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Performance Feedback in Organizations and Groups: Common Themes

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Abstract and Keywords

Organizational change in response to performance below the aspiration level has become a very active research topic in organizational learning. It uses the ideas of performance feedback theory, which in turn is based on the process of problemistic search in the behavioral theory of the firm. Similar processes have also been studied at the individual level using ideas from goal-setting theory. In this chapter, we review work on performance feedback at the organization level, note some parallels to work at the individual level, and discuss the potential for new research on performance feedback at the group level. Our goal is both to summarize recent achievements and to point to a significant gap in the literature, with the potential for much fruitful research.

Keywords: organizational learning, problemistic search, aspiration levels, goal conflict, performance feedback

In their classical statement on organizational learning theory, Levitt and March (1988) discussed learning from direct experience and learning from the experience of others. Performance feedback theory has a central role in organizational learning theory because it integrates these two sources of learning in the following ways. First, low performance is an occasion to trigger learning, which can in turn be either from own experience or the experience of others. Second, the definition of low performance involves comparison of own performance and the performance of other firms (Cyert & March, 1963), and thus it occurs at the intersection of these two sources of learning. Given this central role in organizational learning theory, it is natural that performance feedback theory has been an important part of the recent surge in research following the behavioral theory of the firm, and extending it theoretically and empirically (Gavetti, Greve, Levinthal, & Ocasio, 2012).

In the following, we discuss performance feedback theory at the organizational and group levels of analysis. The discussion will be different at the two levels because research on performance feedback has focused heavily on the organizational level of analysis, leaving much more material to review there, while the group level of analysis is a fertile field for future theory development and empirical analysis. The potential for group-level research to yield findings is clearly demonstrated by the work done so far on goal-setting theory, which is a theory closely related to performance feedback theory with most research done at the individual level (Locke & Latham, 1990). We illustrate the potential for group-level performance feedback research by reviewing some work on group-level goal setting, and also discuss how group-level research can fill an important current gap in empirical work on performance feedback.

Performance Feedback in the Behavioral Theory of the Firm

The behavioral theory of the firm is the foundation of performance feedback theory through its groundbreaking and well-specified model of how organizations respond to performance measures (Cyert & March, 1963). The model has three basic elements. First, managers evaluate performance on a given goal relative to an aspiration level rather than on an absolute scale. The aspiration level is the threshold between satisfactory performance and poor performance, and it is formed through comparison of the historical performance of the same organization and social comparison with other organizations. Second, because managers satisfice—seek to obtain outcomes deemed sufficiently good—organizations engage in problemistic search when the performance is below the aspiration level. Search in pursuit of opportunities is less prominent. Third, the search is guided by situational characteristics because the organization will initially search myopically by using the specific goal and the current set of activities as guidelines for what type of changes to seek. Search will conclude once a solution has been found that satisfies the aspiration level, and it will expand if no such solution can be found.

Careful reviews of the behavioral theory of the firm have noted its broad research agenda that has had an impact across management theory, especially in organization theory and strategy (Gavetti et al., 2012). In this chapter we examine the specific research stream on performance feedback that stems directly from the theory of problemistic search, and we seek to identify both areas in which this work has made substantial progress and areas in which work is currently sparse. We do not see any parts of this theory as overly tested, and even the theory not as fully developed yet, but we identify performance feedback in groups as an area of work with particularly high potential for pioneering research.

Early Performance Feedback Research

Researchers were quickly able to support elements of this theory in a series of pioneering studies. Manns and March (1978) examined the consequences of financial adversity in a university, and they found that the solution of curriculum change was applied in many departments, especially departments that were relatively powerless as a result of lower research performance. Many researchers addressed the relation between performance and firm risk taking, using both the behavioral theory of the firm and prospect theory, and found systematic evidence that firms took greater risk when the performance was below aspiration levels (Bromiley, 1991; Fiegenbaum, 1990; Fiegenbaum & Thomas, 1988; Singh, 1986; Wiseman & Bromiley, 1991). Finally, after many earlier studies had used industry averages (a social aspiration level) as the aspiration level, with supportive findings, Lant (1992) documented experimentally aspiration-level updating from historical performance data, and an aspiration level combining social and historical information was found to influence strategy reorientation in firms (Lant, Milliken, & Batra, 1992).

The early work gave empirical footing to fundamental claims of the theory. First, although no studies explicitly examined aspiration levels directly through surveys or related approaches (recent work has; Ben-Oz & Greve, 2015), the construction of aspiration levels through social and historical influences was supported by studies that found them to yield models with a good fit to behavioral data. Second, although the behavioral theory of the firm did not specifically state risk taking as an outcome, the evidence on increased risk taking following performance below the aspiration level was broadly supportive, given the intuition that making changes, as predicted by the theory, will normally involve greater risk taking than maintaining current actions. Third, there was also direct evidence of change in response to performance below the aspiration level (e.g., Manns & March, 1978).

