a new pattern or structure (original essay, speech, proposal, etc.)

- Re-tell the story if it were Goldilocks and the Three Fishes.
- Re-tell the story of Pearl Harbor assuming the US armed forces had been ready for the attack.



Evaluation

- Ability to judge the value of material based on specific criteria.

- Do you think it was right for Goldilocks to go into the bears' house without having been invited? Why or why not?
- Do you feel that the bombing of Pearl Harbor has any effect on Sino-American relations today? Why or why not?

Complexity versus Difficulty

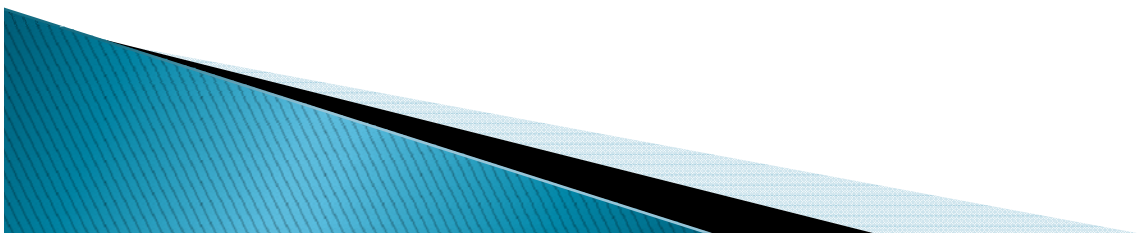
- Is this a trick question?
- ***Complexity*** describes the thought process the brain uses to deal with information – how far up on the taxonomy

- ***Difficulty*** describes the amount of effort the learner expends within a level of complexity to demonstrate a learning objective.

So what?

- “What is the capital of Maryland?” is recognition.
- “Tell me in your own words what is meant by a state capital” is recall

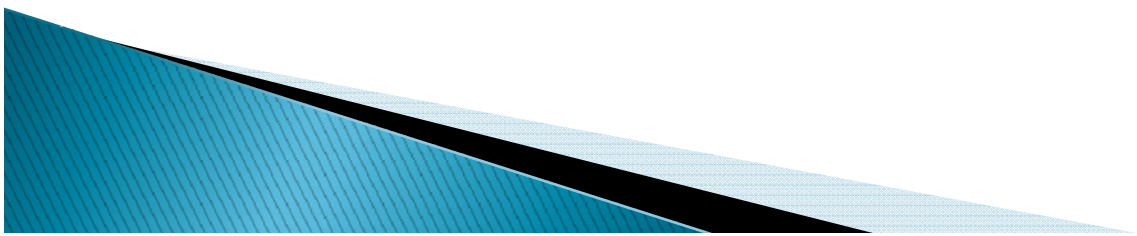
- The second is more complex, not necessarily more difficult.



So what?

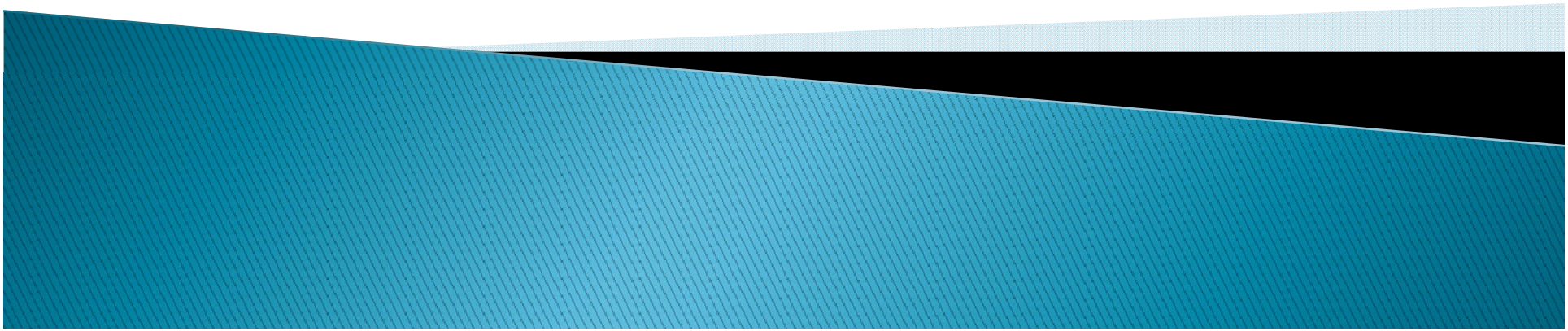
- Name the states of the Union.
- Name the states and their capitals.
- Name the states and their capitals in order of admission to the Union.

- All these are knowledge (recall) level but in varying levels of difficulty.



Unfortunately, we are more likely to increase difficulty, not complexity.

This does not raise comprehension or students' levels of thinking.

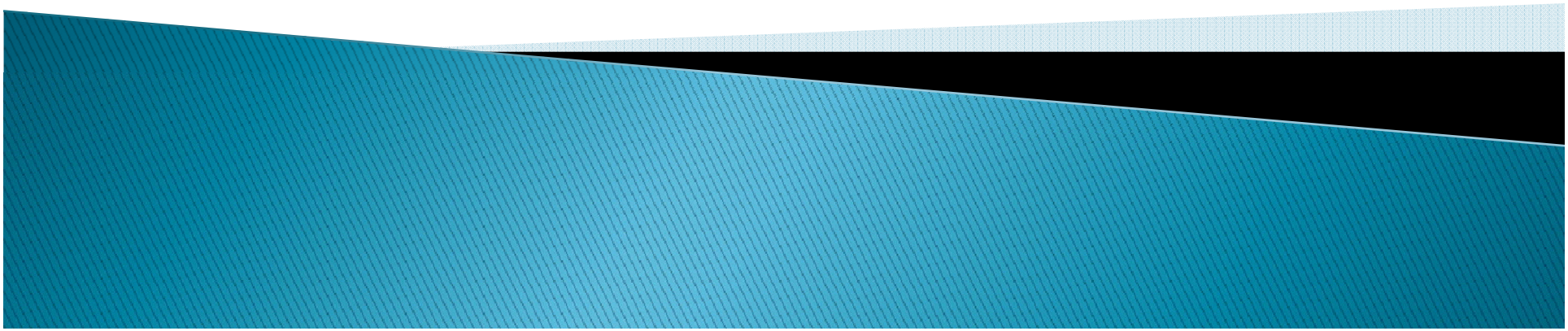


Time, the critical element

- The faster learners learn the concept in less time than allotted. With the extra time they sort details, sublearnings, and select what is really important to know and discard the rest.
- The slower learners need more than the allotted time. There is no time for rehearsal, sorting, or moving up the taxonomy. They clutter the working memory with unimportant content.

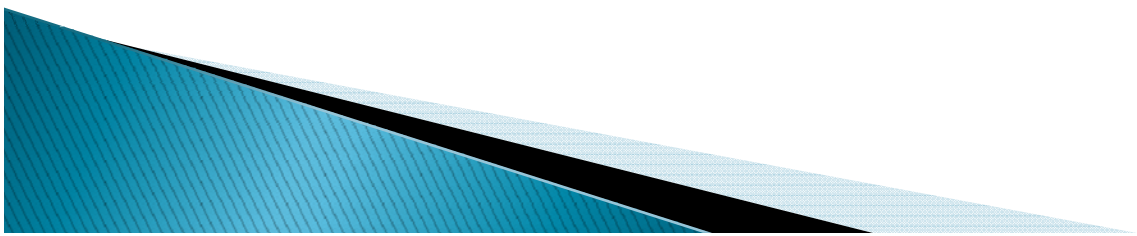
With guidance, practice, and thought, all learners can regularly reach higher levels of thinking.

We must remember the difference between difficulty and complexity.



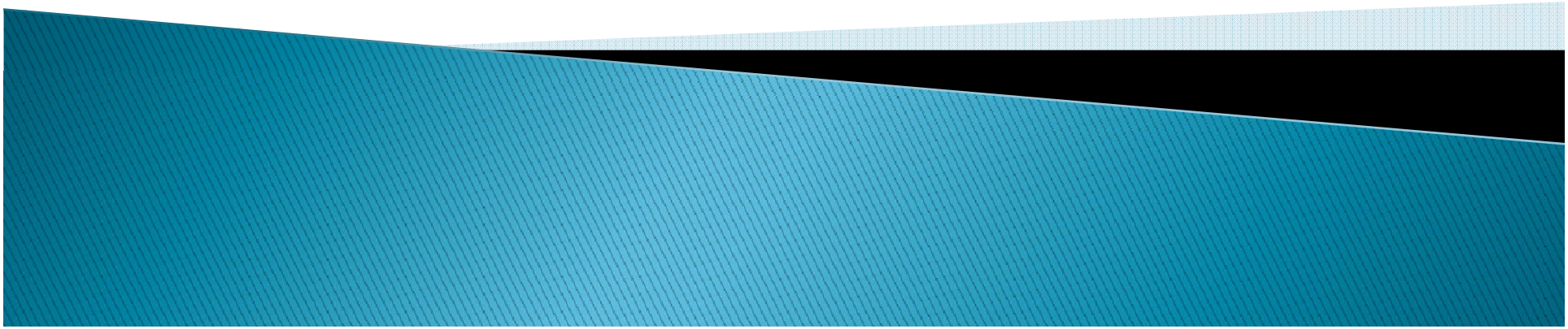
In Summary

- Provide for sense and personal meaning
- Provide associations, links, and connections to prior learning
- Allow time for rehearsal and retrieval
- Remember the power of transfer



NSU Faculty Development Retreat May 13, 2009

Afua O. Arhin, PhD, RN
Grambling State University

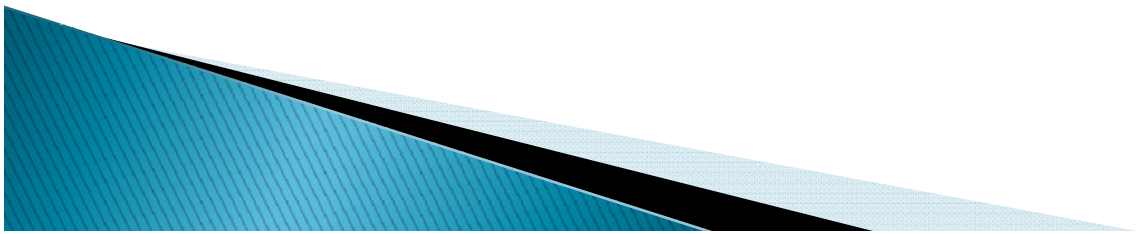


Student's Perceptions of Academic Dishonesty

- The purpose of this study was to explore the perceptions and attitudes of academic dishonesty in undergraduate students attending an HBCU.

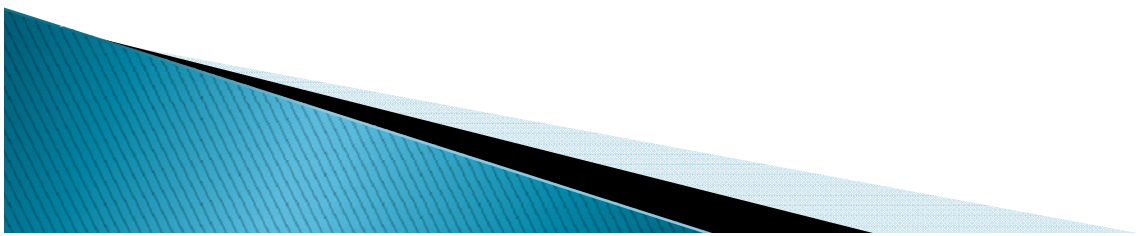
Background

- Intrinsic to the proliferation of technology, modern tools of communications including wireless messaging devices, sophisticated cell phones, MP3 players, and the internet make cheating easier than ever.
- Examples – Open Discussion.



Prevalence of Academic Dishonesty

- In a recent study of 50,000 college and 18,000 high school students conducted by Duke University's Center for Academic Integrity, more than 70% admitted to having cheated (www.academicintegrity.org). This result was up from 56% in 1993 and just 26% in 1963.
- A review of 107 studies related to cheating among college students revealed that an average of 70.4 percent of students had cheated.



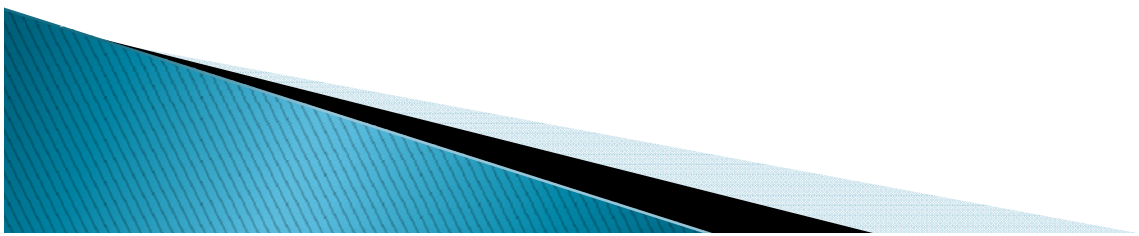
Prevalence of Academic Dishonesty

- In a study of pharmacy students in England, 80% of students admitted to at least one incident of academic dishonesty (Aggarwal, Bates, Davies, & Khan, 2002).

- Bates et al., (2005) revealed that students majoring in education reported fewer occurrences of academic dishonesty compared to pharmacy students.

Prevalence of Academic Dishonesty

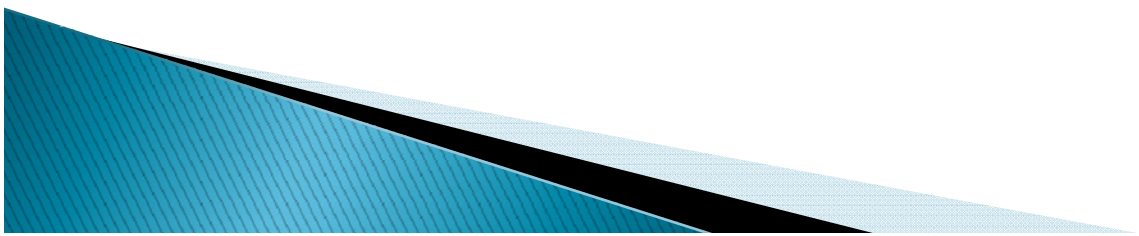
- Rittman (2000) in a study found that 56% of students in the honors program and 78% of non-honors students cheated on at least one test.



Prevalence of Academic Dishonesty

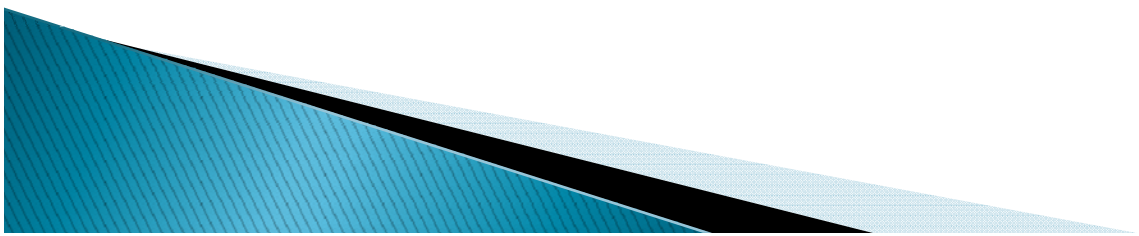
- Some studies have reported that males, fraternity or sorority members/pledges, and those with lower GPA's are more likely to engage in academic dishonesty.

- The literature is mixed on whether males are more likely to cheat than females.



Prevalence of Academic Dishonesty

- The problem of cheating behaviors in students is so pervasive that it is almost commonplace.
- Most students do not see their cheating actions as out of the ordinary or morally wrong.
- The process of neutralization is a major concern when students incorporate cheating into “normal” student culture.



In order to deal with this crisis, faculty have to understand:

- What behaviors do students perceive as academically dishonest?
- Whether there are differences between what faculty members perceive as academically dishonest and what students perceive as academically dishonest?
- Are faculty members effective in communicating unacceptable academic dishonest behaviors?
- Are there differences in student perceptions of academic dishonesty according to the discipline/profession they are majoring in?

The Study

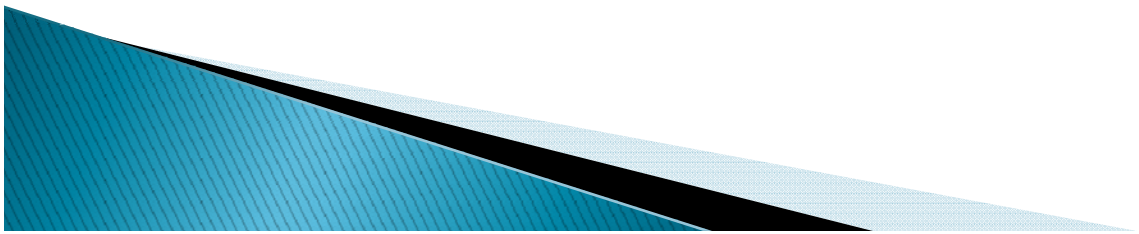
- In an attempt to answer these questions, a developed instrument used in previous studies was administered to 200 undergraduate students.
- The questionnaire had been previously tested for reliability and validity.
- The questionnaire presented 12 scenarios. Following each scenario, the question was posed whether the student viewed the behavior as cheating, not cheating or was unsure.

Methodolgy

- After obtaining IRB approval, the instrument was administered to undergraduate students enrolled in the College of Professional Studies. These students included those majoring in the disciplines of nursing, social work, criminal justice and mass communication.

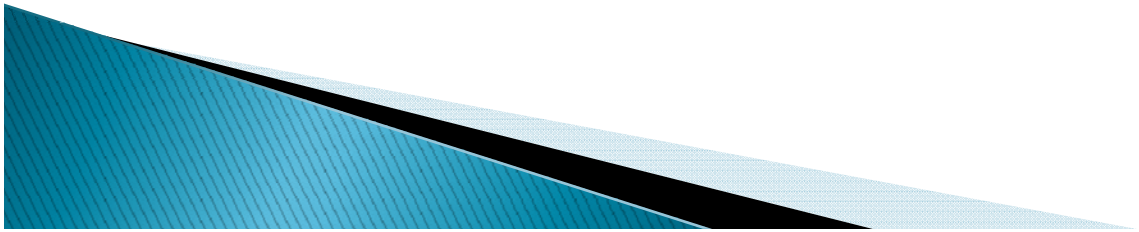
Methodology

- Course sections were randomly selected, and questionnaires were disseminated by a student designee after class periods.
- Implied consent was assumed when the student completed the questionnaire.
- There were no personal identifiers on the questionnaire, and anonymity of the respondent was maintained.



