



MIT TRAINING DELIVERY METHODS SURVEY REPORT

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MIT TRAINING DELIVERY METHODS SURVEY Executive Summary

Purpose and Methodology. In 2006, the Training Alignment Team (TAT) sponsored a survey to understand which training delivery methods are experienced as most effective for learning by MIT employees. Administrative, sponsored research, and support staff were surveyed because they predominate as participants in MIT training programs. The overall goal in gathering these data is to ensure that choice of delivery methods optimizes learning for work at MIT. The Training Delivery Methods project team included members from four different departments who develop and deliver training at MIT.

In the survey, respondents were asked to rate the effectiveness of seven training delivery methods. Respondents were also asked to rate their level of experience as well as the effectiveness of the delivery methods for several subject matter areas. Finally, respondents were asked to provide written comments regarding their choices.

The methods were chosen by a set of criteria that included current usage, survey brevity, and commonality of language across departments. These seven methods (definitions on p. 6 of report) include:

- Lecture/demonstration
- Classroom training with instructor
- One-on-one tutorial
- Self-paced learning, non-electronic
- E-learning, self-paced
- E-learning, facilitated
- Blended learning.

The survey was sent in two stages in 2006 to a randomly selected sample of 1882 MIT employees including administrative staff, support staff, and sponsored research staff. The overall response rate was 26% (492 respondents). Respondents included 41.7% men and 58.3% women. Respondents were representative of those sampled. For relevant analyses, results are significant at a 95% confidence level.

Key Findings. (For additional results and data, please see the full survey report.)

- “Classroom training with instructor” was chosen more often than any other method as “most effective for learning.” This method was rated highest overall and 30% higher than the next highest rated method. “Classroom training with instructor” was also rated highest on three (computing/software skills, financial/accounting skills, interpersonal communication/leadership skills) of the four subject matter areas.
- For learning about “a procedural or policy change,” the fourth subject area, “lecture/demonstration” was seen as most effective. Written responses suggest that the efficiency of “lecture/demonstration” to learn something brief may explain this choice. Both “classroom with instructor” and “e-learning self-paced” followed as second most effective for this subject matter.
- All seven methods were rated as effective for learning at a level 3 or higher (1-5 scale), suggesting respondents learn effectively with all methods.

- Of the seven methods, “e-learning, facilitated” was generally, though not always, rated least effective. Respondents’ written comments suggest an explanation. That is, live interaction was a key variable in respondents’ choosing “classroom training,” and the ability to go at one’s own pace was important in their choice of the “self-paced” methods. “E-learning, facilitated” employs none of these key factors seen as effective for learning by respondents.
- There were no practically significant differences by gender between the administrative and support staff groups.
- Differences suggest that sponsored research staff have more experience with “e-learning self-paced” than the other groups and are more likely to choose it as most effective. However, even among the sponsored research staff, “classroom with an instructor” was rated highest more often than any other method.
- Women sponsored research staff with “e-learning, self-paced” experience were more likely than other groups (including men sponsored research staff) to choose “e-learning self-paced” as most effective.
- Nearly 80% of respondents (391 of 492) provided written comments. These qualitative results fully support quantitative findings. Reasons why employees chose certain methods as most effective include:
 - *Asking questions* (26%). Generally associated with “classroom training with an instructor.”
 - *Synergy/Learning with others* (15%). Primarily associated with “classroom training.”
 - *Interaction with a human instructor* (12%). Associated with “classroom,” “blended learning,” “one-on-one tutorial,” and “lecture/demonstration.”
 - *Choosing one’s own pace* (12%). Primarily “e-learning, self-paced”.
 - *Learning by doing* (10%). “Classroom” and “one-on-one tutorial”.

Conclusion. These data suggest respondents believe they can learn effectively with all seven training delivery methods surveyed. Nonetheless, clear preferences for specific methods were made by respondents when given a choice.

Most MIT employees appear to choose live classroom training with an instructor as most effective for their learning. In a classroom environment, the ability to ask questions and interact with others are seen as key components for participants’ learning. Key factors for other, self-paced methods include learning at one’s own pace and the ability to choose time and place. Few respondents choose other methods (e.g., “e-learning, facilitated”) because these methods offer neither the human interaction nor the choice of pace, place, and time.

While these data suggest some significant differences among staff regarding their choice of methods, “classroom training with an instructor” was seen as most effective by most groups and across most subject matter areas.

For more about this survey, contact Jeannette Gerzon at gerzon@mit.edu.



MIT TRAINING DELIVERY METHODS SURVEY REPORT

INTRODUCTION

How is it decided which delivery method to use when developing a training program? Should different subject matter areas utilize different methods? What do employees believe is most effective for their own learning?

These are some of the key questions about training delivery methods that initiated this survey to learn about employees' experience. Under the auspices of MIT's Training Alignment Team, the Training Delivery Methods Team was formed in the fall of 2004 to develop a set of guidelines to assist in choosing delivery methods for different training subject matter. To do so, a survey was developed to learn about MIT employee opinions and experience with different delivery methods.

The survey objective was to learn about end-user experience and opinions regarding what is most effective for their learning. The goal of learning from end-user data is to inform trainers, content owners, and developers about choice of delivery methods that enhances learning for work at MIT.

The Training Delivery Methods team was organized to represent some of the main areas that develop and offer training at MIT. The team consisted of four members, one each from Environmental Health and Safety, Human Resources, Information Services & Technology, and the Office of Sponsored Programs.

The Training Delivery Methods Team met approximately one or more times per month from the fall of 2004 to the fall of 2005. It became clear that end-user input was an important component of developing guidelines for choice of delivery methods. In addition, a survey of end-users' opinions on this subject across departments had not been completed previously at MIT.

Phase I (2004-mid-2006) of the Training Delivery Methods project consisted of team discussions, input gathering, literature review, and developing and administering this survey. Phase II (mid-late 2006) involved the completion of the data analysis and the writing of the report. Qualitative data analysis and reporting was provided by another member from IS&T during this phase.

Both the request to participate and the survey were sent via email on January 3, 2006 to a random sample of 882 MIT administrative staff and support staff. The same survey was sent to a random sample of 1000 sponsored research staff on May 26, 2006. The combined response rate for both survey administrations was 26%.

Both quantitative (Likert 1-5 scale) and qualitative (written responses) data were gathered. For the Likert Scale, 1 = "Not at all effective" and 5 = "Highly effective." For relevant analyses, results are significant at a 95% confidence level.

CHOICE OF DELIVERY METHODS

The survey looked at a series of questions based on end-user experience of seven specific delivery methods. These methods and their definitions are:

- **Lecture/Demonstration:** In-person lecture/demonstration on a particular topic with limited interaction and practice
- **Classroom Training with Instructor:** Participants attend training where an instructor presents material and there is an opportunity for interaction and hands-on learning or practice.
- **One-on-One Tutorial:** Instructor provides individual instruction to one learner.
- **Self-paced Learning, Non-electronic:** Learner follows a course of study, setting own learning pace (e.g., with printed materials such as books or manuals, not via the Internet).
- **E-learning, Self-paced:** Training delivered electronically (e.g., computer-based via the Internet or with CD-ROMs) in which learner sets own learning pace.
- **E-learning, Facilitated:** Instruction delivered electronically with an instructor or facilitator who sets the pace and/or offers interaction (e.g., webcasts or scheduled Internet instruction).
- **Blended Learning:** Combines e-learning with instructor-led classroom training or one-on-one instruction.

These seven methods were chosen based on a series of discussions, input from the members of MIT's Training Alignment Team, and on a set of criteria based on these conversations. These criteria included the following:

- Methods should cross departmental boundaries. That is, methods should not be limited either in language or scope to specific MIT departments, laboratories, or centers.
- Methods should reflect current usage as much as possible.
- A methods glossary should indicate clearly the definition for that method. (A glossary was listed on the survey and respondents were directed to read the definitions for each method.)
- Survey scope should remain narrow and focus solely on delivery methods. That is, survey scope should not focus on other topics, though relevant, such as theories of adult learning, etc. Methods should reflect this scope.
- The survey itself should be short (5-10 minutes) to encourage participation, and thus the list of methods should be brief rather than exhaustive.