Recent Performance Feedback Research on Organizations

Beginning with the behavioral theory of the firm (Cyert & March, 1963; March & Simon, 1958), a long research tradition has identified the importance of aspiration levels in decision making and risk taking. A range of studies provide evidence that performance-aspiration gaps motivate greater effort toward goal achievement (Lant et al., 1992) and, as a result, serve as a powerful mechanism for initiating action (Greve, 2003b) and taking risks (Bromiley, 1991). Decades of empirical research have demonstrated this mechanism to be robust and able to explain a wide variety of outcomes such as strategic change (Greve, 1998), investment in assets (Audia & Greve, 2006), acquisitions (Iyer & Miller, 2008), R&D investments (Chen & Miller, 2007), and product innovation (Greve, 2003a). For comprehensive reviews of this earlier performance feedback research on organizations, see Greve (2003b); Gavetti et al. (2012); and Shinkle (2012). In this section, we mainly focus on the very recent developments in the performance feedback research.

Past reviews of the performance feedback literature (Table 1) reiterate that performance feedback is well recognized as an important mechanism for adaptive behavior, and it is based on the premise that firms learn from experience and alter activities conditional on their performance relative to an aspiration level. Yet much of the empirical research, so far, has focused on the adaptive implications of a single performance goal, mainly financial performance goals such as return on assets (ROA) (Shinkle, 2012). Although a few recent studies have explored the pursuit of nonfinancial performance goals such as status (Baum, Rowley, Shipilov, & Chuang, 2005), safety (Baum & Dahlin, 2007), growth (Greve, 2008), innovation (Gaba & Bhattacharya, 2012), and social goals (Stevens, Moray, Bruneel, & Clarysse, 2015), the theoretical treatment of adaptive behavior amid multiple goals and performance aspirations has only begun. Furthermore, the theoretical underpinnings of earlier performance feedback research have generally assumed an unambiguous interpretation and responsiveness to performance feedback. The systematic treatment of factors that may impede or differentiate the interpretation of or responsiveness to performance feedback is just beginning to get attention. Finally, although researchers have earlier acknowledged survival and upward striving as additional reference points to the original formulation of the aspiration model by Cyert and March (1963), studies have now also started to explore the differential effects of these reference points on organizing behavior.

Table 1 Review of Recent Performance Feedback Literature						
Paper	Firm-Level Outcome Variable	Main Performance Variable	Aspiration Level(s)	Theoretical Approach/ Extension	Research Setting	Main Findings
<i>Aspiration-Level Focus</i>						
Hu, Blettner, & Bettis (2011)	Risk preferences		Social aspirations conceptualized as: industry average, top 10% of the performers, firms with satisfactory performance relative to the focal firm.	Propose a model of adaptive aspirations with three reference point risk preference function that includes changes in risk preference at the extremes of performance.	Simulation study	The stepwise reference group strategy with the alternative risk preference function generated more wealth than any other strategy at the same level of ruin rate.

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Boyle & Shapira (2012)	Bets size (number of points risked)	Total score	Aspiration and survival reference points: SA for all players is set as leader's performance. Leader's aspiration level as own score minus the second-place follower's score. Survival point is the distance from the cutoff point.	Model of risk taking that includes both aspiration and survival levels. Role of competition in the formation of reference points and focus of attention.	Jeopardy! Tournament of Champions	Aspiration-level focus had a significant effect on the leaders' bets. Both aspiration point focus and survival point focus had a significant effect on the followers' bets.
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Gaba & Bhattacharya (2012)	Adoption of CVC unit Termination of CVC unit	Innovation (patent/R&D ratio) Financial profitability (ROA)	Additive model: SA as average of the innovation performance of all other firms in three-digit standard industrial classification code. HA as exponential weighted moving average of past performance.	PF effects of multiple goals on adoption and termination decisions	CVC investing in IT sector	A firm is more likely to adopt and less likely to terminate CVC units when its innovation performance is near its social aspirations.
Jordan & Audia (2012)				Feedback interpretation Self-enhancing cognitive strategies of performance assessment	Conceptual framework	

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				Conditions under which decision makers are likely to self-enhance		
Washburn & Bromiley (2012)	Changes in aspiration levels	Performance as change in actual sales of a retail unit	Historical aspirations as change in sales. Social aspirations as the median percentage change in sales.	Varying attention to aspiration levels	US retail outlets of a large international auto manufacturer	Factors influencing aspiration levels vary with the level of past firm performance relative to industry performance.
Bromiley & Harris (2014)	Financial misrepresentation R&D spending Income-stream uncertainty	Financial Performance goal (ROA, cash flow ROA, stockholder returns, composite accounting measure,	HA is an exponentially weighted average of previous performance levels of the same firm.	Comparison of different aspiration models (Combined, separate, and switching model)	Multi-industry	Comparison of performance measures strongly favored unscaled net income as a superior measure.