Questionnaire

- 1. During an end of year examination, a student goes to the bathroom and looks at some hidden notes to find answers
- 2. Two students sit next to each other in a class test. The instructor asks students to grade their colleague's answers. The two students swap papers and grade each other's test leniently
- 3. A student writes some notes on her arm and uses them to answer some questions in an exam
- 4. As a memory prompt, a student writes some mnemonics and abbreviations on her hand before going into an exam
- 5. A student is having difficulty writing an assignment. He borrows work from a friend and uses this to gain ideas for his own write up
- 6. A student is having difficulty writing an assignment. She photocopies the work of a friend and then uses parts of this to write up her assignment without the permission of her friend



Continued

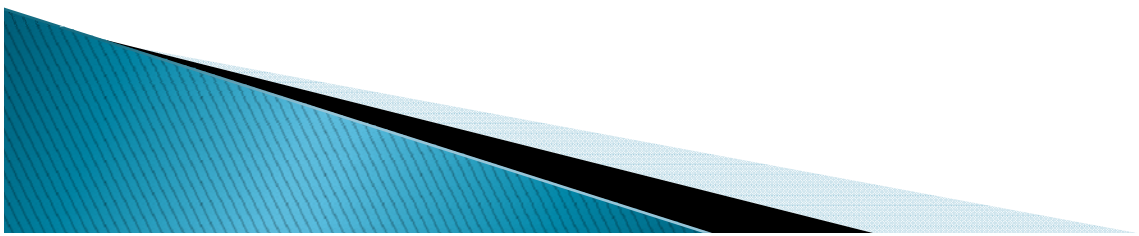
- 7. A student is having difficulty writing an assignment. She photocopies the work of a friend and then uses parts of this to write up her assignment, with permission of her friend
- 8. A student finds an internet site which is relevant to his work. He cuts and pastes portions of this in his own work, changing it very little. He does not use quotation marks but lists the name of the website in his references
- 9. A student is writing an assignment. She takes several quotes directly from a journal without using quotation marks and does not reference them
- 10. Following a laboratory exercise which produces no results, a student makes up some results for her write up
- 11. A student is following a schedule in a laboratory examination. He does not understand one of the instructions, so asks his neighbor
- 12. Students hand down coursework and laboratory reports for use of other students in lower classes

Results

- Respondents in this study had difficulty in identifying behaviors that constituted academic dishonesty in scenarios related to classroom and laboratory assignments, but were quite clear on the definition of academic dishonesty in most examination situations

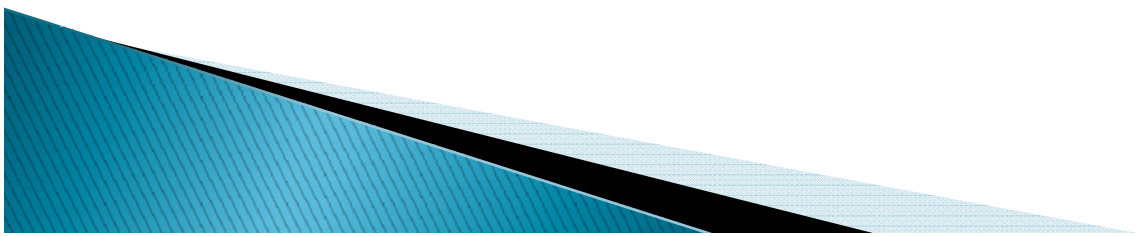
Results

- A majority of students did not perceive the behavior of grading a peer's paper leniently as wrong. This perception may be influenced by the strong peer dependence found in today's generation of students.



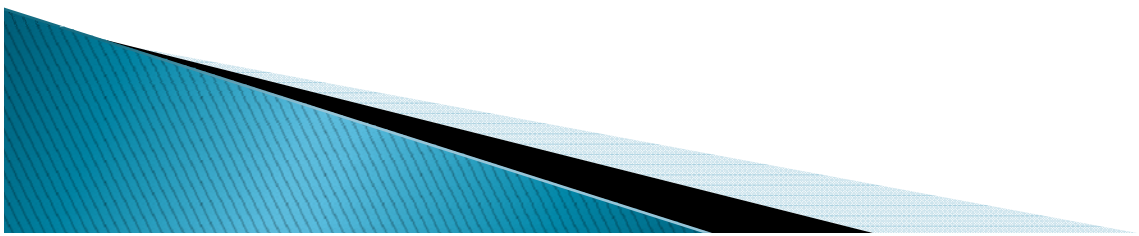
Results

- Another interesting but disturbing finding is the fact that a significant number of the students sampled did not perceive accessing hidden notes during an examination as dishonest. This behavior was “normalized” by an anecdotal remark made by a respondent who believed that the student [in the scenario] was “just using available resources.”



Generation Y Perspective

- "..just using available resources." As troubling as these students perceptions may be, they are consistent with characteristics of Generation Y students who see themselves as inventive, resourceful and self sufficient problem solvers.

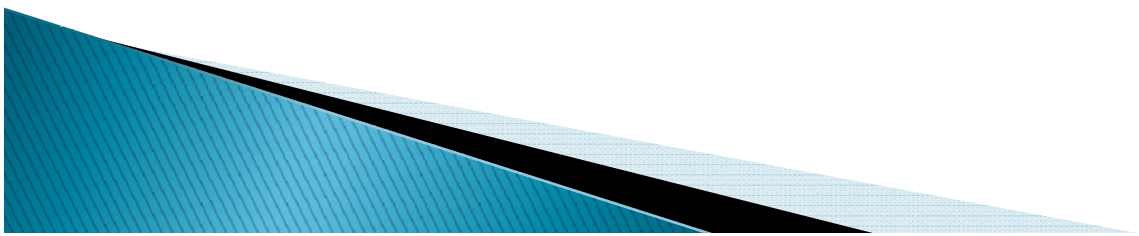


Generation Y perspective

- Overall, students had difficulty in identifying behaviors that constituted academic dishonesty in scenarios related to classroom assignments. Students sampled in this study perceived the behavior of copying a peer's work with permission as more acceptable and honest than copying without permission. This finding again reflects the traits of peer dependence and immediate gratification, characteristics inherent of today's student.

Generation Y Perspective

- With the extensive use of the internet by this generation, cutting and pasting is so common place that a number of students today, believe that it is the only prescription to writing papers. It comes as no surprise that a number of students in this study were ambivalent as to whether the behaviors of cutting and pasting and improper referencing constituted academic dishonesty

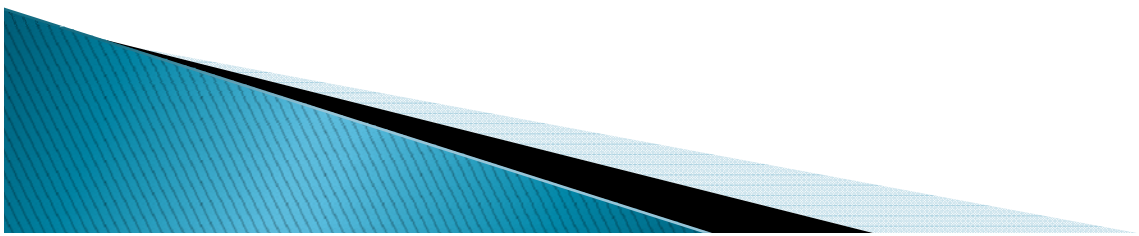


Results according to discipline

- Nursing students had the most difficulty in identifying academic dishonest behaviors in laboratory situations, despite the fact that most of them had much experience in prerequisite science laboratory courses. This finding was consistent with Del Carlo and Bodner's 2006 study of biochemistry students and warrants further exploration of academic dishonesty in the laboratory.

Results according to discipline

- Although reports of academic cheating are abundant, there are relatively few papers in the literature that focus on cheating in the context of science courses and even fewer that address dishonest practices, such as "cooking" or fudging data, within the classroom laboratory (Del Carlo & Bodner, 2006).



Results according to discipline

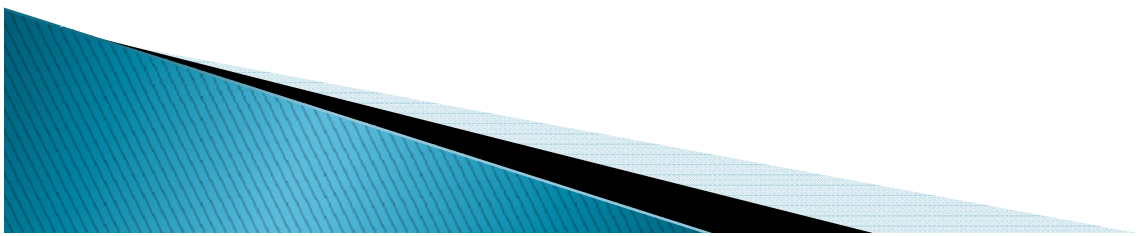
- 35% percent of the nursing students sampled did not believe that making up results for a laboratory exercise was academically dishonest.
- 75% did not believe asking a neighbor for instructions during an examination was dishonest.
- 66% did not believe that handing down coursework and laboratory reports for use by other students in lower classes was dishonest.

Results according to discipline

- A higher percentage of nursing students perceived six scenarios as dishonest: (#1) student going to bathroom and looking at notes, (#3) student writing notes on arm and using them in exam, (#4) student writing mnemonics and abbreviations on hand to use in exam, (#5) student having difficulty writing assignment, borrows work from friend and use this to gain ideas for own assignment; (#6) student writing photocopying work of friend, and using parts for own assignment without permission (#10) student making up laboratory exercise results.

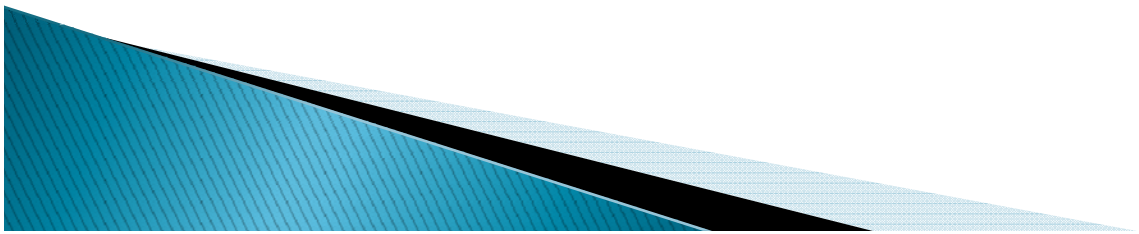
Social Work

- A higher percentage of social work students perceived the following two scenarios as dishonest: (#9) student writing assignment; takes several quotes from journal without using quotation marks and does not reference them and (#12) students handing down coursework and lab reports to students in lower classes.



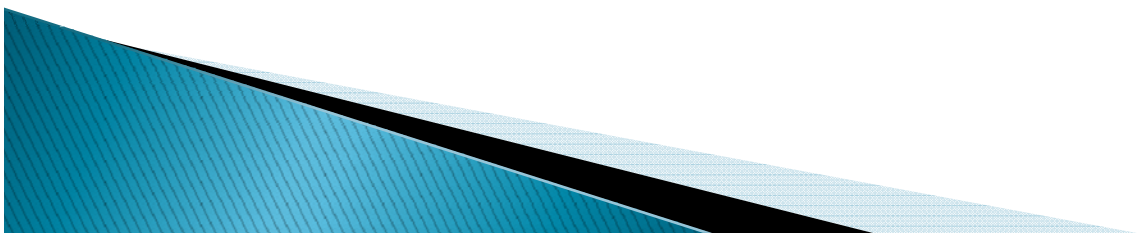
Results

- *Criminal Justice*
- A higher percentage of criminal justice students perceived scenario (#11) as dishonest. This scenario describes a student taking a laboratory exam and asking his or her neighbor for instructions.



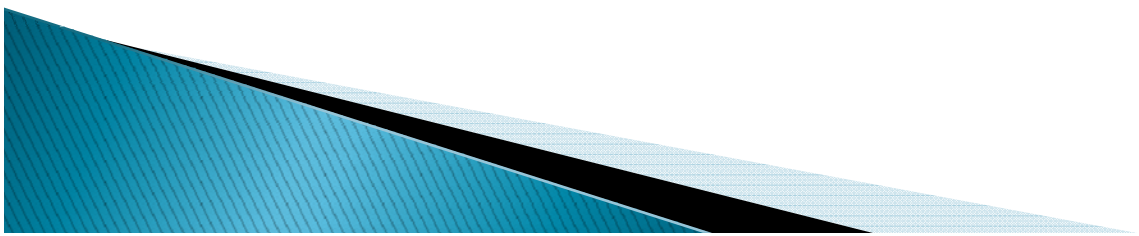
Discussion

- These concerning findings raise the question whether Generation Y student attitudes towards cheating is influenced by today's societal values in the western culture. Is academic dishonesty an emulation of a society in which steroid use is common place in professional sports and well respected business leaders are found behind prison bars for crimes ranging anywhere from securities fraud to tax evasion?



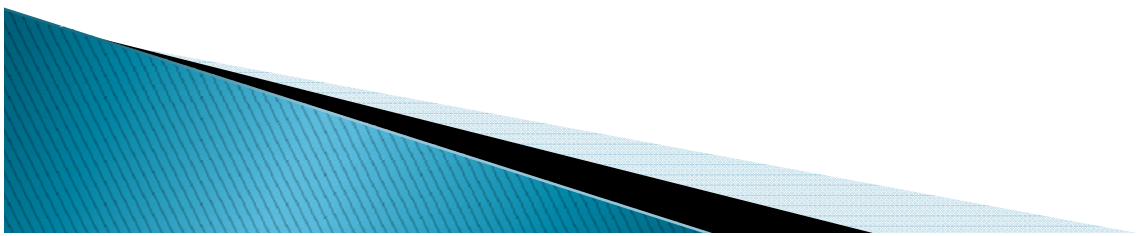
Discussion

- Has perceptions of academic dishonesty been neutralized because of society's acceptance of the "end justifying the means" in a number of situations including business and politics?
- How can those of us working in academic settings rectify these strong influences on students' perceptions of academic dishonesty? What are the strengths of students that faculty can build on?



Strategies

- Faculty as role models
- It is extremely important for faculty to serve as role models and make every effort to model high standards of academic integrity in all their teaching activities (Scanlan, 2006).

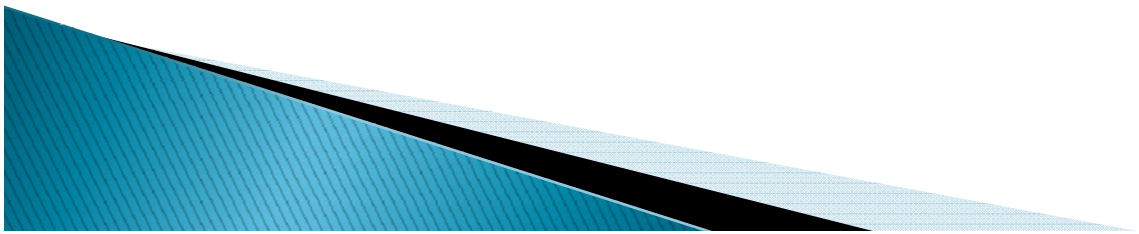


Strategies

- Code of conduct
- The best way to reduce the incidence of academic dishonesty is by prevention. It is important that faculty communicate with students on exactly what constitutes academic dishonesty and what the expectations are.
- Honor codes with accompanying policies, procedures and sanctions should be enforced.

Strategies

- Code of conduct
- It has been extensively documented in the literature that honor codes in institutions curtail academic dishonesty (McCabe & Trevino (2002); Arnold, Martin, Jinks & Bigby, (2007); Scanlan, (2006).
- It is considered a “best practice” to include honor codes on every syllabus.



Code of conduct

- Student participation in the development and oversight of honor codes is significant to the process (Arnold, Martin, Jinks & Bigby, 2007). Such a process fits in well with the distinctiveness of this generation.

Preventing plagiarism

- Since a large number of students are not clear on what constitutes plagiarism, structured instruction on paraphrasing, proper citation and plagiarism should be offered to all students.

Preventing plagiarism

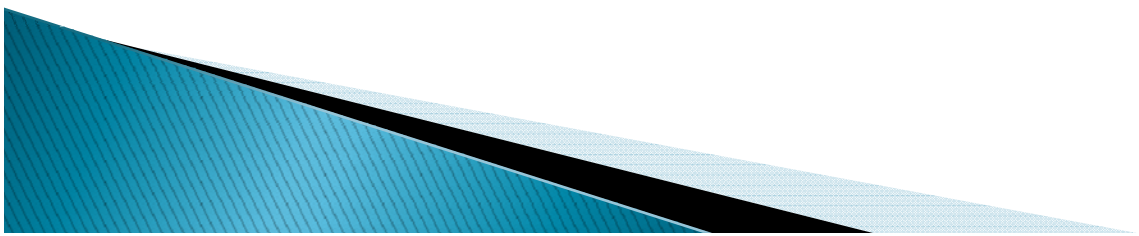
- Use of working drafts
- Students could also be encouraged to submit drafts of working copies of their papers and faculty could provide feedback to these working drafts. The process of using working drafts when writing a paper could potentially eliminate the opportunity of cutting and pasting from the internet or purchasing "original" papers from internet sites. It also offers the student the opportunity to be an active participant in this process.

Preventing cheating during examinations

- Faculty need to be more creative in how examinations are administered and proctored. Strategies that work include administering different versions of an examination, changing questions frequently, including the honor code on each copy of an examination and random seat assignments.
- Electronic devices including cell phones and MP3 players should not be allowed in the examination room and the memories of calculators should be cleared.

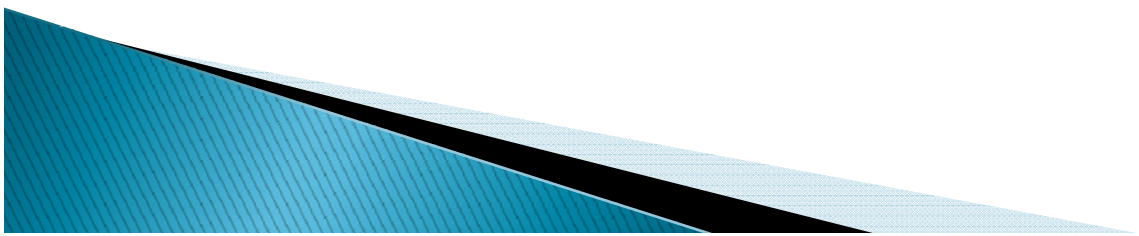
Preventing cheating during examination

- Examinations can be given electronically via platforms such as Blackboard, Web CT etc.
- Use of test generator software.