It is understood that there are additional training delivery methods. In addition, even those chosen for this survey may in some ways overlap. However, in reviewing the literature and in extensive discussions, these methods were seen as most reflective of current usage and were considered most likely to produce practical information. Usability testing also suggested that most respondents answer questions quickly and without concern about overlap of methods or exact definitions. Given these learnings and discussions, these seven methods most stood the test of the above criteria.

SURVEY QUESTIONS

The survey questions were divided into four main areas.

1 - **Experience level.** Question one asked which types of training method respondents had experienced. They were asked to check all that apply.

2 – **Effectiveness by subject matter.** Questions 2-5 asked which method was most effective for learning the following different types of subject matter:

- Question 2. Computing skills or a software application.
- Question 3. Financial or accounting skills.
- Question 4. Interpersonal communication or leadership skills.
- Question 5. A procedural or policy change.

It is understood that many kinds of subject matter could be chosen. The intention in choosing these subject areas was four-fold:

- To vary the type of subject matter.
- To reflect current types of training subject matter (though not exhaustively).
- To keep the list short to ensure greater survey participation.
- To vary the type of learning. For example, it could be assumed that learning interpersonal and leadership skills may require more interpersonal interaction than learning at least some accounting skills. As another example, it may be assumed that learning a software application may take more time than learning a procedural or policy change.

3 – **Effectiveness by method.** Question 6 asked how effective each of the methods was experienced on a scale of 1– 5. For this question, 1 is "Not at all effective" and 5 is "Highly effective." Also for this question, respondents were asked to rate *each* of the six methods for effectiveness on this scale, not to choose one over another.

4 – **Most/least effective and why.** Questions 7 and 8 asked which method was most effective and which was least effective and why. Question 7 asked which one method, and only one method, respondents found most effective. Question 8 asked the same question for least effective. For both questions 7 and 8, respondents were also asked to answer "why" in written responses. Finally, respondents were given the opportunity to add additional written comments (Question 9).

METHODOLOGY AND RESPONDENTS

Prior to sending the survey, the survey underwent usability testing with live volunteers. Usability testing confirmed the survey was highly "useable" overall, but also made some format suggestions further supporting the survey's ease and clarity for respondents. These changes were fully incorporated in the subsequent draft.

The survey was sent to a random sample of three different MIT employee groups with an MIT email address. These employee groups included administrative staff, support staff,



and sponsored research staff because they predominate as participants in MIT training programs.

Both the request to participate and the survey were sent via email; therefore, only those staff members with an email address could participate. Union officials were informed in writing about the survey prior to administering the survey. No concerns were received.

The survey was sent in two stages. It was sent initially on January 3, 2006 to 900 randomly selected members of the administrative and support staff groups. One reminder email (Appendix 2) was sent on January 24, 2006 from Margaret Ann Gray, Director of MIT's Organization and Employee Development and co-leader of the Training Alignment Team. This sample was drawn from a total population of approximately 3500 administrative and support staff at MIT.

For the January survey, the overall response rate was 32.5% or just under one-third of those sampled. That is, 288 individuals completed the survey.

The survey was also sent on May 26th, 2006 to 1000 randomly selected sponsored research staff. Similar to the January administration, it was sent via a cover email, but in this administration it was signed by Bill Van Schalkwyk of EHS and co-sponsor of the training alignment team. Again, one reminder email was sent to non-respondents approximately one week later for this second administration. Of the sponsored research staff (SRS), 205 responded or 20.5% of the total for this administration.

Total number of respondents for the entire survey (both administrations) was 492 individuals. Of these, 171 were administrative staff (34.8%), 116 support staff (23.6%), and 205 were sponsored research staff (41.7%). Total respondents included 41.7% men and 58.3% women (Figure 1).

Figure 1. Total Respondents by Gender and Employee Type.

Type of Employee	Frequency	Percent
Administrative staff	171	34.8
Support Staff	116	23.6
SRS	205	41.7
Total	492	100.0

Type of Employee by Gender

	Male	Female	N
Administrative staff	37.4%	62.6%	171
Support Staff	21.6%	78.4%	116
SRS	56.6%	43.4%	205
Total	41.7%	58.3%	492



The survey respondents by gender appear representative of the MIT population within the areas sampled. Of the population surveyed, for example, 42.7% are men (41.7% respondents were men). Similarly for the population surveyed, 57.3% are women (58.3% of the respondents were women).

LIMITATIONS TO THE DATA

Although both the January and May survey administrations were kept as uniform as possible, differences could potentially result in non-analogous findings. Simply due to a difference in the time of year (January vs. May), for example, differences could exist between the beginning vs. the end of term. While none are anticipated, potential limitations to the data could result from the non-aligned timing of administrations.

One other difference included a change in signatures on the cover letter between the two administrations. The first was signed by Laura Avakian, then Vice President of Human Resources. Between the first and second administrations, Ms. Avakian retired. For this reason as well as for a potential recognition factor for sponsored research staff, Bill Van Schalkwyk signed the second administration's cover letter. Again, while these are small changes, they present nonetheless a non-uniform factor.

Also, while choice of delivery methods was made with considerable discussion and input, possible limitations include the potential relevance of delivery methods not included.

As noted earlier, respondents were required to have an email address in order to receive and complete the survey. Thus, familiarity with a computer, email, and sufficient ability to complete the survey on-line were necessary to take this survey. While this does not suggest the current data are in any way not valid, potential limitations to the data include the fact that some employees could not receive or complete it.

Finally, choice of subject matter (Questions 2-5) may not reflect as much pertinent subject matter to sponsored research staff as for administrative and support staff. Future considerations may consider type of subject matter to a larger extent to ensure equal relevance for all survey respondents. In addition, other types of subject matter, while not expected to result in differences, are as yet unexamined.

RESULTS

This report addresses results in the same order as the questions asked on the survey (see Appendix 4 for copy of survey). Questions focused on three main areas:

- Which delivery method/s do end-users of MIT training programs indicate is most effective for their learning?
- Does end-user experience of effectiveness vary by subject matter?
- Why do end-users hold these opinions? That is, what do end-users indicate are the pros and cons of various delivery methods?

Question 1. Experience Level.

The survey asked respondents about their experience with the different training delivery methods. Question 1 asked, “Which of the following types of work-related training have you participated in, either inside or outside MIT?” Thus, the survey asked specifically about work-related training as opposed to other possible types of training, college, or other possible types of study.

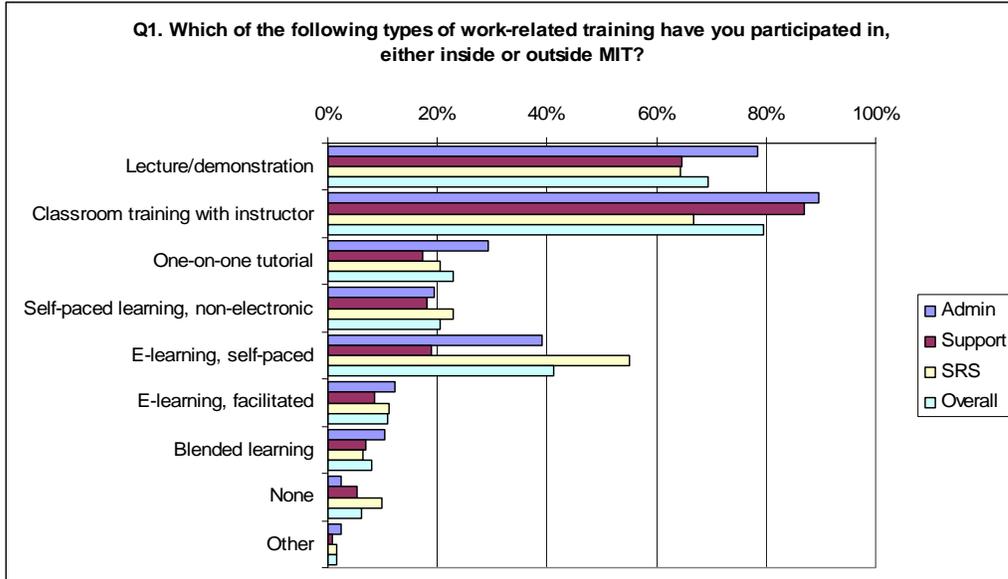


Figure Q1. Level of Work-Related Training Experience by Method.