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		and net income)	Social aspirations as average performance for all other firms in the industry.			Comparison of aspiration models favored the separate and switching models over the weighted average model and moderately favored the separate model over the switching model.
Moliterno, Beck, Beckman, & Meyer (2014)	Organizational change (lineup change and coach change)	Operational performance of a team (point totals)	Combined model:	Propose a theoretical conceptualization of the social performance benchmarks. Relative salience of different social aspirations levels.	German soccer league (Bundesliga) clubs	Distance from the reference group threshold is negatively associated with lineup change.

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			Historically based social aspiration threshold (HiBSAT) as historical performance with the more proximal social performance threshold. Social reference group threshold as the distance between the performance of a focal team and the reference group threshold.	Organizations combine historically and socially derived sources of performance feedback and attend to performance feedback based on the socially derived performance threshold to which they have historically been closest.		Distance from the top performance threshold is negatively associated with the coach change. Distance to HiBSAT is negatively and significantly associated with change both above and below HiBSAT.
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			Social top performance threshold as the distance between the performance of a focal team and the top performance threshold.			
Audia, Brion, & Greve (2015)	Choice of comparison organizations	Organizational performance (revenues, operating incomes, return on sales)	Social aspirations as average performance of other similar or dissimilar organizations.	Factors influencing the selection of comparison organizations to evaluate performance Self-assessment vs. self-enhancement motives	Experimental studies	Social comparisons generally follow a self-assessment motive, but low-performing organizations were more likely to view less similar organizations as appropriate targets.

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						Self-enhancing choices of comparison in organizations under conditions of low performance negatively impacts the propensity to change the current strategy, especially when there are benefits to maintaining a positive self-image.
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Blettner, He, Hu, & Bettis (2015)	Aspirations as the number of magazine copies printed	Organizational performance goal (number of magazine copies sold) Performance of the external reference group Performance of the internal reference group	Combined aspiration model: Previous year's aspiration and various sources of performance feedback (historical, social internal, social external).	Attention allocation to multiple reference points	German magazine industry	Early stage of the organizational life cycle is associated with higher attention to its own prior aspiration but lower attention to prior performance of the external reference group. End of the organizational life cycle is associated with a strong orientation toward the external reference group.
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Stevens et al., (2015)	Relative attention to social goals	Social goal Financial performance goal (ROA)		Attention allocation between conflicting organizational goals Moderating role of attention structures (players, rules of the game, and resources) and contextual factors (firm performance)	For-profit social enterprises in Flanders (Belgium)	Find a positive influence of other-regarding values and a negative influence of utilitarian identity and debt-to-equity on the relative attention to social goals, respectively. The positive effect of
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						other-regarding values on the relative attention to social goals is stronger when firm performance is low, while firms with a strong utilitarian identity pay more relative attention to social goals when firm performance is high.
<i>Aspiration-Level Relation to Change</i>						

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Vissa, Greve, & Chen (2010)	Market search intensity R&D intensity	Financial profitability (ROA)	Weighted average model: Aspiration level is a combination of social and historical aspirations. Two measures of SAs: median performance of all other firms in the same industry and median performance of all other firms in the business group.	Use business group organizational form to examine heterogeneity in responses to performance feedback effects	Publicly listed Indian firms	Firms vary in their focus of attention while setting aspirations: unaffiliated firms rely exclusively on historical performance aspirations. Business group-affiliated firms are more externally focused while setting aspirations for market search; they rely on internal historical benchmark for R&D search.
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			HA is an exponentially weighted average of previous performance levels of the same firm.			Business group-affiliated firms were more responsive in the market domain, while unaffiliated firms were more responsive in the technology domain.
Gaba & Joseph (2013)	New product introductions	Operating profit margins at corporate unit level Operating profit margins at the business unit level	Single aspiration model: HA as an exponentially weighted moving average of past performance.	Differential response of corporate and business unit levels to poor performance Attention focus Moderating effect of organizational structure	Global mobile device industry	Performance shortfalls at the business unit level activate responses that increase the rate of new product introductions.

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						Poor performance at the corporate level, in contrast, reduces the rate of new product introductions. Corporate levels effects are attenuated for strategically significant business units.
Fang, Kim, & Milliken (2014)	Organizational learning and performance			Performance feedback interpretation Performance implications of information distortion	Simulation study	High level of information distortion leads to poor performance. Low to middle level of initial information distortion has the highest performance.