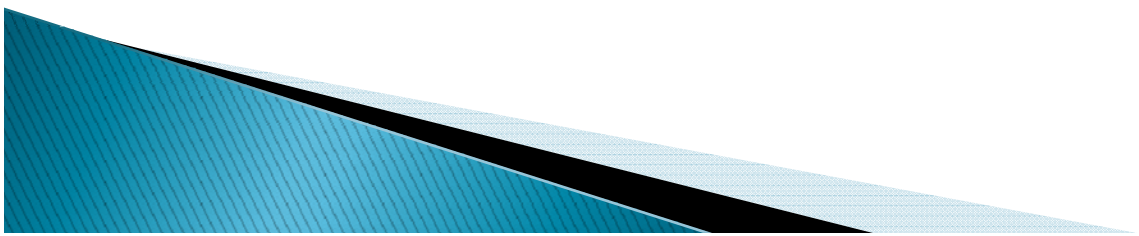
Preventing academic dishonesty in the laboratory.

- Emphasis on honor codes may be very important in the laboratory setting. These honor codes could be printed on every syllabus and laboratory expectations should be clearly explained to students.



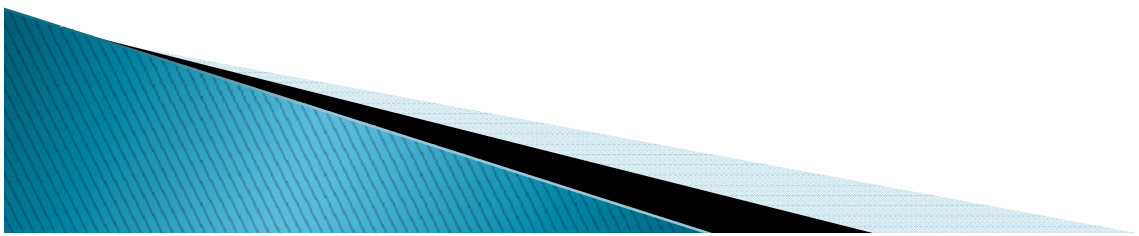
Preventing academic dishonesty in the laboratory

- Further, strategies to prevent plagiarism also can be enforced. Such strategies could include incorporating oral reports in the laboratory curriculum as well as changing experiments or giving different versions of an experiment. These strategies can prevent the “handing down” of reports to other students, a behavior that students in this study considered normal.



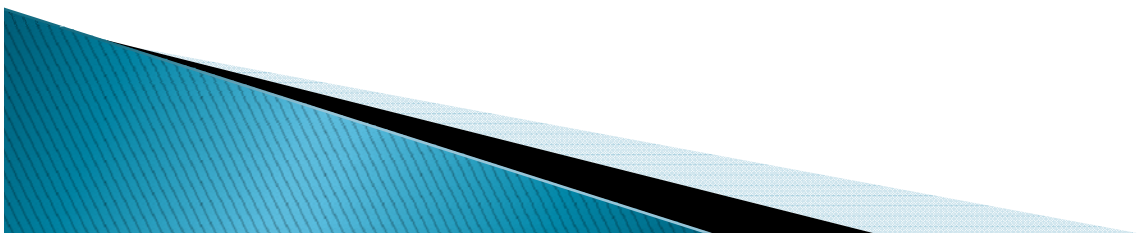
Preventing academic dishonesty in the laboratory

- To prevent falsification of results, faculty could emphasize more on the process of conducting experiments rather than the results of the experiment.
- These strategies outlined may curtail academic dishonesty in Generation Y students, particularly if the students are allowed to be involved in the decision-making process of implementing effective strategies to prevent academic dishonesty.



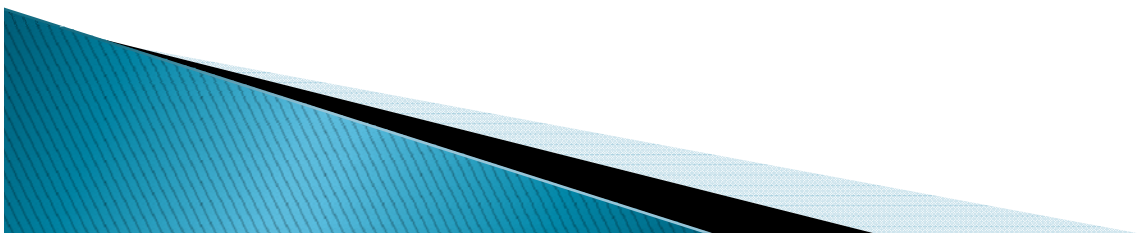
Limitations of Study and Recommendations for Future Research

- First, this study examined students' perceptions of academic dishonesty across only four disciplines in a small College of Professional Studies in a university located in the southeastern United States. It would be worthwhile to replicate this study with a larger number of disciplines from different universities



Limitations

- Also, in this study, student responses were not analyzed for gender or class standing. Such an analysis could provide more insight into the student responses.
- Additionally, it is worth mentioning that the researchers could not ensure ethical responses by the students to the academic dishonesty survey.



Teacher Scholar Model

Facilitator

Rasha Morsi, Engineering

Provost Shah's Closing Session Remarks

- Teaching and Scholarship are equal
- Boyer's Model
  - Scholarship of Education
  - Scholarship of Integration
  - Scholarship of Interdisciplinary integration
- Need to have the will and operate to ensure teaching and scholarship and service are accommodated
- Support and promote all of these

Boyer's Model of Scholarship

by Marta Nibert,
Educational Consultant for Occupational Therapy

Scholarship Reconsidered: Priorities of the Professorate

by Johnny Knight,
ABC Systems

Disclaimer

- All text presented here is taken verbatim from the references mentioned. It is merely bulleted/organized to allow reflection on the content. A footer on each slide will reveal which source the text came from to minimize use of quotations etc in the slides.

Boyer's definition of Scholarship

- Expanded definition of "scholarship"
- ***Four Functions that define Quality Faculty Members:***
  - ***discovery,***
  - ***integration,***
  - ***application, and***
  - ***teaching.***

Discovery

- closely aligned to traditional research
- "first to find out, to know, or to reveal original or revised theories, principles, knowledge, or creations"[2]
- "the commitment to knowledge for its own sake, to freedom of inquiry and to following, in a disciplined fashion, an investigation wherever it may lead." (Boyer 1990:17) [2]
- Boyer stressed that new research contributions are critical to the vitality of the academic environment, and that his model does not diminish the value of discovery scholarship.[1]

Source: (1) Nibert (2) Knight

Integration

- Focuses on making connections across disciplines. [1]
- Creates new knowledge by bringing together otherwise isolated knowledge from two or more disciplines or fields thus creating new insights and understanding. [2]
- "serious, disciplined work that seeks to interpret, draw together and bring new insight to bear on original research." [2]
- So..
- One interprets one's own research so that it is useful beyond one's own disciplinary boundaries and can be integrated into a larger body of knowledge. [1]
- Integration may occur within or between teaching, research, and service scholarship. [2]

Source: (1) Nibert (2) Knight

Application

- focuses on using research findings and innovations to remedy societal problems [1]
- "How can knowledge be responsibly applied to consequential problems? How can it be helpful to individuals as well as institutions?" (Boyer 1990:22) [2]
- Includes service activities that are specifically tied to one's field of knowledge and professional activities. [1]

Source: (1) Nibert (2) Knight

Teaching

- central element of scholarship [1]
- involves developing the knowledge, skill, mind, character, or ability of others. [2]
- Too often teaching is viewed as a routine function and is often not the focus of professional development. [1]
- Many professors state that they are primarily interested in teaching, but they feel that their institutions do not value or reward excellence in teaching (Borra, 2001). [1]
- The academic community continues to emphasize and assign high value to faculty members' involvement in activities other than teaching (Royeen, 1999). [1]

Source: (1) Nibert (2) Knight

Boyer believes…

- All forms of scholarship should be recognized and rewarded,
- will lead to more personalized and flexible criteria for gaining tenure
- faculty members wrestle with conflicting obligations that leave little time to focus on their teaching role

Source: Nibert

Boyer's Model of Scholarship

Type of Scholarship	Purpose	Measures of Performance
Discovery	Build new knowledge through traditional research.	• Publishing in peer-reviewed forums. • Producing and/or performing creative work within established field. • Creating infrastructure for future studies.
Integration	Interpret the use of knowledge across disciplines.	• Preparing a comprehensive literature review • Writing a textbook for use in multiple disciplines. • Collaborating with colleagues to design and deliver a core course.
Application	Aid society and professions in addressing problems.	• Serving industry or government as an external consultant. • Assuming leadership roles in professional organizations. • Advising student leaders, thereby fostering their professional growth.
Teaching	Study teaching models and practices to achieve optimal learning.	• Advancing learning theory through classroom research. • Developing and testing instructional materials • Mentoring graduate students. • Designing and implementing a program level assessment system.

Source: Nibert

Implementing Boyer's Model

- Many institutions and accrediting organizations addressing concerns of external stakeholders by implementing changes based on Boyer's model
- Russell Edgerton (in DeZure, 2000) classified changes inspired by Boyer's work by compiling data from over 50 colleges, and statistics from the American Association for Higher Education's New Forum on Faculty Roles and Rewards.
- Edgerton identified three primary areas of activity:
  - setting new expectations for faculty roles,
  - redesigning the process of evaluating performance, and
  - rethinking the way faculty are recognized and rewarded.

Source: Nibert

Edgerton Observed

- fundamental changes in campus climates,
  - broad-based discussions about the role of teaching and
  - reinforcement by faculty rewards systems.

- Funding agencies, such as the National Science Foundation and the National Endowment for the Arts and Humanities, have begun to follow suit by expanding programs that explicitly improve teacher preparation, curriculum development, and learning infrastructure.

Source: Nibert

Faculty isolation and fragmentation

- Massy, Wilger, and Colbeck (2000) conducted more than 300 interviews of faculty from varied types of institutions (research universities, doctoral-granting institutions, and liberal arts colleges) and from a cross-section of disciplines
- Three main factors that contribute to faculty isolation and fragmentation:
  - Fragmented communication patterns interfere with the way faculty communicate with one another about undergraduate education.
  - Tight resources limit opportunities and strain relationships.
  - Attempts to create environments that encourage faculty interaction are undermined by current reward systems.

Source: Nibert

Commonalities among departments who maintain a supportive culture for all forms of scholarship.

Source: Nibert

- Faculty interact frequently, fostering a healthy awareness and respect of diverse qualities possessed by colleagues.
- Decisions are made by consensus: all faculty members have the opportunity to be involved.
- There is a sense of generational equity: senior and junior faculty are viewed as equals.
- Peer assessment is perceived as a source for growth – not punishment

Source: Nibert

- Workload equity:
  - all faculty teach the same number of classes, and an equitable mix of levels, ranging from introductory courses to service courses and advanced seminars.
- Course rotation systems familiarize all faculty with the entire curriculum.
- Faculty value students evaluations and use them periodically to improve curricula and instruction.
- Incentives for research, service, and quality teaching are balanced.
- Effective department chairs are viewed as playing a critical role.

Source: Nibert

Conclusion

- Balanced focus on all forms of scholarship is necessary to meet the demands of the information age as well as escalating expectations of institutional stakeholders
- Often this is distorted by perception that the scholarship of discovery (i.e. research) offers the best opportunity to generate new funding sources and prestige.
- Celebrating and rewarding all forms of scholarship on an equal playing field needs to be a top priority of
  - anyone in a leadership position in higher education who sets policy and allocates resources,
  - to tenure committees that mold behavior of new faculty,
  - to senior faculty who model explicit and implicit expectations associated with their job descriptions

Source: Nibert

So… Back to Provost Shah's comments

- Need to have the will and operate to ensure teaching and scholarship and service are accommodated
- Support and promote all of these

Discussion

A Presentation to the Faculty of Norfolk State University

School of Science, Engineering, and Technology:

Retention, Persistence and Graduation

Patricia Pierce Ramsey, Ph.D.

Overview

- The National Scene:
  - Accountability and Assessment
  - Systems of Accountability
- Strategies
  - Know the National Trends
  - Know Your Institution
- Retention or Persistence to Graduation?
- Winning the Game: Graduation
- Questions

The National Scene

- **Accountability/Assessment**
  - In today's economy, accountability is the "watch" word. During the Bush administration, Secretary of Education, Margaret Spellings convened a commission on the future of higher education.

Accountability/Assessment Issue Paper

- *Summary by* Charles Miller & Geri Malandra *: The following material sets out many of the problems faced in higher education today, as well as some promising efforts in dealing with those problems. These problem statements provide a decision path by which the Commission in making its recommendations might deal with such problems, with a focus on "accountability."*

...Accountability/Assessment Issue Paper

- There must be answers to the question posed by *(former)* U.S. Secretary of Education Margaret Spellings in her inaugural remarks to the Commission, "what do we Americans expect from our shared investment in higher education?"
  - • Beyond lofty vision statements, parents need better answers to the question, "is this the right school for my student?"
  - • Policy makers and consumers need better information to answer the question "is our investment in higher education paying off---are we getting what we paid for?"
  - • The public should care about the higher education outcome of every student.

...Accountability/Assessment Issue Paper

- Hundreds of billions of dollars are spent each year on postsecondary education by the federal government, by states, by parents, by students and by employers.
  - Despite this investment, the results are not merely disappointing---they are of grave concern.
  - • College costs are going up much faster than family income, but it seems as if there is no focus on productivity or efficiency.
  - • Among 30 member nations of the Organization for Economic Cooperation and Development, the United States now ranks just seventh in the percentage of citizens who enter postsecondary education and then complete a bachelor degree or postgraduate program. Canada, Japan, Korea, Finland, Norway, and Sweden all have higher graduation rates than the United States.

...Accountability/Assessment Issue Paper

- While the percentage of students entering higher education has increased 20 percent in 20 years, the number graduating has only gone up three percent.
- A significant portion of students are graduating without the skills we should expect from a college degree.
- In the most recent National Assessment of Adult Literacy (NAAL) survey, less than one-third of college graduates could demonstrate an ability to read complex tests and make complicated inferences.
- In the NAAL survey, 25 percent of college graduates scored high enough to be deemed "proficient" from a literacy standpoint.
- And, most alarming given increased investment in higher education, these rates have actually declined over the past decade.
- In the National Survey of America's College Students (NSACS), the American Institutes for Research found this year that 20 percent of four-year degree holders and 30 percent of two-year degree holders have only basic quantitative literacy skills, like calculating the total on an office supply order.

Systems of Accountability

- The American Association of State Colleges and Universities (AASCU), of which Norfolk State is a member, and the National Association of State Universities and Land Grant Colleges (NASULGC) developed the voluntary system of accountability (VSA) and encouraged institutions to participate.

....Systems of Accountability

- VSA institutions were to place information regarding retention rates, graduation rates, SAT scores of freshmen, etc. on their websites. This author contends that institutions such as HBCUs that have a mission to provide educational opportunities to those who otherwise might not have an opportunity for an education, are placed at unfair advantage if these indicators are used as the measures of success of the institution.

....Systems of Accountability

- However, as it seems that these institutions are not at the table when the decisions are being made. Therefore, they must abide by and be measured by the indicators developed by those who may not be familiar with the unique challenges of institutions such as the HBCUs.

....Systems of Accountability

- Consequently, HBCUs must be familiar with the “rules,” develop strategies that allow the institution to be competitive, within the existing rules, develop new/additional indicators that tell your story, in comparison to your institutional peers.

Strategies: Today, we will discuss some strategies that will enhance NSU's competitiveness.

- Know the national trends
  - What is the U.S. Dept. of Education's definition of retention rate?
  - What is the U.S. Dept. of Education's definition of graduation rate?

Definitions

- Retention Rate: The percentage of first-time, full-time, first semester, degree seeking students that return the following fall.
- Graduation Rate: The percentage of first-time, full-time, first semester, degree seeking students that graduate within six (6) years.

Know Your Institution

- The NSU Mission Statement?
- The NSU Retention Rate?
- The NSU Graduation Rate?

From NSU's Strategic Enrollment Management Plan

Retention Targets

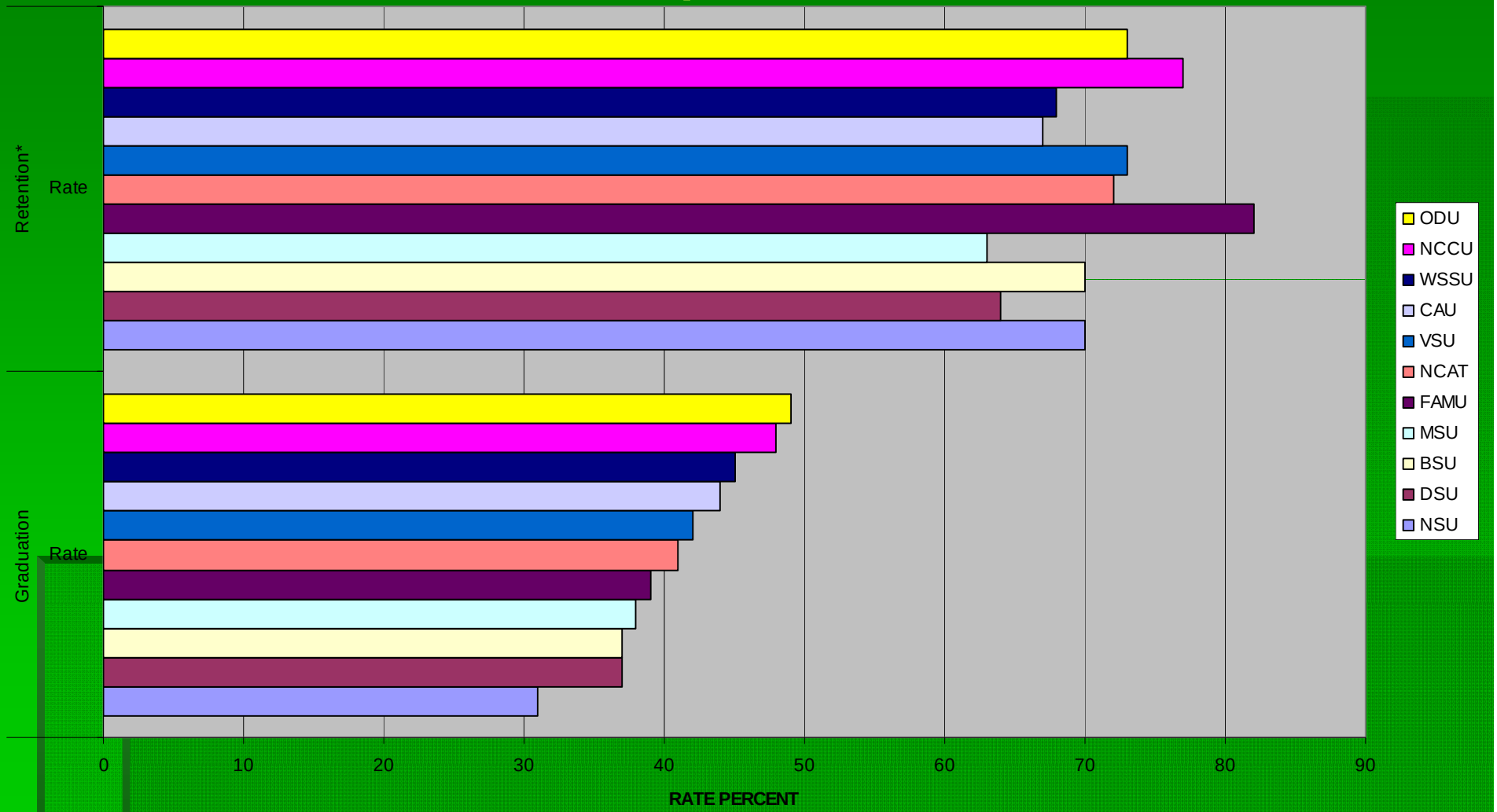
Retention is the number one component required for sustained enrollment. Retention rates must incorporate best practices that are the best fit for NSU. Strategies required for a consistent 73% retention rate must be fully developed in a comprehensive Retention Plan developed by The Office of the First-Year experience in collaboration with Academic Affairs, Student Affairs, academic departments and Enrollment Management. Historical retention rates and goals for retention are detailed in the adjacent table. To ensure graduation rates, retention must be measured for each entering class at each fall term. Additional strategies for spring retention tracking may be utilized to gauge progress. However, it is realistically more manageable to report these indices during the fall of each year.