The results (Figure Q1) suggest that nearly 80% of respondents have experience with “Classroom training with an instructor,” the most experienced method. “Lecture/demonstration” appears to be the second most experienced method (just under 70%), and “e-learning, self-paced” the third most experienced method (just over 40%). “Blended learning” was least experienced at approximately 10%.

Thus a vast majority of respondents indicated they have experience with some of the methods, and only a very a small percentage listed “none” or no experience.

Correlations between experience and choice of most effective method are discussed further in the results section of Question #7. Question 7 asked respondents which method overall is most effective for their learning.

There were some statistically significant differences by employee type in reference to experience with different methods. More administrative staff have “lecture/demonstration” and “classroom with an instructor” experience than do sponsored research staff. In addition, sponsored research staff have more experience with “e-learning, self-paced” than do administrative and support staff. This is also further explored in the results section of Question 7.

Subject Matter Areas: Questions 2-5

In questions 2-5, respondents were asked to choose one of the seven methods as most effective for learning specific subject matter. These subject matter areas included:

- Question 2: Computing skills or a software application
- Question 3: Financial or accounting skills
- Question 4: Interpersonal communication or leadership skills
- Question 5: A procedural or policy change

Subject matter areas were chosen in part because they appear to be different one from another in both content and potential delivery method choice. That is, learning interpersonal communications skills may be different than learning about a policy change. Similarly, learning to use a new software application may be different from learning leadership skills. However, while it may be easy to assume differences in choice of method by subject matter, this survey intended to ask the question, “Does effectiveness vary by subject matter?”

Results indicate that some differences in respondents’ choice of effectiveness vary with subject matter. For example, written comments noted that some respondents may prefer different methods with different subject matter. And, for one of the subject matter areas (a procedural or policy change), a method not chosen often (“lecture/demonstration”) was chosen as most effective.

However, “classroom training with an instructor” was chosen more often by more respondents than any other method. On three of the four areas, respondents chose the same method (“classroom training with instructor”) as most effective. In the fourth area, “classroom training with instructor” and “e-learning, self-paced” were seen as second most effective.

Even when learning computing and software application skills, respondents chose “classroom training with instructor” over other methods. So, while some variation does occur by subject matter, for the most part respondents chose “classroom training with an instructor” over other methods. These details are described further in the following graphs and comments regarding questions 2-5.

Question 2. Choose one that best describes the most effective learning method for computing skills or a software application. (See Figure Q2.)

For all three employee groups together, “classroom training with instructor” was seen as most effective for this subject matter. While administrative and support staff chose “classroom training with instructor” as most effective for this subject matter, sponsored research staff had two top choices: “classroom with an instructor” and “e-learning, self-paced.”

“E-learning, self-paced” was chosen significantly more by sponsored research staff than by administrative or support staff. This difference is described further in the section on Question 7.

As often indicated by respondents, for this subject matter, “e-learning, facilitated” was seen as least effective for learning.

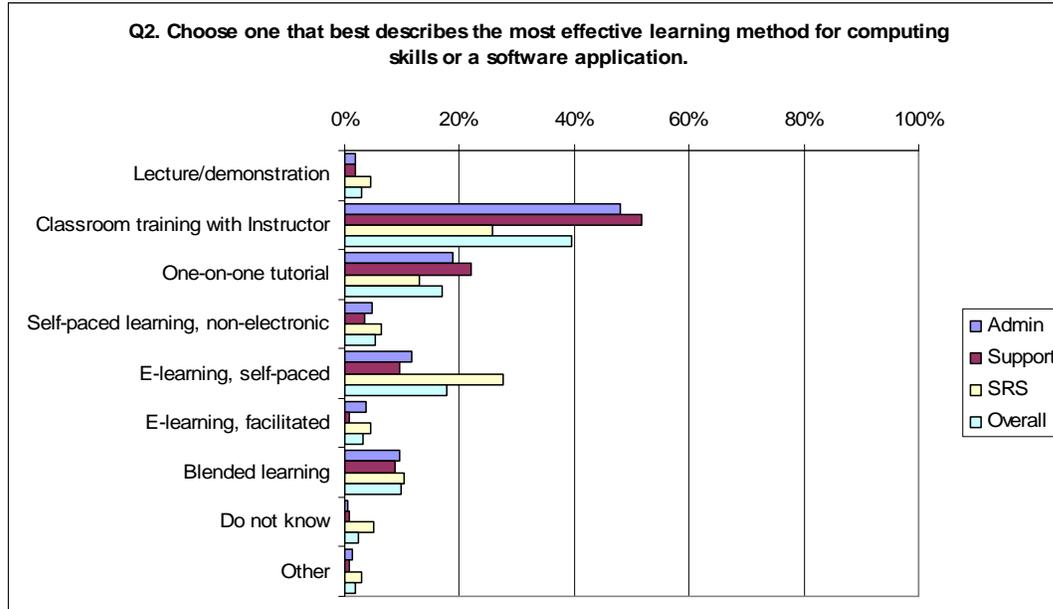


Figure Q2. Most Effective Method by Subject Matter: Computing skills or a software application.

Question 3. Choose one that best describes the most effective learning method for financial or accounting skills.

For accounting and financial skills, “classroom training with instructor” was chosen by all three employee types (sponsored research staff, administrative, and support staff) as the most effective method when a method was chosen.

In reference to learning financial or accounting skills, approximately 36% of sponsored research staff chose “do not know,” considerably more than the other two employee types. Written comments suggest that “do not know” was chosen because, at least for those sponsored research staff who wrote these comments, they rarely needed to learn these skills and thus may not know the best learning method.

Once again, “e-learning, facilitated” was seen as least effective for learning.

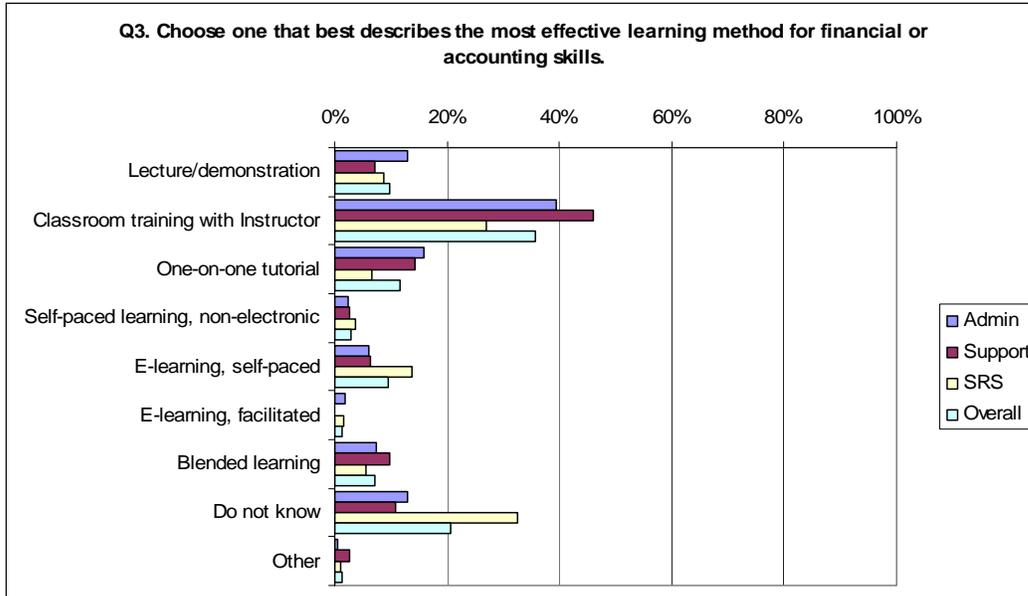


Figure Q3. Most Effective Method by Subject Matter: Financial or Accounting Skills.