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Maslach (2016)	Novel innovations Incremental innovations	Failure in novel/ incremental innovations (cumulative number of adverse events that occurred in the following periods after a novel/ incremental innovation)		Characteristics of negative feedback affect how managers make inferences of when to change or persist with failed actions. Feedback interpretation Learning from failures	Medical devices industry	The number of adverse events in novel innovations decreases the likelihood that a firm has a future novel innovation and increases the number of future incremental innovations.
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						The number of adverse events in incremental innovations increases the likelihood of future incremental innovations and decreases the likelihood of future novel innovations.
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Joseph et al. (2016)	Product phase-out	Financial performance goal (unit sales)	HA is an exponentially weighted average of previous performance levels of the same firm. Survival reference point (a device is in the lowest 20% of sales for all devices in the sample)	Moderating role of structure on responsiveness to performance feedback Feedback interpretation	German mobile handset manufactures	Performance below aspirations decreases product phase-out, but when performance falls sufficiently below aspirations, attention shifts to survival and an increase in the hazard rate of product phase-out. Centralized structures amplify the rate of product phase-out, especially when performance approaches the survival threshold.
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<i>Form of Search</i>						
Billinger, Stieglitz, & Schumacher (2014)	Search distance	Performance improvements	Aspiration point as the highest-performing combination identified by an individual in prior trials.	Adaptive search Determinants of search distance (allocation of search trials between local and more distant search) Impact of performance feedback on search behavior	Experimental study using NK model	Positive performance feedback lowers the search distance, whereas negative performance feedback increases the search distance. Persistent failure further broadens search, and prior search behavior positively influences the search distance.

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<i>Form of Change</i>						
Greve (2011)	Risk taking (number of used ships acquired during the focal year)	Financial performance (ROA)	Single aspiration model: Social aspirations as median ROA of the shipping firms in the same nation as the focal firm.	Performance feedback versus threat rigidity Firm size as a moderator of the response to low performance	Maritime shipping industry	Small firms reduce risk taking as performance declines, but larger firm size leads to smaller risk reduction. The less rigid small firms become more rigid when threatened by poor performance.

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Joseph & Gaba (2015)	New product introductions	Worldwide market share	Correlation between performance relative to historical and social aspirations yields three types of performance feedback: ambiguous feedback (weak correlation), inconsistent feedback (negative correlation), and consistent feedback (positive correlation).	Functional relationship between performance feedback clarity and firm's responsiveness.	Global mobile device industry	Both inconsistent and consistent feedback have a positive effect on the firm's responsiveness. Ambiguous feedback dampens a firm's responsiveness.
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Kacperczyk, Beckman, & Moliterno (2015)	Organizational change (fund turnover, concentration change, and load change) Risk (fund returns)	Fund's risk-adjusted performance	Additive model: Internal social aspirations (mean risk-adjusted performance of the internal reference group) External social aspirations (mean risk-adjusted returns of the external referent group)	Examine PF effects with reference to individuals and units within the organization. Organizational change and risk are distinct responses to different types of PF effects. Different types of PF activate different mechanisms and different responses to accommodate multiple interests and concerns.	Mutual fund industry	Organizational change is motivated in response to performance shortfalls relative to external social performance aspirations. Risk taking is motivated by performance assessment relative to internal social performance feedback.
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						Highest level of risky change is associated with unfavorable internal social performance feedback and favorable external social performance feedback.
Kim, Finkelstein, & Haleblan (2015)	Probability of making an acquisition	Acquisition performance (cumulative abnormal return)	Additive model: HA as an exponentially weighted moving average of the Cumulative abnormal returns of prior acquisitions.	Firms interpret and respond differently to social and historical performance comparisons. Prior performance variability as a moderator	US commercial banking industry	Increase in the probability of making acquisitions is weaker when a firm's acquisition performance remains above its historical aspirations.

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			SA as the average acquirer market returns of all acquisitions made by all other banks in the state.			The positive relationship between acquisition performance relative to social aspiration levels and the probability of acquisitions is stronger when acquisition performance is above its social aspiration level.
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						Prior performance variability moderates the relationship between performance relative to aspiration levels and the probability of future acquisitions.
Rowley et al. (2016)	Adoption of corporate governance practice	Financial goal (ROA) Public ratings goal (ranking)	Weighted average model: Aspiration level is a combination of social and historical aspirations.	Performance feedback on multiple goals Sequential attention to goals	Canadian public firms	Firms' response a low position on the external ratings is conditional upon their financial performance.

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			Social aspirations as average performance of all other firms in the same industry. Historical aspirations is an exponentially weighted average of previous performance levels of the same firm.			
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CAR, cumulative abnormal returns; CVC, corporate venture capital; HA, historical aspirations; PF, performance feedback; R&D, research and development; ROA, return on assets; SA, social aspirations.

A number of recent performance feedback studies focus on the antecedents of aspirations and the adaptive implications of multiple performance goals and aspirations. First, researchers have tried to conceptualize the choice of reference points and selection of social comparison groups more systematically. Second, studies have expanded the examination of performance feedback from multiple levels, multiple aspirations, and multiple goals. Third, scholars have argued for the need to better understand decision makers' interpretation of performance feedback as well as problemistic search as intermediate processes between evaluating performance problems and adopting solutions. Next, we review the recent advances within each of these domains of performance feedback research in more detail. Our discussion starts by taking the potential for multiple goals as a given and is organized by the steps that follow, as illustrated in Figure 1. Thus, aspiration-level construction is the start of the performance feedback, followed by performance assessment, myopic search, and behavioral outcomes.



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Figure 1 Recent performance feedback research at the organizational level.