Fall Cohort Term to Subsequent Term	First to Second Year	Second to Third Year	Third to Fourth year	Fourth to fifth year	Six-Year Graduation rates
Fall 1999 - 2000	64%				24%
Fall 2000 - 2001	66%				22%
Fall 2001 - 2002	71%				27%
Fall 2002 - 2003	70%				28%
Fall 2003 - 2004	63%				27%
Fall 2004 - 2005	66%	52%	47%	35%	29%
Fall 2005 - 2006	68%	53%	48%	36%	30%
Fall 2006 - 2007	70%	55%	49%	37%	32%
Fall 2007 - 2008	71%	56%	50%	39%	33%
Fall 2008 - 2009	72%	57%	51%	40%	34%
Fall 2009 - 2010	**73%**	**58%**	**52%**	**41%**	**35%**

Retention or Persistence to Graduation?

- Although retention is quite important, it's not the goal, it's simply a means to reaching the goal. THE GOAL IS GRADUATION.
- The next slide is very telling as it relates to this.

NSU Retention & Graduation Rates Compared to Peers



Source: IPEDS 2006-07
(Most Recent Data)

Causes of Attrition

- In ACT's 2004 report, " What Works in Student Retention – Four Year Public Colleges" (Habley, 2004), it was revealed that 5 institutional factors make the greatest contribution to attrition at four-year public colleges: 1. amount of financial aid available to students, 2. student-institution fit, 3. student involvement in campus life, 4. academic advising and 5. social environment.

Retention and Persistence Plan

- The development of a plan, exhibits the University's commitment to increasing the four-, five and six-year graduation rates.

PROMOTING STUDENT PERSISTENCE AND RETENTION THROUGH INDIVIDUAL AND COLLECTIVE ADVOCACY

Retaining & **E**ngaging students through **A**dvocacy and **C**ollegial **H**armony **(REACH)**

(Dr. Kimberly Whitehead)

Contributors

Dr. Antoinette Coleman, Dean, SPS
Dr. Audrey Lucas, Assistant Prof – Dept. of Counseling
Mrs. Mariann Hawken, Online Course Designer- Division of Information Technology
Mrs. Dian Mitchell, University Registrar
Ms. Pamela M. Perkins, Account Analyst – Student Accounts
Ms. Deborah Stanley, Director of Financial Aid
Mr. Patrick Toney, Academic Advisement Specialist
Mr. Corey Walker, Program Research Analyst -OPAA
Mr. Frank Waller,
Dr. Kimberly D. Whitehead, Special Assistant to the Provost

The Specifics of the Plan

- The plan addresses several facets of the undergraduate experience which impacts retention and persistence including: academic programming, academic enhancement and student services, student satisfaction and a system of recognition for individuals from all University constituent groups, internal and external, who support and ensure that students succeed at the university.

Set Aggressive Goals.

AGGRESSIVE PERSISTENCE, RETENTION AND GRADUATION GOALS (From the BSU Plan)

- By AY 2012, increase the number of undergraduate teacher education, nursing and IT graduates by 30% over the number of graduates in AY 2007.
- Increase the second-year student retention rate to reach or exceed 80% by AY 2012, from the baseline of 72% in AY 2007.
- Increase the graduation rate for students graduating within six-years to 51% by AY 2012, from the baseline 38% in AY 2007.

Winning the Game

THANK YOU!

Questions?

STEPHEN P. NORRIS

Synthesis of Research on Critical Thinking

Students need more than the ability to be better observers; they must know how to apply everything they already know and feel, to evaluate their own thinking, and, especially, to change their behavior as a result of thinking critically.

The field of critical thinking is more vibrant than ever. There is much research in progress on the meaning of critical thinking, on the transferability of critical thinking skills to a wide range of subject areas, and on methods of teaching critical thinking. A substantial body of knowledge exists in the area, and it is possible to suggest with confidence some research results to help teachers. In offering these suggestions I interpret research broadly to include not only empirical research, but also philosophical and policy research.

Critical Thinking Is a Complex of Many Considerations.

Thinking critically can be defined as rationally deciding what to do or believe (Blair, 1983; Ennis, 1981; Hitchcock, 1983). To be rational about such decisions requires more than avoiding some standard list of errors in thinking. Being a critical thinker of course implies assessing the views of others and one's own views according to acceptable standards of appraisal. But it implies more than this. One must also be *productive*, in the sense of conceiving of alternative courses of action and candidates for belief, before critically appraising which alternative to choose. People must be able to produce reliable observations, make sound inferences, and offer reasonable hypotheses. Finally, one must have the *disposition* to think productively and critically about issues, or else no amount of skill in doing so will be helpful.

Critical Thinking Is an Educational Ideal.

For many people in education it might seem like a needless question to ask why critical thinking is desirable. It is like asking why education is desirable. It can be argued that both are worthwhile *in themselves*. However, just mouthing or blindly concurring with an educational goal provides fragile support for it. There needs to be a justification for the teaching of critical thinking based on grounds that would be considered sound no matter what the current trends.

Recent work by philosophers of education begins to provide this needed justification (McPeck, 1981; Siegel, 1980, 1984). According to their view, critical thinking is not just another educational *option*. Rather it is an indispensable part of education, because being able to think critically is a necessary condition for being educated, and because teaching with the spirit of critical thinking is the only way to satisfy the moral injunction of respect for individuals, which must apply to students as well as to anyone else. According to this reasoning, students have a *moral right* to teaching that embodies the spirit of critical thinking and a *moral right* to be taught how to think critically. Thus, to abide by the moral principle of respect for persons, teachers must recognize "the student's right to question, to challenge, and to demand reasons and justifications for what is being taught" (Siegel, 1980, p. 14). In addition, there is a responsibility to teach them to do these things well, because in the end students must choose for themselves; there is no escaping this truth.

Critical Thinking Ability Is Not Widespread.

Many claims that critical thinking is not widespread are based on anecdotal evidence. However, more systematic research also suggests that most high school and college students do not perform extremely well on the kinds of tasks that are used to indicate critical thinking competence, and there is evidence to suggest that adults fare no better. In addition, there is considerable evidence on the consequences of people failing to subject their behavior to the standards of critical thought.

Evidence from performance on critical thinking tests. The most widely known general critical thinking tests are the Cornell Critical Thinking Tests, Levels X and Z (Ennis and Millman, 1985) and the Watson-Glaser Critical Thinking Appraisal, Forms A and B (Watson and Glaser, 1980). For the Cornell Tests, critical thinking is defined as "the process of reasonably deciding what to believe" (Ennis, Millman, and Tomko, 1985), with this rea-

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Author's note: *I thank Robert Ennis, Michael Jackson, Richard Paul, and Linda Phillips-Riggs for their helpful comments on an earlier draft of this article.*

sonable decision making to be carried out in accord with certain principles of thinking (Ennis, 1980). Test items are intended to indicate whether examinees have a knowledge of these principles and their application. The highest reported median score on Level X is 48 out of a possible score of 71, obtained by 10th grade history students, and the lowest is 29, obtained by above average IQ 8th grade students. On Level Z, median scores reported for undergraduate university students are 30 out of a possible 52. These test results suggest that the level of critical thinking is not extremely high at any level of schooling, a disturbing result if it can be confirmed.

The Watson-Glaser Tests are designed to measure such things as ability to recognize assumptions, to evaluate arguments, and to appraise inferences. Results for high school students indicate median scores of between 41 and 47 out of a possible 80, with an increase in scores occurring with grade level. Median scores for college students range from 52 to 60. The students who do the best on the tests are enrolled in MBA and medical programs, with median scores of 66 and 68 respectively.

If we note that the problems posed on these tests are the sorts of problems we would like everyone to be able to solve well, then the results demand some attention from educators. By and large, median scores are low, indicating that at least half the student population cannot consistently think critically about the problems on the tests. This conclusion is in concert with recent findings in my research using a test of a single aspect of critical thinking—the ability to appraise observations. High school students' scores on the test averaged 49 percent, and ranged from less than 2 percent to 74 percent, with 90 percent of students scoring less than 65 percent (Norris and King, 1984). The test has about a 6th grade reading level, seemed to capture students' interest and diligence, and was well understood by most, leaving poor critical thinking ability as a very plausible explanation of low scores.

Evidence from psychological research. Psychological research on thinking does not usually deal directly with critical thinking. Some studies focus on errors of adults' thinking; others examine the thinking of experts in particular fields to discover how they approach problems differently from novices; while others examine how quality of thinking bears on social relations such as obedience to others and authority over others. Each of these sorts of research is relevant to education. It is helpful to know the errors in reasoning that persist into adulthood so that preventive measures might be taken in schools. It is also useful to know how experts think, since this can provide guidance for instruction in good thinking. Finally, it is crucial to know how critical thinking, or lack of it, affects our social relations.

One of the most extensive reports of studies conducted on the quality of adult thinking focused on aspects of the inferential ability of adults and indicated that there are systematic tendencies to err on some of the simplest judgments of everyday affairs (Nisbett and Ross, 1980). One such situation involves the determination of whether or not two things are associated. Consider the diagram in Figure 1. The numbers indicate the number of cases in which a disease was present or absent. Thus, the present/present cell indicates that in 20 cases the symptom and the disease were present together; the cell to its right indicates that on 10 occasions the disease was absent when the symptom was present, and so on. A common error, among many others, is to conclude that the symptom and the disease are related because more people who have the symptom have the disease than who have the symptom and do not have the disease. This thinking is erroneous. The main problem is failure to recognize that *all* the information must be considered together to arrive at a legitimate conclusion.

Similar errors are made by people who conclude that running is bad for you because people have died of heart failure while running, that smoking does not cause cancer because they know many people who smoke who have not contracted cancer, and that rural people are more hospitable than city people because the rural people they have met are hospitable. One aim of critical thinking instruction is to improve thinking about matters such as these.

A famous piece of research on the effects of quality of reasoning on social relations was conducted by Stanley Milgram at Yale University more than two decades ago (Milgram, 1963). The experiment studied the degree to which people will allow their commitment to obey someone in authority to override other competing moral principles. Contrary to all predictions, obedience to authority led to frightening and telling results.

The subjects were studied separately. Each was ordered to administer electric shocks to a learner whenever the learner failed to perform correctly. The subject administered the shocks by pushing a series of switches on an elaborately designed panel. The switches were clearly labeled with voltage readings ranging from 15 to 450 volts and with descriptions: slight shock, moderate shock, strong shock, very strong shock, intense shock, extreme intense shock, danger: severe shock, and just the letters XXX on the last two switches. The subject was told to push the next higher switch each time the learner failed to respond correctly. The learner was in a separate room visible to the subject through a window, and communicated answers to the subject by pushing buttons.

The learner was an actor and a confederate of the experimenter, and no real shocks were administered. The learner responded to the various "shocks" in standard ways. When the subject administered the 300-volt shock, the learner (who was bound to his chair) pounded on the wall of the room so that the subject could hear. From this point on the learner gave no more responses to the subject's questions. The experimenter asked the subject to continue and to treat no response as an incorrect one. If the subject hesitated, the experimenter

Figure 1. Association Between Symptom and Disease.

	Disease A	
	Present	Absent
Symptom X Present	20	10
Symptom X Absent	80	40

gave an order to continue. Despite "profuse sweating, trembling, and stuttering" only 14 of the 40 subjects defied the experimenter's order and refused to continue the experiment to the end. The remaining 26 subjects continued until the maximum shock of 450 volts was administered.

What do the results mean? The subjects, all adults, knew from childhood that it is wrong to hurt other persons against their wills. Yet, the majority of the subjects violated this principle on the command of someone who had no way to enforce his commands, and no way to punish those who disobeyed. From their expressions and words, many subjects clearly knew that they were acting immorally, yet they continued with the experiment. The results point to a breakdown between critical thought and action, a link that instruction in critical thinking is intended to forge.

Critical Thinking Is Extremely Sensitive to Context.

This is true for two reasons. First, the inferences and appraisals of inferences that a person can justify making depend on the background assumptions, level of sophistication, and concept of the task. Inferences that do not agree with those sanctioned by a test or with those a teacher might make do not necessarily indicate a critical thinking deficiency. There are other possible sources of the disagreement. Therefore, assessment of critical thinking competence *must* take into account the context in which the thinking is done.

This is never more apparent than in attempting to assess people's ability to make and appraise inferences. Ennis (1984) cites an example from the Watson-Glaser Test that requires the examinee to make certain political assumptions in order to choose the correct answer. Making one set of assumptions leads the examinee to choose the keyed answer, while making another set would mean selection of a response that would be marked incorrect. In Ennis' view, it is unfair for political beliefs to influence scores on a critical thinking test because such beliefs are "value judgments about which there is possible [reasonable] disagreement and which are not constitutive of critical thinking." So, in interpreting scores on the test, it is important to understand students' background assumptions because they help determine the context in which students reason and justify the conclusions students reach.

Second, critical thinking is sensitive to context because context can dramatically affect the quality of one's performance. This is a highly confirmed result in the area of deductive logical reasoning (Evans, 1982). Deductive logical reasoning is based on the form of the reasoning rather than on its content. Simply put, the question of whether or not a conclusion follows from some reasons is answered in deductive logic by examining the *structure* of the reasoning. If the structure is of a deductively valid form, then the conclusion follows. This decision about structure is made independently of the content of the reasons and the conclusion. Despite this, people reason better deductively when dealing with thematic contexts, with contexts that relate to their personal experience, and when they do not have presumptions about the truth of the conclusion. In addition, deductive reasoning performance is lowered in contexts involving threats and promises. There is reason to think that context will also affect critical thinking performance (McPeck, 1981; Norris, 1985).

Assessments of Critical Thinking Should Seek Explicit Indications of People's Reasons for Their Conclusions.

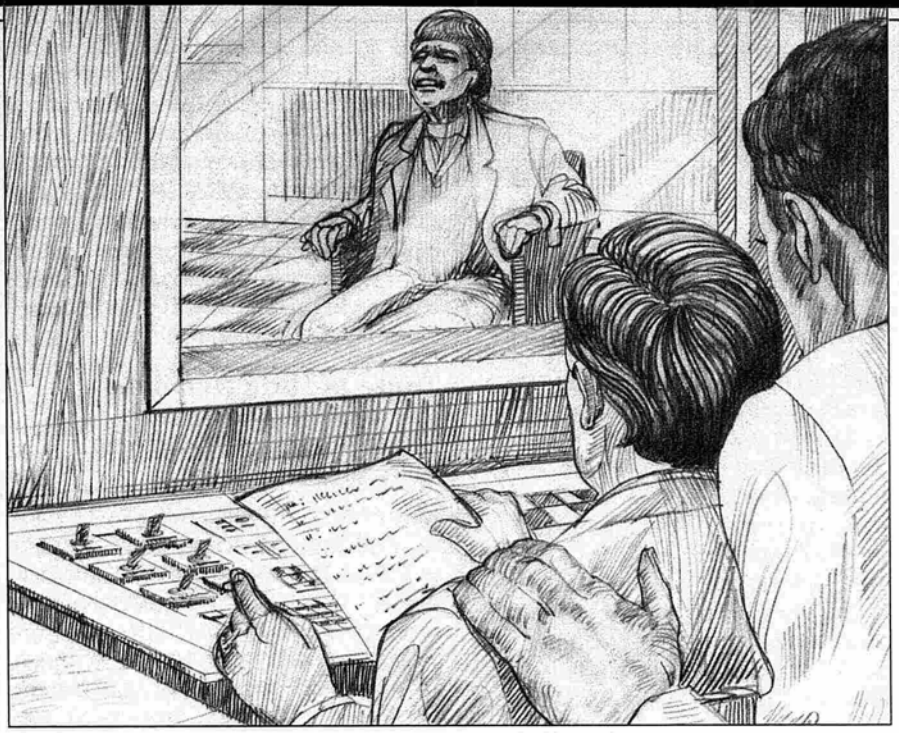
Explicit indications of people's reasoning are required in order to differentiate between deficiencies in thinking and differences in background beliefs and assumptions between the examiner and the examinee. Most critical thinking tests do not provide information about what the examinee is thinking. That is, they provide only the conclusions to thinking processes, not the processes themselves. This is particularly troublesome when test scores have direct implications for individuals, but can be alleviated in part by seeking reasons for answers on such standardized objective tests. Another technique is to use essay instead of objective tests. Essay tests are harder to grade, but they do lead to a more profound insight into the thinking processes the examinee used in arriving at solutions. The Ennis-Weir Critical Thinking Essay Test (Ennis and Weir, 1985) is one to consider in this regard.

In our research (Norris and King, 1984) we have addressed this problem by using protocols of students' thinking in the design of a critical thinking test on appraising observations (Norris and King, 1983). Test questions are put in the context of stories. One of the stories describes a traffic accident at an intersection, and people who were either involved in the accident or who were bystanders report on what they observed. Examinees are to judge the believability of the reports. Such factors as the observers' conflict of interest, their expertise, and their emotional condition are relevant factors in making the evaluations. We asked a sample of high school students to think aloud as they worked through the questions. The protocols assisted in adjusting the test until good and poor thinking were associated, by and large, with keyed and unkeyed answers. The following example illustrates one such adjustment.

The introduction to an earlier version of the test provided a list of the names of all the characters and what they were doing at the time of the accident. Since there were several characters in the story with different roles, we thought that providing the names in a single list would help students keep them straight. However, this raised unexpected problems. For the first six items many students referred to the introduction for evidence to support their choice of answers. While this is a legitimate thinking strategy, it contributed to uncontrolled influences on students' responses and thence to unjustified interpretations of the quality of their thinking.