Question 4. Choose one that best describes the most effective learning method for interpersonal or leadership skills. (See Figure Q4.)

All three employee groups chose “classroom training with instructor” as the method most effective to learn these skills. “Lecture/demonstration,” another live method, was chosen as second-most effective by respondents. “Don’t know” followed as third, with “blended learning” and “one-on-one tutorial” together as fourth.

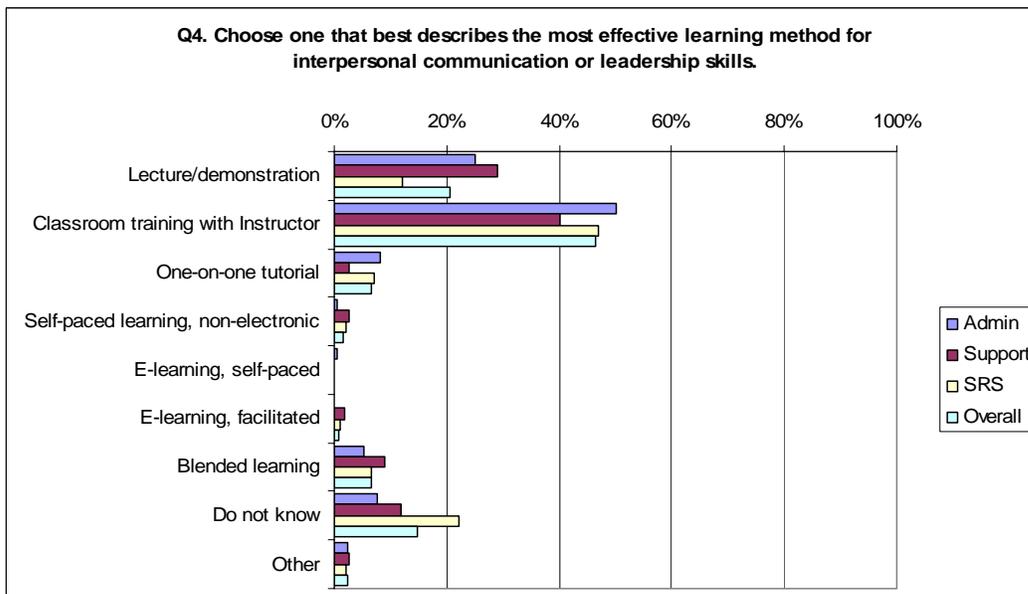


Figure Q4. Most Effective Method by Subject Matter: Interpersonal communication or leadership skills.

If following the logical assumption that learning interpersonal skills is supported by utilizing live, interpersonal training methods, these data appear to agree with such an assumption. That is, interpersonal methods were rated highest, and the two e-learning methods were rated lowest for learning this subject matter.

Question 5. Choose one that best describes the most effective learning method for a procedural or policy change. (See figure Q5.)

Approximately 41% of the respondents chose “lecture/demonstration” over the other delivery methods to learn about a procedural or policy change. “Classroom with an instructor” and “e-learning self-paced” were second with approximately 18% each. Sponsored research staff were significantly more likely than administrative and support staff respondents to choose “e-learning self-paced.” However, more sponsored research staff chose “lecture/demonstration” than chose “e-learning, self-paced.”

Written comments suggest the reason that “lecture/demonstration” was chosen as most effective is its efficiency. As one respondent wrote: “Most efficient; less time required.” So, for subject matter that appears to be short in duration, it would make sense that “lecture/demonstration” may be chosen as most effective given respondents write that it is efficient.

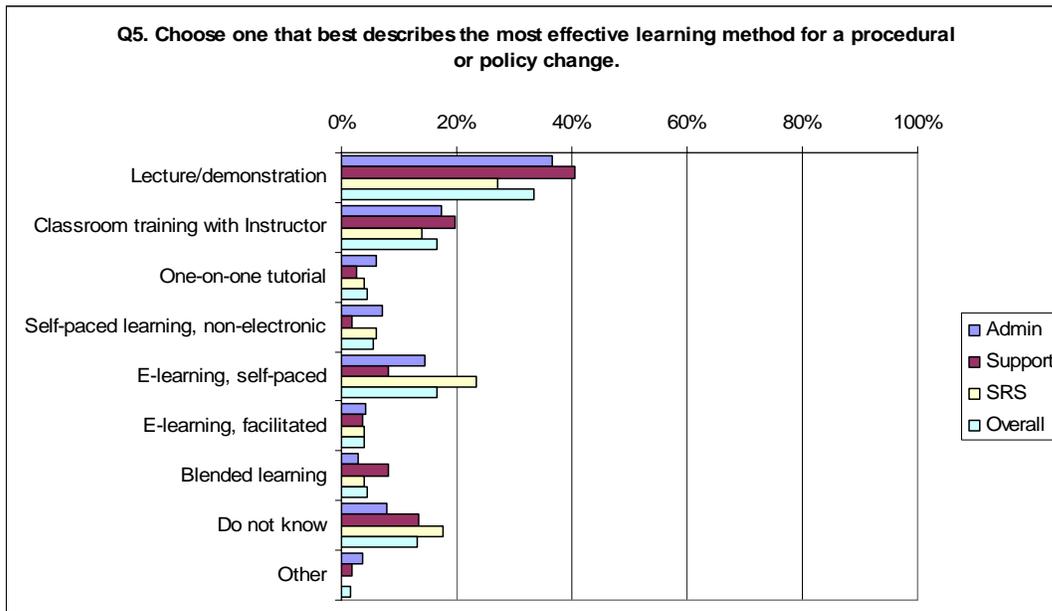


Figure Q5. Most Effective Method by Subject Matter: A procedural or policy change.

Question 6. How effective in general do you feel each training method is for you? (See Figure Q6.)

When asked to rate methods individually for effectiveness, “one-on-one tutorial” was ranked highest, but only slightly above “classroom training with instructor.”

Interestingly, although “e-learning, facilitated” was consistently rated lower than “e-learning, self-paced” in other questions and for different subject matter, it was ranked nearly the same when rated individually here. These results could suggest that although both methods may be effective for the person when used, “e-learning, self-paced” is considered far more effective for learning when the person has a choice between the two.

This is supported by qualitative findings. Written comments suggest that it is the ability to choose one’s own pace that drew respondents to choose the “self-paced methods.” That is, “e-learning, facilitated” neither allows the learner to go at his or her own pace nor does it provide the interaction of live instruction. These could be the reasons it tends to be rated lower when compared to other methods, but nonetheless be considered sufficiently effective as a learning method when utilized.

Interestingly, all seven methods were rated as effective for learning at a level 3 or higher on a scale of 1-5. This suggests respondents believe they can learn effectively with all the methods.