Selection of Aspiration Levels

An important element of the performance feedback theory is the setting of aspiration levels. Whereas the original conceptualization of aspirations is a weighted function of past performance and the performance of others (Cyert & March, 1963, p. 115), empirical research has focused on distinguishing between historical and social comparisons (Greve, 2003b). Historical aspirations are based on the firm's own prior performance, and social aspirations are based on the performance of a comparable reference group. Failure to achieve historical or social aspiration levels triggers problemistic search and motivates change. Performance above the aspirations, on the other hand, reduces search activity and leads to persistence. Evidence so far suggests that both a firm's past performance and the performance of comparable firms influence aspirations. However, the relative salience of the two is still unclear. Some studies report a stronger effect of social aspirations (e.g., Mishina, Dykes, Block, & Pollock, 2010), others focus on historical (e.g., Audia & Brion, 2007; Joseph, Klingebiel, & Wilson, 2016), while some others report equivalence (e.g., Iyer & Miller, 2008). In most studies, the salience of the aspiration

levels is justified contextually or determined endogenously from the data. In addition, firms do not always focus their aspirations on the general averages implied by social or historical aspiration levels; they also focus on a specific average given by a “reference group threshold” whereby firms seek to maintain membership in their reference group (Moliterno, Beck, Beckman, & Meyer, 2014), or downward on a “survival level,” which is the performance level at which the firm’s existence is threatened (Audia & Greve, 2006; Chen & Miller, 2007; Gaba & Greve, 2016; March & Shapira, 1992; Miller & Chen, 2004). Finally, multiple aspiration levels, taken together, may offer consistent, inconsistent, or ambiguous performance feedback (Audia & Brion, 2007; Baum et al., 2005; Joseph & Gaba, 2015).

The three most commonly used specifications of aspiration models are as follows: weighted average model, additive models, and switching models (Bromiley & Harris, 2014). Each of these model specifications makes somewhat different theoretical assumptions about information processing within organizations, which in turn reflect theoretical differences in how organizations approach performance feedback (Washburn & Bromiley, 2012). The weighted average models combine the historical and social aspirations into a single weighted aspiration measure, where the optimal weighing of the two aspiration levels is most frequently determined endogenously from the data (e.g., Greve, 2003a). The additive models consider both historical and social aspirations as independent influences on behavior (e.g., Baum et al., 2005; Baum & Dahlin, 2007). These models allow for the possibility that decision makers attend to both self-referents and social referents separately or in tandem when assessing performance. The switching models are based on the notion of sequential attention to goals (Cyert & March, 1963), where decision makers consider multiple aspirations but systematically switch attention from one referent to the other (e.g., Bromiley, 1991; Park, 2007). Although the weighted models are most consistent with the original aspiration model as formulated by Cyert and March (1963), Bromiley and Harris (2014)’s comparison of the three aspiration models in the context of multiple performance measures shows that separate and switching models perform better in predicting change than the weighted average models. This suggests that managers attend to multiple aspirations independently, and sometimes sequentially, which in turn raises important and interesting questions about the allocation of managerial attention and salience of different reference points.

Acknowledging the influence of multiple aspirations has naturally led researchers to further explore the relative attention that organizations allocate to social and historical aspiration levels and how it varies over time. The relative salience of one aspiration level can be a function of how the organization is performing relative to other organizations (Moliterno et al., 2014; Washburn & Bromiley, 2012). Harris and Bromiley (2007) consider the interdependence between social and historical aspirations and suggest that the differential influence of historical and social aspirations varies with the performance of the organization relative to its social reference group. That is, managers in organizations with performance above the social average evaluate their performance differently than those with performance below average. Thus, the weights assigned to social comparison and past performance in the formation of aspirations levels in firms vary with relative

performance. Vissa, Greve, and Chen (2010) find that firms can vary setting aspirations depending on their organizational form. They show that firms unaffiliated with business groups rely exclusively on internal (i.e., historical) performance in setting aspirations. Business group affiliates, on the other hand, are more externally (i.e., social) focused while setting aspirations. Boyle and Shapira (2012) show that in a competitive context, leaders only focus on their aspiration point, while followers also consider their survival point. Blettner, He, Hu, and Bettis (2015) propose that the attention allocation is related to the experience and learning trajectories of a focal organization. They show that the shifts in attention allocation from prior aspiration, own experience (past performance), and others' experience (performance of the social reference group) are linked to the organization's lifecycle and age. Rowley, Shipilov, and Greve (2016) posit that some goals may be intrinsically more comparative (e.g., rankings) than others, making social aspirations more relevant. That is, decision makers may assign different weights to social and historical aspirations depending on the type of goal they pursue. Thus, the determination of aspirations may be industry, time, firm, goal, or decision specific. Although, performance assessments relative to historical and social aspirations are expected to motivate search and change, there is no agreement yet on how decision makers select and weigh these aspirations. Nonetheless, recent studies deepen our understanding of when attention is likely to shift between an aspiration level and a survival level by expanding the dimensions that affect focus of attention, such as an organization's lifecycle, age, competition and organizational structure.