For example, in item 1 two people who were in a car when the accident occurred, but who were not involved in the accident, reported on the number of cars at the intersection. Martine, the driver, reported that there were three cars. Pierre, a passenger, was reading a map and trying to decide which way to go. He said there were five cars at the intersection. The keyed answer is that Martine's statement is more believable. Good critical thinking would lead to this response because Martine, who was driving, would tend to be more alert to the number of cars than would Pierre.

However, several students chose the correct answer by referring to the introduction and counting the number of cars mentioned there. The introduction did not say how many cars were at the intersection, but does mention



"From their expressions and words, many subjects clearly knew that they were acting immorally, yet they continued with the experiment. The results point to a breakdown between critical thought and action, a link that instruction in critical thinking is intended to forge."

three cars that were involved in the accident. Thus, a student who was not thinking critically would assume that the number of cars at the intersection equalled the number of cars in the accident, whereas the critical thinker would realize the fallacy of this reasoning. Thus, the noncritical thinker would be rewarded with getting the item correct through an unsound thinking process. Having obtained records of the students' thinking, we were able to more accurately interpret their choice of answer and to make suitable modifications to the test. Without explicit indications of examinees' reasons for their conclusions, the test would not likely have been modified in this way, and thus would have continued to yield inaccurate indications of level of critical thinking.

Readily Identifiable Errors in Thinking May Be Indicative of Thinking Errors at a Deeper Level.

Errors in thinking are often described in terms of fallacies committed or principles of good thinking violated. However, addressing these deficiencies directly, and even correcting them, may not be a complete solution to the problem of poor thinking. In addition to what are often called *cognitive* or *nonexecutive* thinking skills, sound thinking also requires the use of *metacognitive* or *executive* skills. Cognitive skills are those directly used in carrying out some task and are the ones on which instruction typically concentrates. Recent studies have shown that in addition to these cognitive skills, good thinking involves the use of such metacognitive skills as planning, monitoring, and revising the progress of the cognitive skills. In the area of reading comprehension, for example, Brown (1978) has found that the sound use of metacognitive skills marks an important difference between better and worse readers.

Some of the more important information on this topic derives from research on the thinking of experts in particular areas compared to novices. The assumption is that experts should be critical thinkers (at least in their own fields) and that studying how they think ought to provide insights into how we can make novices into critical thinkers. Two features become immediately apparent when experts are studied closely: they possess far more information than novices and have automated many of the sequences in a problem solution; they are thus capable of arriving at a correct solution in far less time than the novices. Support for this belief lies in the research on expert and novice performance in solving physics problems (Larkin and others, 1980).

The possession of more information and more automated problem-solving techniques is, however, only part of what distinguishes the expert from the novice. Another difference involves the heuristics (problem-solving methods) employed by both groups. Typically, novices solve problems by working backward from the unknown solution to the facts that are given in the statement of the problem. Working backward in this way is usually thought to be a sophisticated strategy. Experts are more discriminating in their approach. When problems seem amenable to relatively straightforward solution, experts work forward from the given facts without any particular planning, except to generate as much information about the problem situation as is possible with the facts provided. Their thinking is that the solution will turn up among this information. Working-backward strategies are employed by experts only for more difficult problems.

In addition to this initial decision regarding the direction in which to work, expert physicists spend time at the beginning of a problem deciding on the appropriateness of other features of their approach. For example, they decide whether a qualitative or a quantitative approach is better, whether or not to employ a pictorial representation of the situation, and which physical principles seem most relevant to the problem. In short, the expert physicist approaches a problem by first making decisions about the overall strategy to be used before getting down to the actual process of solving the problem. The novice, on the other hand, gets immediately to work at the problem-solving process. The time the expert spends in initial planning pays off in the end.

Our current research supports the finding that the initial stage of problem solution is most crucial. The better thinkers on our observation test concentrate initially on identifying the correct problem they are to solve. Poorer thinkers usually fail to identify the correct problem, may simply repeat details of the item as their response to the problem, and often become embroiled in irrelevant details of the story line, which lead them on tangents away from the real problem they are to solve. Typically, they do all of this without any apparent recognition of the fact that they are going astray.

The Critical Spirit Is as Important as Skill in Critical Thinking.

No matter what level of critical thinking skill a person possesses, it is of no practical benefit unless the person is disposed to use these skills when they are appropriate (Sternberg, 1983); that is, unless the person has the critical spirit. This spirit has three requirements. The first is to employ critical thinking skills in reasoning about situations encountered in the world. The second requirement is that critical thinking be *turned upon itself*, that is, to think critically about one's own thinking (Paul, 1982). Without this, critical thinking becomes mere criticism instead of an honest and open search for truth. To avoid this result, teachers must explain the value of the critical spirit and display it in their dealings with students. Finally, there must be a disposition to *act* in accord with the dictates of critical thought. Having the correct belief or knowing the right thing to do is not sufficient, as the Milgram experiment startlingly illustrated.

Critical Thinking Skills Are No Substitute for Experience, Common Sense, and Sound Knowledge of Subject Matter.

A set of critical thinking skills, however well developed, cannot compensate for lack of knowledge in the area in question. The application of critical thinking principles involves a competence over and above knowledge of the principles themselves (Ennis, 1980; Norris, 1984). Successful application requires, among other things, a knowledge of the subject matter, experience in the area in question, and good judgment. This realization can lead to the conclusion that critical thinking is best taught within the traditional subject areas rather than as a separate subject (McPeck, 1981), but nobody really knows which approach is better (Norris, 1985). There is good reason to believe, however, that principles of critical thinking taught without *any* view to their application to real world problems will not be beneficial.

There Is Little Detailed Knowledge About the Effectiveness of Teaching Critical Thinking.

Research on the effectiveness of critical thinking instruction almost invariably uses indicators of effectiveness that are insensitive to fine details. The research typically concludes that instruction is effective (Annis and Annis, 1979; Frank, 1969; Moll and Allen, 1982; Ross and Semb, 1981; Wolf and others, 1968; Wright, 1977; Yeazell, 1981). In these studies, and ones like them, classes of students experience a treatment designed to improve some aspect of their thinking ability. The treatments usually consist of a unit of work extending over a few weeks or as long as a year, and are based on the intuitions of the researchers about what ought to be effective instruction in thinking. The criterion for determining whether or not the treatment has a positive effect is often one of the general critical thinking tests mentioned earlier, or a test designed specifically for the study.

Many of the studies do not use control groups, so special care must be taken when interpreting their results. Regardless of any specific limitations on the research design, however, two issues emerge. There is little, if any, evidence on the long-term impact of instruction in critical thinking, despite the fact that the vision of such impact is central to the justification of critical thinking instruction. In addition, while the conclusion of the studies is usually that instruction leads to better critical thinkers, we do not learn what *specifically* makes these students better thinkers and in what *specific* ways they can still improve. Are they better thinkers because they have acquired a greater knowledge of principles of thinking, such as those proposed by Ennis, or because they tend to monitor more skillfully the progress of their own thinking, or because they have more completely

Highlights from Research on Critical Thinking

- **Critical thinking is a complex of many considerations.** It requires individuals to assess their own and others' views, to seek alternatives, make inferences, and to have the disposition to think critically.
- **Critical thinking is an educational ideal.** It is not an educational option. Students have a moral right to be taught how to think critically.
- **Critical thinking ability is not widespread.** Most students do not score well on tests that measure ability to recognize assumptions, evaluate arguments, and appraise inferences. Adults, as well, frequently make simple judgmental errors on simple problems.
- **Critical thinking is sensitive to context.** Students' background knowledge and assumptions can strongly affect their ability to make correct inferences. Inferences are more likely to be correct when the context relates to the individual's personal experience and when performance is not associated with threats or promises.
- **Teachers should look for the reasoning behind students' conclusions.** Coming up with a correct answer may not be the result of critical thinking. Essay tests are more likely to reveal the student's thought processes than are objective tests. And the tests themselves must be evaluated critically to make sure they require critical thinking skills.
- **Simple errors may signal errors in thinking at a deeper level.** In trying to solve complex problems, for example, students may err not just by making a miscalculation, but by using an incorrerct approach to the problem. They should be encouraged to take time before solving a problem to decide how to go about finding the solution.
- **Having a critical spirit is as important as thinking critically.** The critical spirit requires one to think critically about all aspects of life, to think critically about one's own thinking, and to act on the basis of what one has considered when using critical thinking skills.
- **To think critically, one must have knowledge.** Critical thinking cannot occur in a vacuum; it requires individuals to apply what they know about the subject matter as well as their common sense and experience.
- **We do not know a great deal about the effects of teaching critical thinking.** Critical thinking programs may teach students to be better thinkers, but more detailed knowledge is required before we will know specifically how students improve and how they remain deficient.

adopted Siegel's critical spirit? The problem is similar to one encountered with some studies of the power of certain science curriculums to teach scientific thinking processes. While many of these studies conclude that the programs are effective in, for instance, teaching students to be better observers (Ayres, 1969; Somers and Lagdamen, 1975; Wideen, 1975), they do not specify (because they never were designed to find) the detailed ways in which students have and have not improved (Norris, 1984). If diagnosis and remediation of specific flaws in reasoning are goals of critical thinking instruction, then more fine-grained information on the effects of particular teaching strategies will have to be sought.

The critical thinking field is on the move. Educators are willing to support the production of new teaching and testing materials and to introduce critical thinking instruction in schools and colleges. Much work remains to be done, but care is needed so as not to waste time and resources reinventing the wheel. Although there remain many differences of opinion about the nature of critical thinking and how it is best taught, there are suitable teaching and testing materials available for the practitioner wishing to get a start. While adaptation for local use is often desirable, local districts need not plan critical thinking instruction from the ground up. Sound foundations have been laid by a number of scholars. The main requirement is to think critically about the selection of critical thinking materials.□

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Changes in technology and the workplace have made the ability to think critically more important than ever before. Instruction designed to help college students think critically focuses on skills that are widely applicable across domains of knowledge and the disposition to use these skills.

Teaching for Critical Thinking: Helping College Students Develop the Skills and Dispositions of a Critical Thinker

Diane F. Halpern

It is twenty years since Robert E. Young served as guest editor of the issue of *New Directions for Teaching and Learning* titled *Fostering Critical Thinking* (1980) and thirteen years since James E. Stice accepted the same task in the issue titled *Developing Critical Thinking and Problem-Solving Abilities* (1987). These pioneers, including the authors of the chapters in these volumes, took us in a *new direction* in the early and mid-1980s, but where are we now, at the start of the third millennium, in our efforts to help students improve how they think? Young and Stice would be pleased to know that we have made progress in achieving the goals they set for us and would not be surprised to learn that we still have far to go.

The Naysayers Were (Mostly) Wrong

Many authorities in higher education did not enthusiastically embrace the idea that college students should receive explicit instruction in how to think. Not that the academic community was opposed to good thinking, but many educators believed that it was a misguided effort. For example, Glaser (1984) cited abundant evidence of critical thinking failures in support of his argument that thinking skills are context-bound and do not transfer across academic domains. Glaser and other skeptics were partly correct. Better thinking is not a necessary outcome of traditional, discipline-based instruction. However, when thinking skills are explicitly taught for transfer, using

multiple examples from several disciplines, students can learn to improve how they think in ways that transfer across academic domains. Rubinstein's highly successful course in problem solving (Rubinstein and Firstenberg, 1987), Lochhead and Whimby's analytical reasoning procedures (1987), and Woods's use of deliberate planning and monitoring (1987), all of which were described in Stice's volume, provided models of successful instruction in critical thinking that eventually swayed even the staunchest critics.

Many colleges and universities in North America now offer courses specifically designed to enhance their students' abilities to think critically, as part of the general education requirements. In fact, critical thinking instruction briefly assumed center stage on our national education agenda when the commission that wrote educational goals for the United States for the year 2000 established the following goal: "The proportion of college graduates who demonstrate an advanced ability to think critically, communicate effectively, and solve problems will increase substantially" (National Education Goals Panel, 1991, p. 62). Although support for the development of college-level thinking skills was a nonpartisan issue, with backing from both the Bush and Clinton administrations, no funding was ever provided to make this goal a reality. Nevertheless, dedicated professors and concerned community leaders have continued to define the enhancement of critical thinking as a primary reason for higher education.

Definitions and Assumptions

Young began his edited volume on critical thinking by asking, "Critical thinking: What is it?" (1980, p. viii). Although a variety of definitions has been offered in the intervening decades, most include the same underlying principles. Critical thinking refers to the use of cognitive skills or strategies that increase the probability of a desirable outcome. Critical thinking is purposeful, reasoned, and goal-directed. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions. Critical thinkers use these skills appropriately, without prompting, and usually with conscious intent, in a variety of settings. That is, they are predisposed to think critically. When we think critically, we are evaluating the outcomes of our thought processes—how good a decision is or how well a problem is solved (Halpern, 1996, 1998). This definition is broad enough to encompass a variety of viewpoints, so critical thinking can be taught as argument analysis (see, for example, Kahane, 1997), problem solving (Mayer, 1992), decision making (Dawes, 1988), or cognitive process (Rabinowitz, 1993). Regardless of the academic background of the instructor or the language used to describe critical thinking, all of these approaches share a set of common assumptions: there are identifiable critical thinking skills that can be taught and learned, and when students learn these skills and apply them appropriately, they become better thinkers.

Exciting Changes

For some college faculty, the new emphasis on critical thinking instruction has fundamentally altered what and how they teach. For example, there are several national efforts to teach statistics as a broadly applicable critical thinking skill, instead of teaching it as technique for data analysis (for example, Smith, 1995). Many of these new courses, with excellent materials for teaching and learning, are available on the Internet so that they can be adopted and modified by faculty who want to try new ways of teaching but do not know how to get started. A stellar example is a course called Chance, which has been designed to teach statistical principles using a variety of real-world problems and materials. It has an active Web site (www.dartmouth .edu /~chance/course/course.html) with courses being offered by local faculty on multiple college campuses, including Spelman, Grinnell, Dartmouth, Middlebury, and the University of Vermont. Real-life subject areas covered in these courses include polls and surveys, lotteries, AIDS, DNA fingerprinting, and smoking.

There are numerous places on the Web where faculty can find help if they want to change the focus of any course to make it more thinking skills based. Many of these sites are administered within individual disciplines. In psychology, the field I know best, there is a general-purpose site for college-level psychology courses called, appropriately, Psychplace. It contains learning activities designed to help students think critically about issues in the discipline (www.psychplace.com). One recent example from this site provides instruction in the use of argument analysis skills, featuring a debate by two psychologists over the importance of parents to the development of their children. In this example, critical thinking skills are applied to course content, with explicit instruction in both the skills and the content. Other teaching materials, including sample syllabi, reading lists, demonstrations, and learning activities, are collected at a site run by the division of the American Psychological Association dedicated to the teaching of psychology. The on-line materials are available, free of charge, at the Office of On-Line Teaching Resources in Psychology (www.lemoyne.edu/OTRP/).

The changing nature of technology has not only provided us with more and better ways to teach in general but has also increased the need for the skills of critical thinking. The easy availability, with just a few keystrokes, of massive amounts of information has made the ability to evaluate and sort information more important than ever. Furthermore, much of the information available on the Internet is not reliable, and some of it is deliberately and dangerously deceptive (as on sites that tout miracle cures for serious illnesses or offer deliberately biased accounts of history or current events). Thus the ability to judge the credibility of an information source has become an indispensable critical thinking skill that needs to be deliberately and repeatedly taught in college and earlier.

Dispositions for Critical Thinking

Another major change since the earlier editions of *New Directions for Teaching and Learning* that focused on critical thinking is the recognition that critical thinking instruction must also address student dispositions. It is not enough to teach college students the skills of critical thinking if they are not inclined to use them. Critical thinking is more than the successful use of the right skill in an appropriate context. It is also an attitude or disposition to recognize when a skill is needed and the willingness to exert the mental effort needed to apply it. Sears and Parsons (1991) call these dispositions the *ethic* of a critical thinker. Lazy or sloppy thinkers may have a large repertoire of critical thinking skills but not be inclined to use any of them. No one can develop expertise in any area without engaging in the effortful processes of thinking (see Wagner, 1997). Thus we need to find ways to make students value good thinking and the work that is needed to achieve that goal.

The How of Critical Thinking Instruction: A Four-Part Model

I recently proposed a four-part model of instruction for critical thinking (Halpern, 1998). Not surprisingly, it includes two parts we have already discussed—instruction in the skills and dispositions for critical thinking—but it also includes *structure training* as a means of improving the probability that students will recognize when a particular thinking skill is needed, even in a novel context. The problem in learning thinking skills that are needed in multiple contexts is that there are no obvious cues in the novel contexts that can trigger the recall of the thinking skill. With structure training, students are taught to create retrieval cues from the structural aspects of a problem or an argument so that when these structural aspects are present in the novel context, they can serve as cues for retrieval. I borrowed the term from Hummel and Holyoak (1997), who identified structure sensitivity as a fundamental property that underlies human thought: "First thinking is structure sensitive. Reasoning, problem solving, and learning . . . depend on a capacity to code and manipulate relational knowledge" (p. 427). For example, students may be able to explain why correlation is not causation when presented with this question on an exam but still not recognize that this same principle is operating when they read that children who attend religious schools score higher on standardized tests than those who attend public schools. Specific instruction in recognizing the structure of correlational problems can improve the probability that students will recognize these problems, even when the topic is different.

The last component of critical thinking instruction is *metacognitive monitoring*. *Metacognition* is usually defined as "what we know about what

we know," so metacognitive monitoring is determining how we can use this knowledge to direct and improve the thinking and learning process. While engaging in critical thinking, students need to monitor their thinking process, checking that progress is being made toward an appropriate goal, ensuring accuracy, and making decisions about the use of time and mental effort. In the jargon of cognitive psychology, metacognitive monitoring serves the executive function of directing the thinking process. It is made overt and conscious during instruction, often by having instructors model their own thinking process, so that the usually private activity of thinking is made visible and open to scrutiny.

Using the Principles of Cognitive Psychology

Advances in critical thinking instruction have for the most part been based on the general principles of cognitive psychology, such as those discussed by Marilla Svinicki in Chapter One. Critical thinking instruction uses what we know about the way adults usually think and what has been effective in making positive changes to "thinking in the default mode." Some of the changes have resulted from changes in the world around us—for example, the new demands and challenges of technology; others have been based on past successes that have shown that it is possible to help college students think better. Although it is always tricky to predict the future, I believe that critical thinking instruction will continue to be an important component in college curricula. Workplace demands are becoming increasingly complex, and higher education is more important than ever before. As long as critical thinking is a desired outcome of education, we will need to find ways to help students improve their abilities to think critically and their disposition to use these skills.