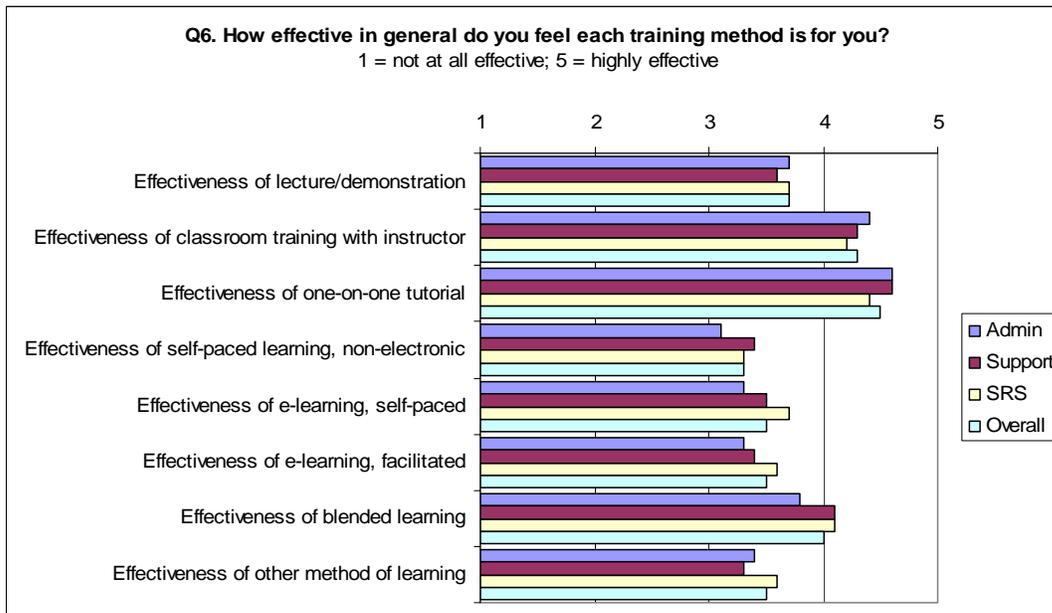


Figure Q6: Effectiveness of each method (methods rated individually).

Question 7. Overall, if you had to choose one training method, which would be most effective for you? (Choose one.) Why?

When asked which method is most effective if only one could be chosen, the data suggest again that “classroom training with an instructor” is seen as most effective. This is true for all three employee types whether administrative, support, or sponsored research staff. (See Figure Q7.)

When asked “why,” one respondent wrote, “Ability to interact face-to-face with instructors. Ability to interact with and learn from other class participants.” Another explained his or her choice by writing, “I like the personal interaction with class and instructor and the dynamic created.”

Overall, “one-on-one tutorial” appears to be the second most effective for respondents when they can only choose one. When asked why this is so, one respondent wrote about “one-on-one tutorial” that, “It’s hands-on, personal, generally quick as it addresses my individual need.” As another individual wrote, “Nothing beats having 1-1 interaction, especially if it is occurring at the very time I need to apply those skills/learning...” Another suggested he or she could “move at their own pace” with one-on-one tutorials.

It should be noted that the difference between the first (“classroom with instructor”) and second choices (“one-on-one tutorial”) was approximately 30%. In other words, when respondents can choose only one method, “classroom with an instructor” is considered the most effective by a considerable margin.

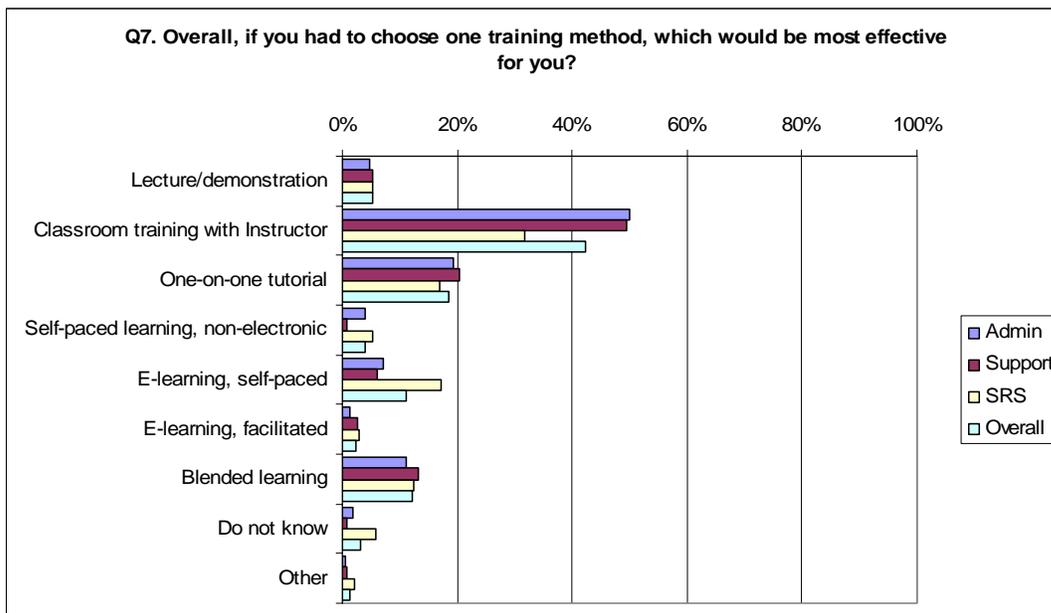


Figure Q7. Most effective method.

“E-learning, self-paced,” and “blended learning,” seen as third and fourth most effective, were close in ratings.

Although “lecture/demonstration was seen as most effective method for learning a procedural or policy change, it was rated very low when respondents chose only one method. Thus, it does appear that subject matter can affect participants’ experience or choice of most effective method.

Once again, “e-learning facilitated” was rated very low. Respondents indicate more experience with “e-learning, facilitated” than with “blended learning.” However, as further results indicate, “e-learning, facilitated” was often rated lowest in effectiveness.

Therefore, even with more experience than at least one other method, “e-learning, facilitated” is rated as less effective than other methods when respondents can choose only one.

Differences and Correlations with Experience (Appendix 8)

These data suggest that administrative and support staff were more likely to choose “classroom training with instructor” than were the sponsored research staff. In addition, sponsored research staff were more likely than administrative and support staff to choose “e-learning, self-paced.”

In this regard, more administrative and support staff have experience with “classroom with an instructor” as a method of learning than do the sponsored research staff. And, conversely, more sponsored research staff have experience with “e-learning, self-paced” than do administrative and support staff.

Therefore, correlations between experience and choice of most effective method were considered to answer the following question: “If a respondent has experience with a method, is that respondent more likely to select that method as most effective?” Two methods, “classroom with an instructor” and “e-learning, self-paced” were considered to explore this question. These findings are described in the following two sections.

“E-learning, self-paced:” Employee and gender differences.

The survey results show that:

- 201 respondents had experience with “e-learning, self-paced.”
- Among these 201 with experience, overall only 19% selected “e-learning, self-paced” as most effective.
- Among those with “e-learning, self-paced” experience, 36% chose “classroom with an instructor” as most effective. That is, “classroom” was seen as the most effective method by those with “e-learning, self-paced” experience.
- Among those with “e-learning, self-paced” experience, 23% of sponsored research staff, 13% of administrative, and 14% of support staff chose it as most effective.
- Among those with “e-learning self-paced experience” sponsored research staff were more likely to choose “e-learning, self-paced” than were other groups. However, among sponsored research staff alone, they still chose “classroom with instructor” more often than “e-learning, self-paced” as the most effective method.

In conclusion, whether respondents had experience with “classroom with an instructor” or with “e-learning self-paced,” “classroom training with an instructor” was still seen as the most effective method. Although sponsored research staff are more likely than the other two employee groups to choose “e-learning, self-paced,” “classroom” is still rated more effective by this employee group.

Among those with e-learning self-paced experience who also chose this method as their top choice, more women (24%) than men (13%) chose “e-learning, self-paced.”