Finally, recent studies also suggest that historical and social aspiration levels motivate distinct behaviors because the underlying sources of performance information are distinct and interpreted differently by managers (J.-Y. Kim, Finkelstein, & Halebian, 2015). Similarly, Kacperczyk, Beckman, and Moliterno (2015) find that performance assessments relative to different aspiration levels elicit different types of responses from organization. Performance shortfall relative to other internal units within an organization motivates decision makers to take more risk because it triggers their career concerns. Performance shortfall relative to competitors or other similar organizations external to the focal organization signals organizational problems and motivates change. These studies further provide evidence that organizations' responses to the performance feedback are sensitive to the selection of reference points. Nonetheless, despite the recent advancements in theoretical and empirical understanding of the selection aspirations levels, there is considerable room for developing theory about how organizations set, select, and weigh different aspirations levels, and the impact on search and behavior.

Construction of Social Reference Groups

Recent performance feedback studies also try to address the central issue in the construction of social aspiration levels: the comparability of the firms included in the reference group. Because social comparisons are more likely to happen when

organizations view themselves as commensurate rivals on a meaningful dimension (Festinger, 1954), recent studies provide interesting insights into the conceptualization of socially meaningful reference groups.

Scholars have largely assumed that organizations employ similarity as the main dimension to conceptualize social comparison groups and constructed the social aspiration level as the average performance of others in a firm's industry (Baum & Dahlin, 2007; Bromiley, 1991; Greve, 1998). More recent research has begun to consider "striving" comparisons, where attention is focused on those of higher status or performance (Audia, Brion, & Greve, 2015; Boyle & Shapira, 2012; DiPrete, Eirich, & Pittinsky, 2010; Hu, Blettner, & Bettis, 2011; K.-H. Kim & Tsai, 2012; Moliterno et al., 2014). The choice of an appropriate reference group could also be external or internal to an organization (Kacperczyk et al., 2015). Moliterno et al. (2014) argue for the normative and comparative function of a reference group and propose a new theoretical construct—a historically based social aspiration threshold, defined as the social performance threshold closest to an organization's prior performance. That is, decision makers select performance thresholds at the top and bottom of the reference group, and the relative salience of the top and bottom threshold depends on the focal organization's past performance. Similarly, Boyle and Shapira (2012) argue that in a tournament context, aspirations are upwardly focused and set by the leader's performance. They reason that the cognitive and social effects of tournaments focus attention toward the leader's position as a social aspiration level.

Audia et al. (2015) further show in an experimental setting that both self-enhancement and self-assessment motives are likely to influence the selection of social comparison groups. Generally, a self-assessment motive guides decision makers to choose organizations that are similar to them; however, under conditions of low performance, decision makers will have greater propensity to select reference organizations that are less similar but worse performing. Furthermore, decision makers are more likely to choose comparison firms that are more favorable when they perceive benefits in maintaining a positive self-image. These studies provide some theoretical extensions to the concept of social aspirations. Drawing from extant literature on strategic groups and social psychology, these studies posit that organizations construct meaningful reference groups that are narrower than all industry members (Fiegenbaum & Thomas, 1995; Panagiotou, 2007) or strive to belong to socially desirable groups (Festinger, 1954), or seek those that make them look favorable. In other words, organizations also strive to perform better than the others in their groups and attend to top performance benchmarks within their group.

It is important to note that the original idea of aspirations did not intend to convey striving. An aspiration level has been defined as "the smallest outcome that would be deemed satisfactory by the decision maker" (Schneider, 1992 p. 1053) to evaluate performance. Decision making with reference to aspiration levels is the result of boundedly rational decision makers trying to simplify evaluation by transforming a continuous measure of performance into a discrete measure of success or failure (Greve,

2003b; March & Simon, 1958). The aspiration level is the borderline between perceived success and failure and the starting point of doubt and conflict in decision making (Lopes, 1987; Schneider, 1992). Nonetheless, studies question the validity of firms focusing on “average performance,” especially in the light of the common practice among organizations to benchmark themselves against the top performers in the industry. Because empirical researchers have employed a wide variety of social aspiration measures, there is still debate over how best to set and construct social aspirations.

Finally, researchers have examined the effects of these different social aspirations measures on behavior. Baum et al. (2005) show that aspiration levels that weight firms by similarity gave stronger findings than those using the unweighted mean. At the same time, other studies have found that models using mean or median industry performance performed equally well or better than models using other weighting criteria (e.g., Greve, 2008; Washburn & Bromiley, 2012). Because most studies do not discuss the theoretical assumptions underlying the different aspiration levels, there is room for developing a more complete understanding of the process through which organizations identify their peers and the stability of relevant social reference groups.