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The Evolution of E-Learning

Five experts in online education stress that, to reach a burgeoning community of e-learners, educators need to keep in mind three important **E**'s: **engagement**, **experience**, and **educational** value.

by Tricia Bisoux

Karen Mishra is a doctoral candidate at the University of North Carolina at Chapel Hill's School of Journalism and Mass Communication. Vaida Linartaite works as chief specialist in the Lithuanian government's law and information division in Vilnius. Both wanted to take an e-commerce course taught by Michael Rappa at North Carolina State University's College of Management in Raleigh—but their busy schedules and distant locations made it impossible to attend in person.

Thanks to the Internet and a digitally savvy professor, that wasn't a problem. Rappa includes an extensive online component to his course, "Managing the Digital Enterprise." He designed a comprehensive Web site at digitalenterprise.org, which incorporates course readings, links to online resources, video guest lectures, online student discussions, and podcasts in Rappa's own voice explaining each lecture topic. While 50 students attended Rappa's lectures in person, Mishra and Linartaite were among 15 who took the course completely online.

But did they learn as much as their in-class counterparts? Did they gain as much from interactions with other students? Both say, "Absolutely." While their experience of the course may have been different than those who attended in person, each emphasizes that it was just as educationally fulfilling.

"I found myself getting drawn into extensive online conversations with other students. I know I spent as much time or more on this course as I would have if I had taken it 'traditionally,'" says Mishra. "The downside is that I didn't get in-class time with Dr. Rappa; but with the addition of his podcasts for each module, I felt I still learned a great deal from him." She learned so much, in fact, that Rappa asked her to be his online teaching assistant this year.

Linartaite's job required extensive travel, so she could not take part in the discussions or ask a real-time question. She compensated by delving deeply into the site's resources, reading the discussions, and asking questions by e-mail. "E-learning is not easy, but I don't think I learned less comprehensively by taking the course online," says Linartaite. "What was amazing was how the online course combined theoretical knowledge with practical tasks."

Mishra and Linartaite represent a growing number of motivated, organized, and engaged students who are turning to online classrooms for their educational needs. A recent survey by the research firm Eduventures found that approximately 50 percent of consumers planning to enroll in a post-secondary educational program say they prefer taking courses presented entirely in an online format or balanced between online and face-to-face

illustration by David Cutler

The technology allows educational providers and students to tap into expertise anywhere in the world, without travel expense or scheduling conflicts.

—Som Naidu, University of Melbourne

instruction. A survey of 2,200 U.S. colleges and universities, a joint project of the College Board and the Sloan Consortium, found that nearly 3.2 million students took at least one online course during the fall of 2006—up from 2.3 million the previous year.

A small number of traditional universities have become successful, for-profit providers of online education. Last year, UMass Online, the University of Massachusetts' online education division, announced that its enrollment had increased by 23 percent and that its program revenue had increased to $22.9 million, up from $17.4 million the year before. The University of Maryland and Penn State University also have established successful for-profit online ventures. The University of Illinois at Urbana-Champaign recently announced its plan to launch its for-profit online degree program, The Global Campus, in 2008. Above all, educators are attempting to address common criticisms often aimed at online education providers such as the University of Phoenix—that online education models sometimes sacrifice quality for the bottom line. A number of faculty are working to develop best practices and pedagogy to make online education an extension of the quality found in their traditional classrooms.

BizEd asked five prominent educators and experts in online education to share their thoughts on the accelerating developments in online education: Som Naidu of the University of Melbourne in Australia; Rappa of NCSU; Robert Zemsky of the University of Pennsylvania in Philadelphia; Diana Oblinger, vice president of EDUCAUSE in Raleigh, North Carolina; and Lee Schlenker of EM Lyon in France. They address many questions that now face business educators: How do schools design online courses that keep students engaged? How can educators meet their learning objectives for all their students, both on campus and online, while also adhering to rigorous educational standards?

While these experts see great things ahead for online education, they acknowledge that some caution is warranted. Rappa, for instance, emphasizes that courses without high levels of faculty engagement, interactive activities, and student involvement can provide less-than-ideal learning experiences. Zemsky believes that most faculty have shown little interest in how online technologies and pedagogical structures operate. Until they do, he argues, options in online education may continue to be limited.

Still, stories like those of Mishra and Linartaite indicate that students are not only becoming more accustomed to learning in online formats—many are seeking out these opportunities. It falls to educators, these experts argue, to catch up to where students already are.

'The Right Tools to Learn'

Som Naidu
Executive Editor, Distance Education
Founding Editor, Electronic Journal of Instructional Science and Technology (e-JIST)
Associate Professor, University of Melbourne
Melbourne, Australia

Scientists have long studied the concept of "affordances"—that is, the ways animals, including humans, take advantage of the opportunities their environments provide. A person walking into a forest may see a path and think, "I can walk here." He may see a bench and think, "I can sit on this." The issue of affordances refers to how we find and use the tools at our disposal. When we look at online technologies, the concept of affordances is crucial. What tools are available to us? Which tools will students use? What tools will best help students learn?

One important affordance of online learning is flexibility, which allows students to learn at their own pace, at any time, from anywhere in the world. Another affordance is asynchronous communication, which allows students and faculty to communicate across time zones. I see this in my own experience. I'm a professor at the University of Melbourne in Australia, but I'm also an instructor for the University of Maryland in the United States. I've never seen or spoken to any of my students taking the University of Maryland course. Even so, the technology affords me the opportunity to teach them; it allows educational providers and students to tap into expertise anywhere in the world, without travel expense or scheduling conflicts.

Some of the current affordances of online education, however, are still far from ideal. Many course management systems that schools use to create online learning environments are still developed for the mass market. They are often simplified to the extent that they do not allow for many high-end simulations or modeling activities; they don't allow academics to do what they want or need to do to create the most effective online courses. Very few professors have the technological savvy to step outside these mass-produced systems to create their own, more flexible and interactive platforms. The rest are forced to confine the online component of their courses to lecture notes, PowerPoint slides, e-mail discussion, and other static material.

Even so, I'm seeing promising changes in the software

Instead of taping my lectures for off-campus students, I created 30-minute **podcast** "conversations," as if I were sitting down with each of them over breakfast.

—Michael Rappa, North Carolina State University

available. Companies like Blackboard are moving toward more customizable, open source platforms. They are thinking of ways to change their platforms to allow academics and others to develop their own simulations and learning tools that they then can operate within the system.

When it comes to online learning, we must overcome two important obstacles: a lack of understanding of the advantages that online technology affords and a lack of training to use that technology to best advantage. Professors who have been teaching their subjects for years often take into the online environment the same tools that they used in the classroom. In effect, they stop at the bench without traveling farther to see what else the forest may have to offer.

As educators, we need to make it our mission to explore all the technology at our disposal and provide the affordances that make online education rich and rewarding. Only then can we design optimum learning environments for students and provide them with the right tools to learn.

'The Future Is Great'

Michael Rappa
Professor of Technology Management
North Carolina State University
College of Management
Raleigh, North Carolina

Eight years ago, I decided to pursue a grand experiment: to explore what it would be like to be a professor 15 or 20 years in the future. I created a course called "Managing the Digital Enterprise," which would not only teach students about e-commerce, but also give them hands-on experience in today's digital media. I also designed a Web site, digitalenterprise.org, that incorporated all of my course materials and links to a variety of online resources.

I also decided not to limit access to the material to my students alone. I made the site open to any professor or student in the world. Today, hundreds of professors and thousands of students visit the site. A professor in West Virginia uses it as a textbook for her students. Professors in Florida and Singapore both put more students through the Web site than I do. Corporations send their workforces through the site and even support the effort monetarily to help us maintain the servers to accommodate the online traffic. It has been an amazing experiment.

I think, as educators, we have little choice but to embrace the technology wholeheartedly. We have to expect that, with each academic year, students will come to us with mindsets that have been increasingly shaped by the Internet. With each passing year, more will wonder why faculty aren't taking advantage of the technology as much as they could.

The good news is that the technology available to faculty is better than ever. More schools are providing additional tech support. There are user-friendly, open-source software platforms available, like WordPress, a free blogging tool. There are easy-to-use Web page editors like Adobe's GoLive, which faculty can use to design, customize, and control their own Web sites. This sets up an interesting paradox: New technologies make it easier for professors to develop online resources; but the longer faculty wait, the harder it will be for them to take the plunge.

New technologies like the audio- and video-sharing capabilities of podcasting and YouTube are especially exciting opportunities for faculty in terms of creating ongoing conversations with students. I discovered that when I taught my course to students at a distance for the first time. Instead of taping my lectures for off-campus students, I created 30-minute podcast "conversations," as if I were sitting down with each of them over breakfast. Students who listened to the podcasts were able to have more personal interactions with me and the material than a recorded lecture could provide; students who attended the lecture could listen to the podcasts to reinforce what they'd heard in class.

Online technologies also offer faculty an incredible analytical advantage when it comes to assessing students' mastery of the material. As a "digital professor," I know how many times students listen to my podcasts and what Web-based materials they return to most often. I know exactly how much time students spend in the online forum. I often joke that, while many professors *think* all students wait until the last minute to do their homework, I may be the first professor who *knows* it empirically. The data is all there. I learned that when deadlines were too close together, students often compromised performance on one project to complete another. So, I separated my deadlines to allow my students to work more effectively on each assignment. It has been exciting to wake up every morning and have a complete view of what's happening in my course.

Businesspeople involved with digital enterprises often report how much insight they have on their customers because of the data they collect. It's no different for academics. We can use the technology to understand our students

I've met faculty who say, "Students want to be on the **receiving** end of information. They don't want to hit '**Send**.'"

—Robert Zemsky, University of Pennsylvania

much better and make better decisions about how we reach them inside and outside the classroom. This is a great turn of events for educators.

The message, then, for business schools is to encourage faculty to move in new directions. If schools set performance criteria for their professors based on the past, they'll get professors who teach in the past. If schools set performance criteria based on the future, they'll encourage professors to move into the future.

And the message to professors is this: The future is great. It's much more fun than you might imagine.

'We're Back to Square One'

Robert Zemsky
Chair and CEO, The Learning Alliance
Professor, University of Pennsylvania
West Chester, Pennsylvania

A 2004 paper I wrote with Stanford professor William Massy outlined reasons why e-learning hasn't had as much impact as expected. Our paper, "Thwarted Innovation: What Happened to E-Learning and Why," points out that many educators expected a "whiz-bang" effect that would inspire whole new ways of teaching. Others believed it would significantly reduce the cost of educational delivery.

Today, however, we've made little progress on the "whiz-bang" front. Moreover, we've found that in some cases online courses actually cost more and take more time to deliver effectively than more traditional approaches.

But perhaps the most telling reason that e-learning has developed differently than we expected is that we didn't take the time to discover how students really use technology to further their educational goals. Today, we're realizing how little we really know about how students learn in online environments.

Case in point: The John D. and Catherine T. MacArthur Foundation recently offered $50 million in grants to universities and nonprofits over the next five years to fund research on how children use different technologies. That action is an amazing admission. It says that today, almost a decade into the online revolution, we're almost back to square one when it comes to understanding just how technology helps students learn.

But we are getting there. With the influx of classroom technologies, faculty have changed the way they teach. They've shifted from a lecture style to a more participatory style. They're creating student work groups, whose collaboration is often supported by online tools. They're requiring students to interact more with the material, using tools such as online multimedia and software simulations. However, most faculty are still just having students "bring all the chairs in a circle" and talk, whether in class or in online forums. Students are using e-mail, listservs, and video conferencing to communicate, but they're still not using it extensively to create learning networks. Faculty are using the technology to post course content and encourage online discussion, but many are still not using it to *teach*.

That might be slowly changing. I've met faculty who say, "We're going to do our own version of the Wikipedia," in which students and faculty all actively contribute to and continually update course content in an online format. That kind of project is certainly an intriguing use of the technology as a teaching and learning tool. Then again, I've met faculty who say, "Students want to be on the receiving end of information. They don't want to hit 'Send.'"

These two viewpoints indicate that we're still in a holding pattern when it comes to e-learning. As an industry, higher education isn't yet using the technology to its best advantage. We're not yet creating truly interactive learning environments. Eventually, it will happen, but not anytime soon.

'A Web of Co-Creation'

Diana Oblinger
Vice President, EDUCAUSE
Raleigh, North Carolina

We're seeing a fundamental change in education. Schools have changed, student expectations have changed, and the technology has changed. But the biggest change I've seen is in the way we think about online technology.

In the past, we viewed the Internet as a one-way channel that feeds users information. But that view is incredibly out of date. We now have resources like Wikipedia, YouTube, social networks, online chat rooms, instant messaging, and blogs,

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In the past, we viewed the Internet as a **one-way** channel that feeds users information. But that view is incredibly **out of date.**

—Diana Oblinger, EDUCAUSE

where users are creating and sharing information. The online environment has become a web of co-creation and information sharing. This development has empowered all users.

As more schools develop online learning options, they must keep this cultural shift in mind. As students take control over their own learning processes, educators are asking three important questions: How can we make the online learning environment an engaging environment, in which students are active participants in the learning process? How do we create learning activities that help them truly master the information? And how do we adapt the learning environment to suit students' different learning styles?

To engage students more fully in the process, many educators are following a pedagogical concept called "learning to be." This concept is an apprenticeship model of learning that teaches students how to *be* a manager or investment banker or accountant, not just learn the subject matter behind the disciplines. This concept is about more than delivering course content; it's about developing the habits of mind inherent in a professional field.

To design activities that truly teach students "to be," many educators are using a blended model of online and face-to-face opportunities that offer students greater flexibility in when and how they master the material. Students may listen to an expert speaking about a subject online, and then take part in an online simulation that puts them in a situation similar to the one the expert describes. Then, they may do exercises that allow them to reflect on the material or work in small groups to share their observations. Such experiences not only expose students to new ideas, but also allow students to try out the concepts for themselves.

Finally, to address different learning styles effectively, schools need to make sure that the technology they choose for each learning objective is appropriate for what they want to achieve. Too many people attempt to replicate a textbook's content on the computer screen, but this doesn't serve any purpose. Some material is best distributed on paper; other materials, such as video, audio, Web sites, online forums, and blogs, are best presented in the digital environment.

Most of us, including business schools, have not yet grappled with the fact that we're seeing a significant cultural shift. We're moving from the 1990s vision of the Internet as a content delivery system to the present-day vision of the Internet as an immersive environment, where learners have a great deal of control and exercise a tremendous amount of choice.

Business schools need to recognize students' growing empowerment. Schools with the most effective online programs will emphasize faculty development, tech support, and integrated approaches that accommodate different skills and different ways of thinking. They'll set high expectations for student involvement in the process. They'll go beyond content delivery to offer experiences that help students "learn to be," not just watch and listen.

Adopting a 'Work-Based Pedagogy'

Lee Schlenker
Affiliate Professor of Information Systems Management
EM Lyon
Lyon, France

Perhaps the time has passed for business schools to view technology as a cost-cutting measure or as a marketing device to attract new students. The potential value proposition of information technology today isn't found in its features and functions, but in how we can use IT to enhance management education itself.

To a large extent, business educators' reliance on both traditional lectures and classroom settings has distorted their view of management education. We too often focus on models, rather than on reality. We teach to individuals, rather than to teams of people who work together. We offer best practices, rather than explore the behaviors that exceptional managers share. When it comes to technology, we ask our students to work in course management systems and virtual classrooms that have no resemblance or relevance to business beyond their courses. As a result, we're often better at teaching content than challenging our students to develop their own competencies.

With this in mind, my colleagues Adam Mendelson of IESE, Toby Wolf of MIT, and I suggest a model of management education that we call "work-based pedagogy," which focuses on how people actually use technology in the workplace to achieve their objectives. The value of technology isn't in technology itself—it's in how managers use technology to deal with their business challenges. How do we use information technologies to capture client challenges, aggregate the costs and benefits of change, and communicate our propositions to our sponsors, teams, and customers? Whether stu-

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dents are using e-mail, instant messaging, blogs, podcasts, or collaborative learning networks, business schools can engage students directly to develop their competencies using the technologies that help shape the modern workplace.

In my master's classes this year, for example, I have asked my students to create podcasts for their final presentations. Their projects are judged on how an audience—one that isn't confined to the classroom and forced to listen—reacts to their podcasts. I want students to realize that using different communication channels requires mastering different kinds of communication skills. This project, of course, has made the students somewhat anxious, because they have been trained over the years to become PowerPoint zombies.

Even so, such projects are valuable because they can help dispel this anxiety. They help students develop a variety of work-based skills and encourage them to *think* about how they deliver value. In business, value often isn't delivered in the classroom, or even in the conference room. Often, it's delivered through online channels to clients who have little time for face-to-face meetings.

Learning technologies are just one piece of the management education puzzle. We must evaluate how technology helps to enhance or extend a business school's larger value proposition. Businesses today want to hire students who possess the behaviors and visions that correspond to the way they'll work in the future. Business schools can use technology to design work environments, online and off, that will help students develop those competencies.

A Great Experiment

Although these experts offer a variety of perspectives, most agree that as time goes on, students' appetite for online educational experiences will intensify. They'll choose online formats not only to suit their schedules, but also to learn the online communication and collaborative skills they'll need to conduct business effectively. Not only that, but some observers predict that in the next decade, online education may become a truly *a la carte* proposition—students might attend one school in person and another online, or choose individual courses from a variety of institutions. As their options increase, students will be better able to build their own personal learning environments.

Online students such as Mishra and Linartaite note that online instruction can be ineffective if instructors do not make the parameters and expectations of their courses clear. Frequent instructor interaction and detailed weekly outlines of instructor expectations are crucial to designing valuable online learning experiences.

As e-learners become more sophisticated, most will gravitate to courses that present information dynamically, use diverse media effectively, facilitate discussion actively, and incorporate high levels of personal interaction and group collaboration. That may be a welcome message for faculty who remain reluctant to investigate what current technologies have to offer. Except for the computer screen and keyboard, these objectives aren't so different from what educators have done in traditional classrooms all along.

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The Prospects for *E-Learning* Revolution in *Education*: A *philosophical analysis*

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Abstract

If I lose my key in Canada, for instance, and I search for it in the United Kingdom, how long will I take to find it?

This paper argues that problems in education are caused by non-professional teachers who are employed when trained teachers move in search of promotion friendly activities or financially rewarding duties. This shift of focus means that policy makers in education act without adequate professional guidance. The problems in education, therefore, result from demands made on mainstream education based on misconceptions about what education can offer.

It is argued that the implementation of e-learning in education faces the risk of developing on the basis of unproven theories. This scenario increasingly sees the replacement of formal education activities in institutions of learning with non-formal and informal education practices. Given that the contents and influences of non-formal and informal education are not under the control of the teacher, the experiences that learners bring to education settings are increasingly difficult to manage. The paper proposes that by integrating e-learning in teacher education and rewarding 'good teaching', there is a potential for a successful e-learning revolution in education.