Respondents with “e-learning, self-paced” experience who chose it as most effective:

	Men	Women
Administrative staff	11%	15%
Sponsored Research staff	16%	31%

Figure Q7B1

As seen in Figure Q7B1 above, of those with experience in this method, nearly twice as many women than men among sponsored research staff also chose “e-learning, self-paced” as most effective. Also among this population, fewer women sponsored research staff chose “classroom training” than did men. Regarding why this may be so, further exploration of this question may be warranted whether through follow-up discussions, interviews, or other data collection methods.

“Classroom with an instructor:” Employee and gender differences.

The survey data show that:

- 485 respondents had experience with “classroom with an instructor.”
- Among those with “classroom” experience, 49% selected “classroom training with an instructor” as most effective.
- Among those with “classroom training with an instructor” experience, support staff (56%) were the most likely to choose this method, administrative staff followed at 53%, and sponsored research staff at only 39%.
- Among those with “classroom with an instructor” experience overall, more women (58%) than men (46%) chose it as most effective.
- While more women than men with “classroom with an instructor” experience choose it as most effective among administrative and support staff, this is not true among sponsored research staff.
- Among sponsored research staff with “classroom with an instructor” experience, more men (41%) than women 37% choose it as most effective. (See Figure Q7B2.)
- That is, women sponsored research staff with “classroom with an instructor” experience are less likely to choose “classroom with an instructor” than men sponsored research staff (SRS women appear to choose “e-learning, self-paced” more often instead).
- In summary, “classroom training with an instructor” is seen as most effective by nearly all employee groups except for women sponsored research staff with “classroom with an instructor” experience. Whereas, men sponsored research staff with “classroom with an instructor” experience still choose “classroom with an instructor” as their top choice.

Respondents with “classroom with instructor” experience who chose it as most effective:

	Men	Women
Administrative staff	48%	56%
Support staff	53%	56%
Sponsored Research staff	41%	37%

Figure Q7B2

Women sponsored research staff seem to respond differently to some of these questions than do other groups. They are more likely to choose “e-learning, self-paced” and they are more likely not to choose “classroom with an instructor” even when they

have experience with these methods. Once again, additional exploration regarding why this is so may be warranted.

Questions 8. Overall, which method is LEAST effective for you? (Choose one).

When responding to what is least effective, respondents’ primary answer is that they “Don’t know.” (See Figure Q8.) What is “least effective” among many options is often harder to answer than what is “most effective” because it requires people to rate several things they may know little about.

Written responses describe additional reasons why some respondents chose, “Don’t know” for this question. For example, one person writes that, “Form of a method by itself is not a measure of the effectiveness of a learning experience. Almost any method can be done well or poorly.” Another writes that, “What is least effective depends on what is being communicated – for policy changes, a lecture (even email) is fine, but would be least effective for something that involves a long complicated procedure...”

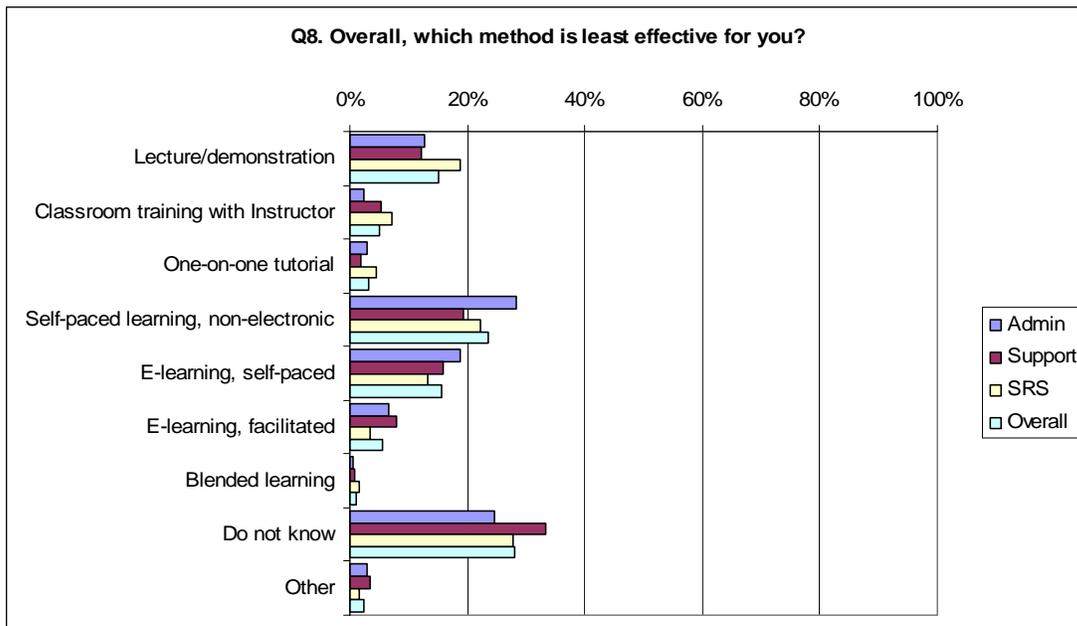


Figure Q8. Least effective method.

These respondents suggest that subject matter, at least for them, would indicate a different choice of delivery method. While results from earlier questions suggest this to be true for some respondents, most respondents chose “classroom training with an instructor,” for most subject matter. In order to understand this further, additional or future studies could include additional subject matter. Subject matter that related more to sponsored research staff areas of work and interest, for example, could be included to a greater extent.

Close behind “Don’t know” as least effective, however, is “self-paced learning, non-electronic.” Examples of written explanations regarding why this answer was chosen include, “It just doesn’t get done. It sits in the pile that gets higher and higher, and it

doesn't have the pressing priority of other things...“, and “This takes the most self-discipline.”

Interestingly, “e-learning, self-paced” was rated least effective by more respondents than was “e-learning, facilitated.” “E-learning, facilitated” was usually rated least effective for most subject matter areas.

QUALITATIVE RESULTS

Qualitative written comments fully support quantitative findings by describing why employees chose certain methods as most or least effective. Essentially, these written comments answered one of the key questions intended through original survey design. That is, “Why do end-users hold these opinions?”

391 (78%) of the 492 respondents wrote comments for Question 7. Over 36% (179) of all respondents offered written comments for Question 8.

Question 7a. Which method is most effective. Why?

- **Asking Questions.** Almost a third (31%) of all respondents noted that having the opportunity to ask questions, feeling comfortable asking questions and having someone available to answer questions is what they value in their training. Specifically, these comments were in reference to “classroom training with an instructor,” “blended learning,” and “one-on-one” methods.

- **Learning with others.** Next highest (over 14%) were comments associated with the synergy of being with others in the classroom. These comments suggest there is a benefit from hearing other participants' perspectives, opinions, and experiences. These respondents noted that working with others adds to the overall learning experience. This was especially noted in the “classroom training with an instructor” and “blended learning” methods.

- **Interaction with a human instructor.** Closely related to being able to ask questions, was having a “human instructor,” in their words, who is available to answer questions. Nearly 12% indicated this was a significant factor for effective learning.

- **Pace.** Other written comments (12%) suggest the importance of pace geared to individual needs. Being able to go at one's own pace, as well as not being slowed down or pressured to keep up was seen as positive in “blended learning,” “e-learning, self-paced,” and “one-on-one” methods.

- Learning by Doing

Approximately 10% wrote that “learning by doing” or “hands-on” practices were important when learning new skills, especially technical skills. This was associated primarily with “classroom with instructor” and “one-on-one” methods.

Question 8a. Which method is least effective. Why?

Comments written about which method is least effective also supported quantitative findings. These comments supported and were congruous with responses about why methods were most effective.

- **No accountability or motivation.** The most reported reason (13%) for not finding self-paced methods (“e-learning, self-paced” or “self-paced, non-electronic”) to be effective was that participants found it easier to procrastinate or not prioritize the training. These comments also suggested that lack of accountability gave respondents less motivation to start or complete training.