Adaptive Implications of Multiple Performance Aspirations and Goals

So far, only a small subset of studies has examined the adaptive implications of performance feedback from multiple goals and aspirations. Nonetheless, recent research in this area addresses a gap in the behavioral theory of the firm and the literature that it has spawned, by more directly accounting for what happens when multiple aspirations and goals signal different or conflicting courses of action. The focus on multiple aspirations and goals and their behavioral implications provides insights into how organizations adapt through the hierarchical arrangement of goals and top management focus. These studies accommodate the idea that not only goal interdependencies and goal conflict exist within organizations, but also behavior is shaped by perceptions of relative performance. This emphasis on multiple goal interdependencies thus brings the recent empirical research on performance feedback closer to the richer conceptual foundation of the behavioral theory of the firm.

Gaba and Joseph (2013) investigated the adaptive implications of multiple but qualitatively similar performance goals at the corporate and business unit levels within a corporate hierarchy. They showed that because corporate structure vertically differentiates performance goals and problemistic search, solutions to performance problems vary across corporate and business unit levels, with divergent implications for adaptation. Gaba and Bhattacharya (2012) examine the additive effects of multiple goals as well. They find that in the context of R&D externalization, firms pay closer attention to innovation rather than to financial performance goals. Managers may find it relatively straightforward to identify the problems associated with a decline in the innovation performance relative to aspirations, and in an attempt to resolve the performance

discrepancy pursue external modes for conducting R&D. Hence, goals that are close to a given organizational activity are likely to be used more to identify problems and locate solutions than goals that are distant from a given organizational activity.

Other studies incorporate interactions among goal variables or among aspiration levels in order to assess whether a shortfall in only one is enough to spur action or whether both are needed (Audia & Brion, 2007; Baum et al., 2005; Greve, 1998). For example, Baum et al. (2005) find that the performance-aspiration gap that reflects the biggest performance problem draws the most attention and motivates the greatest response. Audia and Brion (2007) find that when one performance indicator is positive (i.e., above aspiration level) and the other is negative (i.e., below aspiration level), indicating divergent feedback, decision makers consider a secondary performance goal as central to goal achievement only when it showed favorable performance and a primary performance goal showed unfavorable performance. These studies, however, mainly examine (independent or joint) performance feedback at a given moment in time and do not account for the relationship over time between performance-aspirations comparisons.

Another approach to addressing the adaptive implications of multiple goals follows Cyert and March's (1963) assumption of sequential attention to goals. The sequential attention to goals suggests that low performance on a lower priority goal spurs reactions only when performance on a higher priority goal signals success. This prediction was first tested by Greve (2008), who found that organizational size is a second-priority goal that firms pursue once their profitability is above aspiration levels. Rowley et al. (2016) found additional support for this prediction in their study of the adoption of corporate governance practices among Canadian firms. They found that performance feedback on financial goals acts as the moderating mechanism for the externally imposed goals such as reputational ratings. Poor financial performance does not induce decision makers to make changes to enhance the organization's performance on externally imposed secondary goals, whereas poor financial performance does induce change on primary goals. In line with the behavioral theory of the firm, the empirical examination of sequential attention to goals is based on the assumption that decision makers do not jointly consider multiple goals. The case for financial performance being the primary goal is usually justified with reference to its frequent and strong effects on a wide range of organizational actions (Shinkle, 2012).

More recently, Stevens et al. (2015) examined attention allocation of CEOs to multiple conflicting goals in the context of for-profit social enterprises. They find that a firm's financial performance acts as a moderator in the relationship between attention structures of top management and the relative attention to social goals. Taking the financial goal as the primary goal, their work supports the sequential attention to goals argument. Firms with a strong utilitarian identity will allocate more attention to the social goals only when firm performance is high. However, they also find that CEOs with high other-regarding values (i.e., helping others in society) focus even more attention to social goals in situations of high performance. Finally, Gaba and Greve (2016) extend the adaptive implications of multiple goals that are difficult to prioritize a priori and are in

direct conflict with each other. They investigate the dual focus of safety and profitability in the airline industry, a context in which these two goals have clear short-term conflicts. Their analyses suggest that decision makers weight goals differently depending on the potential for failure. They argue that the safety goals may actually be accorded higher priority in organizations with low profitability because such organizations see their survival as being in peril, and meeting safety goals is associated more closely with survival.

Few studies have explicitly accounted for the relationship among multiple performance goals and aspirations over time. Joseph and Gaba (2015) examine the interdependence between multiple aspirations—social and historical aspirations—of a single performance goal. They propose that performance assessments relative to historical and social aspirations can be weakly correlated (ambiguous), negatively correlated (inconsistent), or positively correlated (consistent). A positive correlation suggests that historical and social performance-aspirations assessments have yielded similar feedback over time. A strong negative correlation exists when one feedback type is improving and the other is declining. When there is only a weak correlation, the feedback is ambiguous. They argue that the strength of the relationship between historical and social feedback may inform or confound responses beyond that of isolated comparisons of performance and aspirations. They find that inconsistent and consistent feedback yield similar results: Both have a positive effect on the firm's responsiveness, increasing the effect of performance relative to aspiration levels on new product introductions. However, ambiguous feedback dampens a firm's responsiveness. Because ambiguous feedback is open to interpretation, it affects the firm's problem-solving behavior. When feedback is ambiguous, decision makers may interpret problems in ways that allow the organization to stay inert and—in the face of divergent perspectives and internal debate—delay action.