Keywords: a-Teacher, e-Student, e-Teacher, psychology of online-education, philosophy of online-education, online-education communications, administration of online-education, online-educational technology, online-education content management, online-teaching design, online-methods in chemistry

Introduction

The use of information and communications technology (ICT) in education is widely regarded as good (Rogers & Finlayson, 2004) and the process of discovery of the pedagogical potential of ICT is at its early stages (Rawson & Naylor, 2005). The prospects of e-learning show that once connected to the Internet, the computer brings a lot of information into the classroom and therefore offers the potential to

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overcome the shortage of learning resources (Gjørling, 2005). Advancements in online technologies have also facilitated a convergence of distance and campus-based learning which provides greater flexibility (Bennett & Lockyer, 2004). As a result, some universities previously concerned with on-campus teaching only, now have the opportunity to offer distance education courses via online or through blended learning.

The ability of e-learning technology to reach learners wherever they are means that the learners do not need, necessarily, to have face-to-face contact with the teacher. Through online collaboration or self-learning, it is possible to achieve higher order learning outcomes due to wide access to re-usable and sharable resources. Online e-education (interface of e-learning and education) has the capability to nurture the student beliefs portrayed as active, independent, persistent, flexible and open minded. Youn (2000) observes that these beliefs contribute significantly in self-search for knowledge, which is further enhanced by collaborative approaches to learning. Emphasis has, therefore, been placed on learner centred approaches (McCombs & Vakili, 2005) using Virtual Learning Environments (VLEs). The VLE facilities and tools for communication, interactive content delivery, assessment and interactive boards (Heacademy, 2006) are able to reach students remotely. The students' tasks emphasized in such collaborations include knowledge construction, co-operation, sharing ideas, selection and generation of learning resources (Bennett *et al.*). E-learning is seen, therefore, as the process of exploration of existing knowledge, sharing and enhancing its value to build ones capacity for self-study.

Research shows that teachers and learners prefer the blended environment rather than pure online approach (Motteram, 2006). While computers bring new opportunities to the human learning experience, they also remove some of the critical components of face-to-face learning (The HRD Group, 2006). If e-learning is to compete with face-to-face delivery for richness in terms of psycho-social and emotional flexibility, there is a need to enhance audio-visual and interactive capabilities of course management systems to compensate for sensory and emotional loss. The recognition that people learn in different ways favours the blended learning approach since learners perceive and process information in a variety of ways (Claxton & Murrell, 1987). Concrete-active perceivers process information after direct experience through doing, acting, sensing, feeling and using the information in a practical life situation while abstract-reflective perceivers conceive an idea after observation or thought and process it through analysis and reflection (On Purpose Associates, 2006).

The Assumptions of E-Learning

Anderson & Elloumi (2004) define e-learning as 'the use of the Internet to access learning material [s]; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience'. Implicit in this definition is a general focus on the learner. As Carr-Chellman & Duchastel (2000) observe, e-learning 'calls not so much for providing instruction at a distance,

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as for making available learning resources and instructional activities to students'. The attractive nature of e-learning stems from the way it tries to simulate social life through team collaboration evident in the corporate sectors of the society. In support of this view, e-learning innovations take place so rapidly that little time exists to provide thoughtful appraisal and a critique of the general and specific issues of adoption and use (Kompf, 2005). There is a belief that tutor supported interaction as students engage with learning resources is equivalent to the process of education. However, if the real life situation were as conceived there would be no need for face-to-face teaching as all human interaction involving an exchange of information to elicit a response would be educational.

E-learning is, however, a promising development in education, but as Mason & Lefrere (2003) point out, while 'promising practices' are worthy of consideration, the concept of something promising is semantically loaded toward unproven methodologies. The assumptions of e-learning ought to be based on a sound theoretical rationale if it is to be included and sustained successfully in teacher education programmes. The social constructivist theory (Lim, 2004) which guides e-learning practices needs to be grounded in teacher education for its principles to be embedded in education disciplines. Research and developments in online teaching have focused mainly on the implementation of collaborative facilities and the definition of standards for sharing and reusing the learning resources. Less effort has gone into defining the instructional processes suited to this type of teaching (Alonso, López, Manrique & Viñes, 2005). The increasing focus on e-learning (Schmidt, 2004) as opposed to online-teaching strategies is a growing challenge for teachers. This raises concern especially when little research exists on online-teacher education as current thinking considers all e-learning as educational.

Towards Integrating E-Learning in Teacher Education

Many of the factors that influence successful online instruction are the same as those for traditional instructors (Roblyer & McKenzie, 2000), that is, good communication and classroom organisational skills. The nature of e-learning as an instructional medium, however, differs from face-to-face teaching as it requires new approaches to curriculum development, online course administration, subject methods, delivery, assessment and feedback. In e-learning, there is a separation between the instructional design and the learning process. The student is required to perform the integration through peer collaboration. Therefore proper management of cognitive load, information processing and instructional design principles are essential (Morrison & Anglin, 2005) for harmonising instructional and learning strategies.

> In light of the increasing demand for virtual courses and the rapid expansion of schools to meet the demand, it is apparent that there will be a parallel need for teachers who are prepared to teach at a distance from their students. There will also be an equivalent need for counsellors and

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> other support personnel who understand the unique benefits of this new medium and are prepared to meet its needs and requirements. (Davis & Roblyer, 2005)

Although the educational value of the communication skills required of the online and face-to-face instructor are the same, there is a need for a paradigm shift in perceptions of instructional time and space, virtual management techniques and ways of engaging students in virtual communications (Easton, 2003). Teaching has several issues to deal with such as student discipline, socio-emotional and psychological concerns which ought to be taken into consideration as e-learning is designed. Young (2004) observes that teaching on the Internet is more demanding than teaching in the conventional mode due to the incorporation of various fast-growing technologies. This is further complicated by the lack of the physical presence of the learners and instructors in addition to dealing with the Web-specific content strategy, managing change, and re-engineering the pedagogy.

The introduction of technology in education without accompanying effort to integrate it with the content and pedagogy may not lead to change (Koehler & Mishra, 2005). It is the way in which teachers use technology that has the potential to change education (Carr, Jonassen, Litzinger & Marra, 1998). In essence, teacher education needs to be remodelled to reflect this demand. This can be performed during professional training of teachers and made an integral part of online e-education innovations. The successful application of e-learning would rely on changing teaching practices and cultures (Whitsed & Comrie, 2005) investing more in raising awareness and an understanding of online teacher professionalism.

E-learning is converting the traditional student—the 'a-Student'—taught face-to-face by the 'a-Teacher' into an online student—the 'e-Student'—collaborating with the 'e-Teacher'. Traditional teacher education equips the a-teacher with the necessary instructional methodologies for successful teaching. These are normally embedded in teacher education disciplines such as 'Educational Planning', 'Curriculum development', 'Sociology of Education' and so on. These disciplines jointly ensure that the process of teaching is consistent with the principles of human learning that have cognitive, psychomotor and affective domains.

To overcome the problems associated with various issues in online teaching, it is necessary to develop online e-education disciplines. For instance, the 'Psychology of online e-education' would aim at using psychological methods and principles to manage and resolve issues arising from students' behaviour online. Similarly the 'Philosophy of online e-education' would use philosophical methods to resolve issues generated by the application of principles of other online e-education disciplines. All traditional teacher education disciplines will need to create their online equivalents. Others could be 'Online e-education Communications' to deal with issues of collaboration, 'Administration of Online e-education', 'Online e-education Technology' and 'Online e-education content management' etcetera. The purpose of these developments would be to produce trained teachers who are able to design online teaching models using the tools of a Virtual Learning Environment (VLE). The programme will also be able to train IT experts ('Online e-education Technologists')

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to develop learning resources that have an intuitive appeal consistent with the 'online-teaching design'. Subject specific specialists will, therefore, need to undertake a study in 'Online-Methods' for their particular subject areas. For example, to teach chemistry online, one would require that the teacher had training in 'Online-Methods in Chemistry'. This is because the teaching of mathematics online, for instance, would require different tools and techniques compared to the delivery of chemistry.

The Interaction of Teaching, Pedagogy and Education

The demand by society that school leavers contribute to the growth of economy and technological innovation has led to psychomotor and cognitive abilities being considered the most reliable predictors of performance in industry (Carretta & Ree, 1997). This is because research confirms that the results of education do not meet employers' expectations (Nabi & Bagley, 1999; Lange, Ottens & Taylor, 2000). Members of the business and ICT industry readily complain when they think schools are not meeting their needs. They then 'guide' society on what ought to be in the curricula and how knowledge and skills should be acquired (Kohn, 2004). This means that decisions about the performance of education are being made by parties whose functions are removed from the circumstances of learning, teaching and knowledge production. Education is thereby being considered an instrument for improving productive output or otherwise contributing to innovations and viable economic development. Industry demands ever more flexible and self-confident professionals with skills in communication, problem analysis and problem solving, planning, networking and life-long learning (Kakabadse & Korac-Kakabadse, 2000).

The concept of pedagogy relies on the utilitarian view of education. In Britain and other English-speaking countries, pedagogy relates to the science of teaching, learning and the formal curriculum of schools, colleges and universities (Petrie, 2005). However, its meaning has been associated with forms of education that support technological and economic development. While pedagogy requires education to have instrumental value, the concept of teaching reflects the open and intrinsic value of education based on development of socially approved self-regarding virtues and dispositions. An educated person is praised for possession of worthwhile ideas, which may not necessarily relate to any particular overt performance. This distinction creates conflicts concerning the use and application of the concepts of teaching and pedagogy. This conflict is succinctly captured by Rozema (2001) in distinguishing two kinds of education: (a) the education, the commodity—the kind of education that seeks to produce persons who will maintain and enhance economic performance. 'And there is (b) the education of community—the kind that seeks to foster persons who will maintain and preserve the essential characteristics of community'. While education—'the commodity'—puts more emphasis on intellectual performance, education—'the community'—assumes that personal discipline and minimal delinquent tendencies are prerequisites for socially productive intellectual efforts. Although the two are not mutually exclusive, the latter assumes a more abstract role as it focuses on the holistic purpose of education in human life.

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While teachers consider their duty as educational, the guardians (Dobbs, 2003) of society require that teaching be evaluated as a pedagogical activity:

> ... we need only examine the methods used to raise education standards to realize very swiftly that what is involved is an exercise in pedagogy, with specific means employed to hit identifiable targets ... so many teachers are unhappy. They are no longer teachers or lecturers but mere pedagogues. (Hinchliffe, 2001)

If the guardians of the society have a different conception of teaching from teachers as a consequence of the education 'the commodity' and education 'the community' dichotomy, it may not be possible for education to achieve its goals. Teachers are supposed to implement the goals of education as formulated by the society. However, if such goals are logically contrary to what education can achieve then teachers can only be providers of content to students as proposed by those who emphasize learning as opposed to teaching. Education cannot achieve the goals formulated like those of an industrial attachment. Organizations which specialize in serving the various sectors of the economy have specific needs and are best placed to supplement the foundation provided by formal education with their own additional training tailored to the specific organization's needs (Venter, 2003). The exact nature of the relationship between education and creation of jobs in a society is, also, not evident (Lewis, 1997). It is a fallacy to expect education to solve problems like creating jobs, improving the economy and enhancing the learners affect. Each sector of the society must train 'specialist educators' who then utilize the 'facilities' of the education sector to resolve issues in the specific disciplines. An example of a successful scenario is medical education (Godfrey, Dennick & Welsh, 2004; Orlander, Gupta, Fincke, Manning & Warren, 2000; Parsell & Bligh, 2001). Practitioners in the medical field have not required the mainstream education to provide specialist knowledge in health and biological sciences. Instead the medical sector trains 'medical educators', who are initially doctors to apply the principles of pedagogy in medical study.

The concept of education in this regard is comparable to that of mathematics. While almost all sectors of society appreciate and utilize the power of mathematics, none of them expect mathematics as taught in schools to solve their problems; neither is a mathematician expected to solve problems in any sector. For instance, a 'physicist mathematician' or astronaut who uses mathematics to calculate distances to reach the moon does not need to refer to a mathematician, but appreciates what mathematics is and its power. Mathematical principles are formulated to address the issues of all possible worlds—the real world being just an instance of possible worlds. When mathematicians engage in abstract thought their major concern is not that the knowledge would be relevant for the scientists or the general public. Frege (1964) showed that because mathematical principles are formulated independent of the physical reality, so are its truths. It follows, therefore, that mathematical statements are stipulations of language rather than statements of nature. For instance, eight multiplied by four equals thirty two, that is, $8 \times 4 = 32$ is true simply because that is the way mathematicians choose to use the terms.

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Counting eight objects four times and adding them to get thirty-two objects is an intuitive rather than a mathematical activity. It is performed to aid the power of human reason, which may be unable to perceive the result instantly. In other cases empirical evidence may be neither possible nor feasible as in n-dimensional spaces or 96,784 × 678,959, for example.

> Propositions of pure mathematics are free from any existential ontological conditions that require a limited interpretation. The subject-matter or content of mathematics consists of possibilities that are subject to [ordered] series of transformation. These are organized according to rules involving rigorous and fruitful substitution of meanings. Pure mathematics becomes the study of abstract forms of reasoning (inference) and inquiry, not of specific concrete existential context (objects and relations of space and time). (Sidney, 1992)

There is a stage in mathematics when all reference to existence and applicability is eliminated. A new order of abstraction is created, that is set up and controlled by categories of abstract relations only. Ayer (1983) observes, for instance, that mathematical propositions do not make any assertion about the empirical world, and cannot be confuted in experience. Consequently, the validity of mathematical statements is grounded in the structure of those statements, and not in any particular subject-matter. The logic of the subject is modelled on the theory of 'possible worlds' (Baldwin, 2001; Bunnin, 2003). Therefore human experiences in social interactions and transactions involving buying, selling, counting, comparing and measuring (Rhees, 2002) use mathematical principles applicable to the actual world as an instance of possible worlds.

The development of mathematics is based on a continual attempt to harmonize the apparent conflict between opposites: Actual versus possible, concrete versus abstract, discrete versus continuous, particular versus general, change versus permanence, material versus formal and finite versus infinite (Lacroix, 2000). Therefore it is the attempt to resolve the conflict between opposites that paradoxically develops the mathematical system. Man's attempts to discern order in the universe reveal necessary relationships in space and time which revolve around establishing distinctions between differences and similarities of properties of human experience. The experiences are structured by perception into categories of properties by matching, sorting, pairing, counting, ordering, comparing and measuring.

Similarly, whilst education is an important instrument of society, it cannot solve any particular problems directly. The wealth of knowledge, skills and positive affect provided by education has to be appropriated and applied by specialists in various disciplines and sectors of the society for its value to be realized. While mathematics establishes the principles that define the nature of necessary relationships, education defines the principles of the ideal 'good' that govern human interrelationships and harmony with the natural order. Education provides one with the capacity to fit into any of the productive sectors of the society and from which assignments for earning a living are guaranteed. These sectors are defined by various institutions. In contemporary societies, such institutions can be broadly categorized as political,

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social, cultural, religious, economic and educational institutions. They operate in harmony by observing a specific ideology that acts as the cultural policy to which they adhere. Every person finds his/her place to serve the society in one or several of these institutions and to participate in sustaining the harmony. This harmony, valued as the common 'good', is what education is supposed to nurture. Therefore the idea of education is developed by contrasting that which sustains harmony with that which creates disharmony. An education system is built by contrasting the good and the bad and then emphasizing knowledge and practice of the good. The system does not produce a specialist in any discipline but does produce an educated person. The quality of the educated person so produced depends on the school curriculum designed by subject specialists and the contents of the non-formal and informal education settings within the society. It is from these three forms of education that online e-education derives the 'educational value' of its theories, content and methodologies.

The Value of Education

While integrating e-learning in education, it is important to re-consider the values that education is supposed to promote and the circumstances appropriate for doing so. It is, also, important to separate the kinds of learning that are educational from those that are not. This will lead to adequate preparation of e-learning environment, design of collaborative strategies that promote dialogue and selection of the right content. In the behaviourist's point of view, learning is a change of behaviour as a result of having gone through certain experiences. Wills (2004) defines learning by specifying behaviour modification that it occasions; an 'organism is said to have learnt when it has increased its options for applying, to a specific set of circumstances, new or different behaviour which the organism believes will be to its benefit'.

Education is largely a directive process which does not need just any experience left to the beliefs of the participants. An educated person is considered to have improved after undergoing the process. This requires that what is learnt, how it is learnt and the experiences that influence them need to be constrained by specific rules of order.

The value of education is recognized by all societies and compulsory education for children is a worldwide phenomenon (Dultz, 1999). The word education is derived from two Latin words *educare* and *educere*. *Educare* means 'to raise', 'to train', 'to rear', 'to bring up', 'to guide' and 'to direct' (Adeyemi & Adeyinka, 2003). In this sense education is an initiation into intellectual and social concerns for public and private improvement of the human person. As *educere* meaning 'to lead out' or 'to lead forth', 'to raise up', education is the process of nurturing the development of human potentialities measured against the normative criteria defined by society.

It is assumed that each person has an innate principle of growth towards progress and improvement whose realization could be very slow or inadequate if left without intervention. Education is therefore a disciplined intervention into human life to

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avoid waste. It serves to guide and hasten the natural processes of growth: intellectually, mentally, psychologically, spiritually, emotionally and socially. It is in this sense that education is viewed as enabling one to build appropriate knowledge, skills and dispositions for the purposes of making responsible judgements, informed choices and appropriate actions. It is assumed that at certain stages of children's lives some decisions have to be made on their behalf as they do not yet have the intellectual and moral capacities necessary for processing information and making decisions. For instance, it is for a parent to decide which school his/her child would attend. Such a decision would not be left to the child since he/she is not equipped to know what to consider in choosing a 'good' school. Considerations for the choice may be based on, for instance, security, financial resources, proximity etc. which the parent can readily evaluate.

There is a relationship between education and enculturation. The concept of culture refers to the socially acquired practices of past human accomplishments which serve as the resources for the current life of a social group (D'Andrade, 1966). Human beings depend upon the various forms of human-environment interactions that culture supports in order to sustain and reproduce themselves (Tomasello, 1999). Both culture and education emphasize sustaining the life of the community by bringing about change in the youth and adults (Cole, 2005). Education can therefore be defined as the range of activities and processes that lead to successful enculturation. It is the process of cultural transmission and renewal during which senior members of a society guide the development of the younger generation by initiating them into the culture of the society. However, in current practice, education is not a linear process of information passing from the older to the younger people but one of interactions that create new systems appropriate to current circumstances. Therefore both adults and children participate in education to enhance their knowledge and skill levels.

In Aristotelian philosophy, the concept of education subsumes the principles of societal ethos (McLaughlin, 2005). Education not only involves acquisition of knowledge and practical skills but also dispositions, virtues, ideas and practices aimed at character and habit formation. Because publicly prioritised activities and values are targeted by educators, it is important that special conditions for the way they are learned should operate (Silcock & Duncan, 2001).