- **Pace.** Not being able to go at one’s own pace, specifically being held back by others’ skill levels and questions, lessened the effectiveness of training for 5% of respondents. This was associated primarily with “e-learning, facilitated” and “lecture/demonstration.”

- **Not having questions answered.** 7% of respondents wrote comments suggesting that not having questions answered or difficulty asking questions made “e-learning, self-paced” and “lecture/demonstration” least effective methods of training.

Overall, written comments were supportive of other findings. Comments written about methods seen as most effective and those seen as least effective confirmed and explained quantitative findings.

Question 9. Please share any additional thoughts you have about training methods.

Written responses to Question 9 asking respondents to share additional thoughts varied, but supported other findings. Some respondents commented further on the positive aspects of instructor-led training, while others suggested that the most effective method depends on the subject at hand.

Other comments suggested the timing of the training or the facilities of training also mattered. As one respondent wrote, “I prefer NOT to have classes held over lunch time since that is supposed to be a time for employees to take a break rather than continue to work.” Another wrote, “Make sure the place is not hot and crowded.”

Still others made general comments about the value or quality of training at MIT. As one respondent wrote in reference to classroom experiences at MIT, “They have all been excellent. Better than any other place I have worked.” Another respondent wrote, that “MIT in general has done a good job with the training courses I have taken.”

Still another wrote that, “Training is great!!! Thanks for providing the opportunities.” And, as one other respondent wrote, “Thanks for asking our opinions!”

DISCUSSION AND SUMMARY

This survey was intended to explore MIT employees’ (sponsored research staff, administrative staff, and support staff) experience level with different training delivery methods and their sense of the effectiveness of these methods for their learning. Overall, the rate of responses and the extent and content of written comments from respondents suggest considerable interest in training at MIT by these employees.

Specific results about training delivery methods included a number of key findings.

Interestingly, all seven methods were rated as effective for learning at a level 3 or higher on the 1-5 Likert Scale, suggesting respondents believe they learn effectively with all methods. These data may suggest that MIT employees are aware of their own ability to learn, perhaps independent of the training method. Minimally, these data suggest that the methods in this survey are not seen as a particular hindrance to their learning.

Nonetheless, preferences for most effective methods were made by MIT employees when given a choice.

Perhaps most salient, “classroom training with an instructor” was chosen more often than any other method as most effective for learning. This method was rated highest overall as well as highest on three (computing/software skills, financial/accounting skills, interpersonal communication/leadership skills) of the four subject matter areas. For the fourth subject matter area (a procedural or policy change), “lecture/demonstration” was chosen as most effective.

This may be explained by respondents’ written comments suggesting “lecture/demonstration” to be efficient. Given a procedural or policy change may require a short training time period, the perceived efficiency of “lecture/demonstration” makes sense. This was the only subject matter area that classroom training was not rated as most effective. Even when learning computing and software application skills, respondents chose “classroom training with an instructor” over other methods. So, while some variation does occur by subject matter, respondents generally chose “classroom training with an instructor” over other methods and across most subject matter areas.

Respondents’ choices were explained in considerable detail in their written comments. From these qualitative answers, it became clear that live, human interaction in “classroom training with an instructor” was seen as a critical component to their learning. This interaction, as explained by respondents, allows participants to learn from other participants, to ask and receive answers to questions from a live, human instructor, and to learn through “synergy” with others. The internal consistency of survey responses about this (whether by choice of method by subject matter, choice by most effective method overall, or through written comments) suggests that “live interaction” and its related components are seen as key factors in effectiveness for MIT employees’ learning.

Of the seven methods, “e-learning, facilitated” was often rated least effective. In considering the qualitative responses written by respondents, this method’s ratings were explained. That is, with “e-learning, facilitated” respondents do not have live interaction with an instructor nor do they have live interaction with participants. In addition, they also do not have control over the pace of their learning nor can they choose the time and place. Thus, “e-learning, facilitated” neither utilizes the positive attributes of “classroom training with instructor” (the highest rated method overall) nor does it utilize the positive attributes of the “self-paced” methods (rated as effective by many respondents). That is, it has most of the negative factors, and few of the positives, of the various methods.

Differences suggest that sponsored research staff have more experience with “e-learning self-paced” than the other groups and are more likely to choose it. However, even among the sponsored research staff, “classroom with an instructor” was rated highest more often than any other method.

Women sponsored research staff with “e-learning, self-paced” experience were more likely than other groups to choose “e-learning self-paced” as most effective. Among those with “e-learning self-paced” experience, more women sponsored research staff chose this method than did men sponsored research staff. While qualitative responses may provide some answers about why “e-learning, self-paced” is a positive choice overall, they do not fully answer the question of gender differences. Further information could be gained by additional exploration of this question.

There were no practically significant differences by gender between the administrative and support staff groups. This could suggest that varying the type of training method by gender, at least for these staff members, is not necessary.

Nearly 80% of all respondents provided written comments, an unexpectedly high rate of response. These written responses fully supported quantitative findings. Reasons why employees chose certain methods as most effective include:

- *Asking questions.* The ability to ask and have questions answered, generally in a classroom setting, was noted by 26% of all respondents.
- *Synergy/Learning with others.* Comments associated with the synergy of being with others, generally within the classroom setting (15%), were also key to respondents’ learning.
- *Interaction with a human instructor.* 12% of respondents noted the human interaction with the instructor as key (mostly associated with classroom but also with blended learning and one-on-one tutorial). As one respondent wrote, “The best is to have a good instructor. A good teacher with charisma and good delivery and teaching methods is priceless.”
- *Pace.* Other comments (12%) suggested the great importance to some respondents of learning at one’s own pace (most often associated with “e-learning, self-paced”).
- *Learning by doing.* Learning by doing (10%) was also important (mostly associated with “classroom” and “one-on-one tutorial”).

These survey results indicate several key variables are seen by MIT employees as positive for learning: some employees choose the self-paced methods which offer flexibility of time, place, and pace. Most MIT employees choose “live” classroom instruction due to several kinds of human interactions that support their learning. Few choose other methods (e.g., “e-learning, facilitated”) because these methods offer neither of these key components seen as key for learning.

These data suggest the exploration of further understanding the choice of “self-paced” learning opportunities for some MIT staff, particularly for women sponsored research staff. The results also suggest the need for excellence in live instruction, the opportunity for interactive communication in training, and the opportunity to ask and receive answers to questions from live instructors.



Overall, these findings suggest that all seven methods surveyed can be utilized successfully for MIT employees' learning. Along with this, in accordance with adult learning theory, it appears important to provide optimal time for training participants to interact with each other, to talk and interact with live instructors, to be able to listen to and ask questions not only of a live instructor, but of their fellow participants as well. Finally, these data suggest that live classroom training with an instructor and other participants is seen as most effective for learning by most MIT employees surveyed.



Appendix 1.

Email letter sent to Survey Recipients from Laura Avakian, VP Human Resources

-----Original Message-----

From: mitsurvey-bounces@MIT.EDU [<mailto:mitsurvey-bounces@MIT.EDU>] On Behalf Of Laura Avakian

Sent: Monday, January 16, 2006 4:38 PM

To: mitsurvey@mit.edu

Subject: Brief MIT Training Methods Survey

Dear Colleague,

I am writing to ask if you would complete this short, nine-question web survey about employee training delivery methods. The objective of the survey is to learn about the effectiveness of different delivery options for employee training based on your perceptions and experience. The short cover page of the survey provides more information about this.

This brief survey is completely voluntary. You have been randomly selected to receive this, and you may answer as few or as many questions as you like.

It takes approximately 5-10 minutes to complete and is available from <http://web.mit.edu/surveys/trainingdelivery/>

It would be very helpful if you could complete this as soon as possible, but in any case no later than next week.

I greatly appreciate your willingness to participate!

Thank you very much.

Laura Avakian

Vice President for Human Resources



Appendix 2.
Follow-up Email
(Sent once to non-respondents only.)