In developing the concept of education as espoused by R. S. Peters (1966), Njoroge & Bennaars (1986) propose four dimensions of education namely the cognitive, normative, creative and dialogical dimensions. They conform to the extended version of Bloom's domains (Anderson & Krathwohl, 2001).

> The well known cognitive domain is extended to include ideational functions of imagination and creativity, and the affective domain is enhanced to include internalization, wonder, and risk taking. The psychomotor domain is expanded into a sensorimotor domain, incorporating five senses along with balance, spatial relationships, movement, and other physical activity. A social domain is introduced to accentuate sociocultural processes that accompany thinking, feeling, and sensing/movement.

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> Lastly, the four domains are synthesized into a unified domain of thinking, feeling, sensing/moving, and interacting to optimize potential and self-fulfilment for all students. (Dettmer, 2006)

Any educational process whether formal, non-formal or informal needs to be evaluated and made to conform to the four dimensions of education. The cognitive dimension focuses on the acquisition of knowledge for the purposes of informing human judgement, choice and action. An educative process has to have a body of knowledge to be mastered. In order to have the right content, several questions need to be answered by the content developers: Whose knowledge will be mastered in education? How is the knowledge justified in society? How will actions based on such knowledge be appraised? Answers to these questions are necessary in formulating curricula for formal education and regulating the content of non-formal and informal education.

The normative dimension of education recognizes that human actions and operations of various institutions of society do affect the purposes of other individuals and institutions. Although some researchers believe that education has moral and political meanings that vary with locale and culture as well as the identity and values of a people (Tabak, 2003), education is generally associated with order and worthwhile practices. Just as nature is ordered and inherently observes measures of regularity (Foster, 2001), so human operations are an effort to synchronize with natural order. Education is the process of making man understand and apply the principles for sustaining this harmony. Such principles inhere in the idea of the 'good' believed to be endowed with 'worthwhile' possibilities and which education promotes. In Aristotle's concept of '*phronesis*' (practical wisdom or prudence) with regard to education, both teachers and learners help themselves to achieve concrete human judgment based of good reasoning as a prerequisite for attainment of the 'Good Life'. The Aristotelian principle of phronesis refers to the ability to make right decisions in difficult circumstances (Arnkil, 2006; Smeyers & Hogan, 2005). The 'Good Life' is based on an understanding of the idea of *eudaimonia* (the specifically human good) and *praxis* (action, practice). Aristotle identifies phronesis as one of *dianoetic* virtues, that is, those intellectual virtues that characterize the well-ordered mind. Such virtues are: *Sophia* (wisdom of first principles or pure contemplative wisdom), *episteme* (scientific knowledge or true knowledge as opposed to mere opinion), and *nous* (intuition or understanding) (Kristjånsson, 2005). The perfection of practical rationality is a life of complete virtue of character guided by phronesis.

> ... all people recognize some moral code (that some things are right, and some things are wrong). Every time we argue over right and wrong we appeal to a higher law that we assume everyone is aware of, holds to, and is not free to arbitrarily change. (Craig, 2003)

The definition of what is worthwhile is not arbitrary or relative; otherwise humanity would not be agreed on categorizing certain acts as evil and others non-evil. I would not demand respect, for instance, if there was no universal principle that

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defines respect and its associated indicators as worthwhile. Intentional killing of a human being outside the legal jurisdiction is condemned (Samuels, 2003) by many, if not all, communities. Even those who take peoples lives based on personal or group convictions (Graham, 2002) would not justify killings on their intentions. The war against terror is a struggle of the 'good' against the 'evil' (C. Taylor, 2005). When people prefer things of high quality as opposed to those of low quality they indicate their preference for observing a standard of compliance. Humanity appreciates the ideas of truth and rights (Chandler, Sokol & Wainryb, 2000) without questioning the credibility of their supposed ultimate-originator. These provide credence to the fact that there is a universal principle from which humanity draws the idea of the 'good' which education fosters by understanding.

The creative dimension of education promotes an individual's or groups' constructive initiatives, innovative practice, critical thinking, self-reliance and autonomy. Creativity is the ability to come up with new ideas that are intelligible and valuable in some way (Boden, 2001). It involves cognitive processes in which intelligence, observation, thought and innovation work in harmony (Gardner, 1999). Research shows that creative thinking can be used within a number of learning contexts to enrich the acquisition of knowledge and skills.

> '... the factors influencing creative teaching in Integrative Activities are (a) personality traits: persistence, willingness to develop, acceptance of new experiences, self-confidence, sense of humour, curiosity, depth of ideas, imagination, etc.; (b) family factors: open and tolerant ways of teaching children, creative performance of parents, etc.; (c) experiences of growth and education: self-created games and stories, brainstorming between classmates, etc.; (d) beliefs in teaching, hard work, motivation and (e) the administrative side of school organization. Among these factors, beliefs in teaching, hard work and motivation are the main aspects. The effective teaching strategies are: student-centred activities, a connection between teaching contents and real life, management of skills in class, open-ended questions, an encouragement of creative thinking and [the] use of technology and multimedia. Integrated Activities are closely connected to life experience and a basis for the development of creative thinking within education. (Horng, Hong, ChanLin, Chang & Chu, 2005)

The teacher's task is to assist learners exploit their creative potential exhibited in originality and intentionality which also act as predictors of creative achievement (Helson & Pals, 2000; Craft, 2003). Suwa (2003) identifies two steps involved in a creative teaching/learning process: (1) Problem-finding: finding and solving one's own problems instead of solving given ones marks the beginning of a creative exercise. The view that asking a productive question is normally more important than answering a set of ready questions (Wertheimer, 1945) is a philosophical position that has been held since time immemorial. This position is evident from how Isaac Newton formulated the Law of Gravitation (Wayne & Staves, 1996) by asking an apparently simple question: Why do apples 'fall' downwards rather than

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sideways or upwards. An attempt to answer a self-formulated question provides a range of possibilities and opens up horizons of critical thought in attempting to answer the question. (2) Constructive perception: Attempts to answer a self-formulated question raise other issues that may have been taken for granted. The ability to generate and coordinate resolution of such issues normally lead to a reorganization of thought processes which, in turn, sustain the motivation for continued search for new knowledge.

The dialogical dimension of education caters for the logical basis of an educative process. Education involves communication which utilizes methods that pay due regard to the dignity, intellectual integrity and judgment of those involved. Dialogue defines the human social presence in a learning environment. Learning is mediated by intrapersonal dialogue inherent in self-knowledge, facilitated by interpersonal dialogue and enriched by instructional resources. In a learning environment, the teacher is not restricted to imparting specific kinds of knowledge or skills but exposes the learner to a range of ideas defined by the society as useful for man's survival, welfare and progress. The teacher operates within the formal education which promotes a structured and institutionalized form of learning. Formal education is expected to increase the skills and knowledge base of learners (Sen, 2000) through organized and controlled delivery procedures. It has specific guidelines in terms of regulations and rules of order. Normally learning in such institutions is guided by curricula which are designed and delivered by certified specialists. Other characteristics of formal education include adherence to time specifications, certification, entry requirements and all that go with strict organization such as government or corporate control and financing.

Although formal education provide an organized body of knowledge and skills, non-formal education enables people to participate in cultural, community and corporate practices which enhance a sense of togetherness and common understanding. It is any organized and systematic activity carried outside the framework of the formal system to provide selected types of learning to particular subgroups in the population. It is intended to serve identifiable learning clientele whose needs have been ascertained. The teaching and learning activities in non-formal education settings are not bound by strict regulations. The methods used are practical exercises which are a combination of teaching and work rooted in local issues. Such methods are highly varied, flexible and include group projects, self-study and peer teaching. They are normally used to inform communities of new developments or innovations and to take care of the needs of those who prefer to learn in their local settings. They are aimed at achieving broad development goals for out-of-school communities and people with special needs. They have a wide scope, versatility, diversity and adaptability (E. Taylor, 2005). They have multiplicity of auspices, sources of support and are totally pragmatic.

Informal education is the kind that one gets subconsciously in society. Much of what people learn take place outside the schools in places such as the family, neighbourhood, community, leadership, peer groups, religious institutions, work, recreation, newspapers, television, radio and the Internet. They contribute in language and habit formation (Cohen, 2004), character development, orientation of

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dispositions, emotional and psycho-social stability. As children grow up they are initiated into the social practices of the society from their childhood to adulthood. Informal education starts in the family as parents bring up their children. In traditional societies parents expect their children to adhere to strict rules that would ensure they encounter those influences that are approved by the parents. For young children, education often takes the form of showing them appropriate ways of operating at various stages of their lives. Parents are expected to 'bring up' their children, assisting them to select and harmonize appropriate content from agents of informal education. It is from this guided choice-making process that rules exist that constrain human behaviour so as to conform to the principles of education.

Re-Examining the Role of the Teaching Profession

The importance of good teaching has not been properly emphasized in higher education where e-learning takes root and therefore the change agents do not have adequate professional guidance. While universities reward lecturers for their research output (published articles in refereed journals, conference papers, etcetera), effective teaching is not rewarded (Errington, 2001). It is therefore understandable that lecturers tend to focus on research rather than teaching (Engelbrecht, 2003). This has led to an erroneous belief that there is something wrong with the teaching profession.

> Teacher-directed whole class teaching ... restricts the learners' contribution to the discussion both in terms of how much they say and the content of their input. It places them in the position of responding rather than initiating discussion and compels them to follow the teacher's line of thinking. This approach clearly has advantages in terms of transmitting knowledge, but [is of] limited use [to] teachers wishing to encourage independent and active learning. (Le Cornu & Collins, 2004)

E-learning comes into existence when the focus is shifting from teaching to learning and it is, therefore, modelled on the basis of enhancing learner activities and emphasising learning outcomes (Pearson & Trinidad, 2005). Since learning is the students' rather than the teachers' activity, there is a renewed interest in encouraging students to learn by themselves. Due to this perception, the staff who collaborate with students online include, also, the academic-support staff normally referred to by several titles: tutors, mentors, facilitators and so on.

> Many people have written about the changes to teaching, tutoring and mentoring styles that e-learning brings into play. Tutors are no longer positioned as the founts and guardians of knowledge, and become conduits for knowledge from multiple sources, or facilitators of learners constructing their own understandings. (Jennings, 2005)

The reduced interest in good teaching as a result of teachers shifting interest to the more rewarding research means that less effort is invested in lesson preparation

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hence ineffective achievement of objectives. This renewed interest in student-centred education environment has not worked well.

> In several countries (e.g. the United Kingdom and the US) the dissatisfaction with the traditional approach to teacher education has led to programmes in which a considerable part of teacher education is being moved into the schools. Several institutions for teacher education have entered into partnerships with schools, and have developed new programmes in which sometimes novice teachers receive very little theoretical grounding. In some of these programmes, teacher education becomes more of a process of guided induction into the *tricks of the trade*. In many countries, this trend is also being influenced by the understandable need to solve the problem of teacher shortages.
>
> The focus seems to move completely away from an emphasis on theory to a reliance on practical experiences. Such a *practice-based* approach to teacher education is, in turn, not very successful. In fact, it has been demonstrated that teaching experiences can lead to an unproductive process of socialisation rather than to fruitful professional development. (Tigchelaar & Korthagen, 2004)

Although, learning, which is the goal of teaching, is done by students, professional teaching remains an important element of an education environment. Learning is not guaranteed by just allowing students to interact amongst themselves and with the learning resources. The experiences that learners bring to a class have to be harmonised with the goals of education to be beneficial to them. Education is about selective learning, that is, learning certain things rather than others and teaching is about finding and applying strategies that optimize the learning of educative content. If non-professional teaching does not guarantee learning, it is not easy to see how non-teaching that e-learning promotes would achieve it. Teaching and learning are connected by intentional rather than necessary relations and it is the professional teacher who can be in a position to teach successfully.

By rewarding good teaching and research, professional teachers will concentrate on teaching and thereby improve the image of the profession. Consequently governments will be encouraged to invest more in teacher education programmes and shortage of teachers will become a thing of the past.

The Problems in Education

The various forms of education namely formal, informal and non-formal are currently interacting in ways that have not been seen before, as agents of informal education become dominant, numerous and uncontrolled. As societies become more urbanised and parents become involved in pursuing careers (Quek & Knudson-Martin, 2006), parental influence on their children diminishes. Parents are no longer the most obvious objects of identification. Their roles have been taken, in part, by superficially much more attractive film and television heroes and football stars and therefore the authority of parents over their children is on the decline

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(Wardekker, 2001). Sources of information have, also, increased and children encounter peers from diverse backgrounds. As they enter into formal education, the experiences acquired from the informal sector dominate the learning environment. The teacher is expected to build on such experiences by harmonizing the learning goals of students so as to contribute towards achieving the objectives of the school curricula. This is on the assumption that the diverse experiences the learners bring to the educational environment are not contradictory either to the teacher's instructional objectives or individual student's personal expectations.

Since the influence of informal education is not within the teacher's control, his/her efforts will be either rewarded by 'positive' learner experiences or hampered by the 'negative' ones. Although it has been argued that schools should not have any role in shaping students' value-attitudes (Hofstee, 1992), teachers' problems increase when several learners have needs that are contradictory to the goals of a learning community. Since the teacher's role is to support learner capacities appropriate for the achievement of specific objectives (Bennett *et al.*), the teacher has to attend to the individual students whose expectations are at variance with the goals of the group. Any failure by the teacher to build harmony at this stage is detrimental as it creates learner exclusion with the accompanying affective issues.

The process of education is further complicated by current trends where the distinction between children and adults is fast disappearing (Olmsted, Crowell, & Waters, 2003). Children are increasingly being treated as miniature adults as societies change from authority to negotiation based relations (De Swaan, 1982). In the name of democracy (Mahony & Moos, 1998) and non-authoritarianism (Knafo, 2003), an *adult's environment* is unleashed onto youth and a culture of liberalism in education is promoted as democratic. The extent of parental influence and control is increasingly related to the values of a specific parent, as children get multiple influences and value messages from several sectors of the society (Padilla-Walker & Thompson, 2005). There is no rule governing access to content from most agents of non-formal and informal education. Both adults and children share the same resources. For instance, since research has proven that access to 'inappropriate' sites on the Internet affects behaviour of the youth negatively (Byoungkwan & Tamborini, 2005), rules should be formulated to ensure that such sites are not available to them until they either become adults or their circumstances change as stipulated. Negative behaviours emanating from such private exercises are normally in the public domain and contravene secular law and the culprits may get undeserved punishments as adult members of the society fail to provide guidance.

Teaching is an educational activity and since education is associated with the acquisition of worthwhile knowledge, skills and dispositions, it is expected that the purpose of teaching is not only to guide learners but also create an environment where order prevails and 'right and wrongs' (Swift, 2005) are recognized. In the light of educational principles, institutional operations and people's actions ought to be constrained by specific rules. This is not to curtail freedom but to ensure that rights and freedom are aligned with corresponding responsibilities. It is in this sense that rules are necessary to govern access to information upon which human

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actions depend. Information needs to be categorized and released to appropriate individuals or groups of people according to their needs and circumstances. Although such efforts have been described by human rights activists as censorship of information (Bessette & Haufler, 2001; Glenn, 2004), the wisdom of treating unequal people equally is yet to be established.

The current efforts at integrating ICT in all sectors of the society have elevated the influence of informal education. Although it is expected that the content of informal education should be regulated by socio-cultural norms, religious commitments and secular law, there is a need for an intentional effort to ensure that such content is in accord with the principles of *educatedness* (Kohn, 2004). In online e-education, there is a need for identification of the required content and selection of useful sites that provide unambiguous information to the learner. While the student will be free to search for relevant information on the Internet, a clear basis for appropriate information needs to be put in place.

Conclusion

This paper highlights the role that e-learning innovations play in education and its ability to increase access to learning resources. The educational promise of the Internet and distance education is real. The cluster of technologies that constitute the Internet powerfully reinforces and extends some of the most effective traditional forms of teaching. The impact of the Internet in education is more dynamic and pervasive than that of any previous breakthrough in information technology. Consequently, in online e-education courses, the teacher is not the only driving force in the class; students have a chance not only to learn on their own, by experimenting with various learning styles, but also to collaborate with fellow students from around the world in order to add special interests and experiences to the class interactions. As online e-education evolves its design should be made to include both self and collaborative learning styles. The place of the teacher as a guide, counsellor and facilitator in the online e-education environment therefore requires sustained attention.

E-learning can be used to reach large numbers of students remotely and therefore has the capacity to enhance access to education. The integration of ICT and the Internet in education has the possibility of encouraging intra-institutional networking for a globally managed learning forum. There is the possibility of students and teachers all over the world sharing and developing a common knowledge base that can be enhanced and reused. However, current practices in e-learning innovations concentrate on learning as opposed to teaching. It has emerged that e-learning is built on a practice that emphasises self-learning as the corporate sectors of the society determine the goals of mainstream education. The practice brings into question the role of the professional teacher and the future of teacher education programmes.

In current practice, teaching and research in higher education are not given equal weight, especially, in their contribution to promotional prospects. Many teachers have therefore concentrated on research instead of perfecting their teaching

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capabilities. The resultant effect has been negative as education has been blamed for the failure to meet the needs of society. By shifting focus, professional teachers are therefore unavailable to influence educational policy formulations regarding what the mainstream education can possibly achieve through various practices. Consequently, society currently requires education to contribute directly to economic growth and industrial innovations, an idea which has led to emphasis on students' practical abilities to work in the corporate sectors after school. The practice has therefore changed the overall purpose of education as the content of education from the non-formal, informal and formal educations are left to interact unduly. While online e-education accords the learner the freedom to explore his/her learning styles, there is a need to retain the teacher as a counsellor, consultant and a guide. Although prominence is given to the recognition of the learners' individual differences in their efforts as they engage in exploration and acquisition of knowledge, skills and dispositions, the teachers' role is paramount. The learner has the freedom to discover his/her preferred learning styles and to determine the pace of learning within the limits of acceptable rationality consistent with the pursuit of the 'Good'. The teacher as the custodian of the socially approved curriculum holds a prominent position in the identification of 'appropriate content' from the World Wide Web.

This paper proposes that while e-learning should be integrated with teacher education disciplines, there is also a need for discipline-specific educator programmes. The eventual effect is that instructors in all institutions of learning will be trained teachers as opposed to the current practice where they are found only in the mainstream-pre-university and teacher education institutions. Mainstream education cannot produce, directly, graduates capable of demonstrating competencies required by all sectors of the society. Its purpose should be maintained at providing the foundation for continued learning without expecting a specialist orientation. For the purposes of specific orientations, parallel education settings need to be put in place to serve the technological, corporate, industrial and economic sectors. The overall purpose of education will be achieved if (1) teaching is treated as a profession (2) the policy guidelines of mainstream education are guided by educational rather than corporate or political principles and (3) discipline specific educators are trained to serve various sectors of the society.

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