From: "Margaret Ann Gray" <training-delivery@MIT.EDU>
Subject: Feedback on MIT Training Methods
Date: Tue, 24 Jan 2006 22:22:50 -0500

Dear Colleague,

Last week you received email from Laura Avakian asking for your input on employee training delivery methods. If you have a moment, please consider answering this short, nine-question survey, available from

<http://web.mit.edu/surveys/trainingdelivery/>

Thank you for your assistance!

Training Delivery Team

-- Original Invitation --

From: "Laura Avakian" <training-delivery@MIT.EDU>
Subject: Brief MIT Training Methods Survey
Date: Mon, 16 Jan 2006

Dear Colleague,

I am writing to ask if you would complete this short, nine-question web survey about employee training delivery methods. The objective of the survey is to learn about the effectiveness of different delivery options for employee training based on your perceptions and experience. The short cover page of the survey provides more information about this.

This brief survey is completely voluntary. You have been randomly selected to receive this, and you may answer as few or as many questions as you like.

It takes approximately 5-10 minutes to complete and is available from
<http://web.mit.edu/surveys/trainingdelivery/>

It would be very helpful if you could complete this as soon as possible, but in any case no later than next week.

I greatly appreciate your willingness to participate!

Thank you very much.

Laura Avakian
Vice President for Human Resources



Appendix 3. Survey Introduction/Cover Page



Survey of Training Delivery Methods

Welcome MIT Community Member,

MIT offers a variety of training opportunities for its employees. This survey is sponsored by the Training Alignment Team (TAT) whose members include staff from various departments that offer Institute-wide, work-related training at MIT. TAT is sponsored by Laura Avakian, VP for Human Resources. Its purpose is to align and coordinate training efforts across the Institute to maximize the effectiveness of training at MIT.

The objective of this survey is to ask you a few questions about your training experiences and preferences. The information gathered will be used to develop a set of training delivery methods guidelines for MIT course developers. These guidelines will be a tool to determine the type of training methods most effective for different subject matter. No names or other personal identifiers will be reported in these guidelines or used publicly.

This questionnaire is completely voluntary. You may answer as few or as many questions as you like.

This nine question survey takes approximately 5 - 10 minutes to complete.

Thank you for participating! Please complete this as soon as possible..

If you have any questions about this survey, please contact training-delivery@mit.edu.

Appendix 4 Survey

Survey of Training Delivery Methods

Please refer to the glossary on the right when answering these questions.

1. Which of the following types of work-related training have you participated in, either inside or outside MIT? Check all that apply.

- | | |
|--|--|
| <input checked="" type="checkbox"/> Lecture/Demonstration | <input type="checkbox"/> E-learning, Facilitated |
| <input type="checkbox"/> Classroom Training with Instructor | <input type="checkbox"/> Blended Learning |
| <input type="checkbox"/> One-on-One Tutorial | <input type="checkbox"/> None |
| <input type="checkbox"/> Self-paced Learning, Non-electronic | <input type="checkbox"/> Other, please specify
<input style="width: 150px; height: 15px;" type="text"/> |
| <input type="checkbox"/> E-learning, Self-paced | |

In questions 2 - 5, choose one that best describes the most effective learning method for you.

2. Computing skills or a software application: (choose one)

- | | |
|--|--|
| <input type="checkbox"/> Lecture/Demonstration | <input type="checkbox"/> E-learning, Facilitated |
| <input type="checkbox"/> Classroom Training with Instructor | <input type="checkbox"/> Blended Learning |
| <input type="checkbox"/> One-on-One Tutorial | <input type="checkbox"/> Don't Know |
| <input type="checkbox"/> Self-paced Learning, Non-electronic | <input type="checkbox"/> Other, please specify
<input style="width: 150px; height: 15px;" type="text"/> |
| <input type="checkbox"/> E-learning, Self-paced | |

3. Financial or accounting skills: (choose one)

Glossary

Lecture/Demonstration:

In-person lecture/demonstration on a particular topic with limited interaction and practice.

Classroom Training with Instructor:

Participants attend training where an instructor presents material and there is an opportunity for interaction and hands-on learning or practice.

One-on-One Tutorial:

Instructor provides individual instruction to one learner.

Self-paced Learning, Non-electronic:

Learner follows a course of study, setting own learning pace (e.g., with printed materials such as books or manuals, not via the Internet).

E-learning, Self-paced:

Training delivered electronically (e.g., computer-based via the Internet or with CD-ROMs) in which learner sets own learning pace.

- | | |
|--|--|
| <input type="checkbox"/> Lecture/Demonstration | <input type="checkbox"/> E-learning, Facilitated |
| <input checked="" type="checkbox"/> Classroom Training with Instructor | <input type="checkbox"/> Blended Learning |
| <input type="checkbox"/> One-on-One Tutorial | <input type="checkbox"/> Don't Know |
| <input type="checkbox"/> Self-paced Learning, Non-electronic | <input type="checkbox"/> Other, please specify
<input type="text"/> |
| <input type="checkbox"/> E-learning, Self-paced | |

4. Interpersonal communication or leadership skills: (choose one)

- | | |
|--|--|
| <input type="checkbox"/> Lecture/Demonstration | <input type="checkbox"/> E-learning, Facilitated |
| <input checked="" type="checkbox"/> Classroom Training with Instructor | <input type="checkbox"/> Blended Learning |
| <input type="checkbox"/> One-on-One Tutorial | <input type="checkbox"/> Don't Know |
| <input type="checkbox"/> Self-paced Learning, Non-electronic | <input type="checkbox"/> Other, please specify
<input type="text"/> |
| <input type="checkbox"/> E-learning, Self-paced | |

5. A procedural or policy change: (choose one)

- | | |
|--|--|
| <input type="checkbox"/> Lecture/Demonstration | <input type="checkbox"/> E-learning, Facilitated |
| <input type="checkbox"/> Classroom Training with Instructor | <input type="checkbox"/> Blended Learning |
| <input type="checkbox"/> One-on-One Tutorial | <input type="checkbox"/> Don't Know |
| <input type="checkbox"/> Self-paced Learning, Non-electronic | <input type="checkbox"/> Other, please specify
<input type="text"/> |
| <input type="checkbox"/> E-learning, Self-paced | |

6. On a scale of 1 - 5 where 1 is "Not at all effective" and 5 is "Highly effective," how effective in general do you feel each training method is for you?

E-learning, Facilitated:
Instruction delivered electronically with an instructor or facilitator who sets the pace and/or offers interaction (e.g., webcasts or scheduled Internet instruction).

Blended Learning:
Combines e-learning with instructor-led classroom training or one-on-one instruction.

Training Delivery Method	Not at all effective 1	2	3	4	Highly effective 5	No experience
Lecture/Demonstration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Classroom Training with Instructor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
One-on-One Tutorial	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self-paced Learning, Non-electronic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-learning, Self-paced	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
E-learning, Facilitated	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blended Learning	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other <input type="text" value="xxxxx"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7a. Overall, if you had to choose one training method, which would be most effective for you? (Choose one)

- Lecture/Demonstration
- Classroom Training with Instructor
- One-on-One Tutorial
- Self-paced Learning, Non-electronic
- E-learning, Self-paced
- E-learning, Facilitated
- Blended Learning
- Don't Know
- Other, please specify

7b. Why?

xxxxx

8. Overall, which method is least effective for you? (Choose one)

- Lecture/Demonstration
- Classroom Training with Instructor
- One-on-One Tutorial
- Self-paced Learning, Non-electronic
- E-learning, Self-paced
- E-learning, Facilitated
- Blended Learning
- Don't Know
- Other, please specify

8b. Why?

xxxx



9. Please share any additional thoughts you have about training methods.

VCVCXVVCX



FINISH >>

Click FINISH to save your entries on this page and complete the survey.