This theoretical and empirical work on multiple goals is important because it provides useful insights on prioritization among goals and changes in goal emphasis over time. The main theoretical mechanism for the pursuit of multiple goals so far has been self-enhancement. Decision makers alter their attention to the performance goal, which provides the greatest opportunity for self-enhancement. Managers seek to preserve perceptions of success, and therefore when performance along a primary indicator is poor, they switch their attention to the indicator that makes them "look good" (Jordan & Audia, 2012). Recent research suggests that managerial attention to survival can be an additional mechanism for resolving goal conflict and prioritization within organizations. Because multiple goals and aspirations may activate simultaneously and compete for managerial attention, it is important to collect further evidence on how performance feedback works in the presence of interdependent goals and aspirations.

Types of Changes in Response to Performance Feedback

Recent studies have also examined the types of changes that organizations make in response to performance feedback. Moliterno et al. (2014) argue and find that the normative threat of falling out of a reference group motivates organizations to make more dramatic changes. Greve (2011) suggested that firms have different responses to performance feedback depending on their size because it leads to differences in risk aversion and internal rigidity. He found that large firms were more rigid in general, whereas small firms became more rigid as a result of low performance. In a similar vein, Kacperczyk et al. (2015) argue that change and risk taking are two distinct behavioral responses to performance feedback. Their research shows that managers are more likely to change when performance feedback indicates an organizational problem, whereas risk taking happens more in response to the performance feedback, indicating individual concern. Maslach (2016) shows that firms respond differentially to negative performance feedback from novel innovations as compared to those from incremental innovations. He posits that organizations give more weight to negative performance feedback in the context of novel innovations because organizations have less experience dealing with novel innovations and accordingly change their innovation trajectories. At the same time, organizations put less weight on negative feedback from incremental innovation and react by introducing more incremental innovations—innovations that build on and modify existing technologies—because they have experienced repeated failures in the past.

Interpretation of Performance Feedback

A number of recent conceptual and qualitative studies also advance the behavioral theory of the firm by recognizing the role of feedback interpretation in the adaptive behavior of firms (Jordan & Audia, 2012; Levinthal & Rerup, 2006). Feedback interpretation aids in problem definition and serves as an intermediate link between performance assessment and search for solutions. Unlike the earlier empirical work in performance feedback, which generally assumed that performance feedback is unambiguous once it has been interpreted with the help of an aspiration level, recent studies argue that firm responsiveness varies with the interpretative requirements of the performance feedback received (Joseph & Gaba, 2015). Given that the perceptions of organizational performance depend on aspiration-level comparisons, the presence of multiple aspiration levels even for a single performance indicator can create ambiguous or contradictory decision-making environments. The interpretive requirements of performance feedback become even more salient when firms evaluate performance relative to multiple goals and aspirations. This focus on the process of performance feedback interpretation is important because it largely determines whether (and how) decision makers initiate search, undertake changes, and choose risky solutions.

Scholars have argued that managers attempt to classify ambiguous feedback so as to simplify decision making. In doing so, they generally interpret the feedback in a way that obscures the need for change in the organization. This is because self-enhancing managers interpret feedback in the most favorable light (Audia et al., 2015). They may try to conceive of performance problems as temporary or recode ambiguous outcomes as successes. Problem-solving difficulties also arise because interpretive efforts amplify differences in opinion, which can cause debate and delays in decision making. Jordan and Audia (2012) identify three cognitive strategies that decision makers use to switch from a problem-solving mode to a self-enhancing mode of performance assessment, thereby becoming less likely to respond to low performance by increasing search, enacting changes, and taking risks. First, managers can retrospectively revise the priority of performance goals, thus allowing them to perceive low performance in a more positive light. Second, retrospectively increasing the level of abstraction of organizational goals gives decision makers greater flexibility in defining how a lower level goal may be achieved, again using this to interpret poor performance more favorably. Third, managers may invoke “downward” counterfactual outcomes as comparison standards, which in turn allows them to perceive low performance in a more positive light by comparing it to an imagined catastrophic outcome that could have occurred. March and Shapira (1992) viewed decreased responsiveness as arising not from a positive interpretation of low performance, but rather from decisions makers’ interpretations of low performance as a vital threat that raised the risk of failing as a result of unsuccessful change. Recent empirical work further suggests that feedback interpretation can lead to switching of attention from meeting aspirations to ensuring survival (Gaba & Greve, 2016; Joseph et al. 2016).

Other studies have tried to identify a broader range of structural and psychological processes through which performance-aspiration comparisons are interpreted. For example, Greve (1998), in his analysis of product introductions, attributed decreased sensitivity to low performance to bureaucratic constraints that limit decision makers’ discretion. Other studies show that the interpretation of performance feedback and the corresponding responses can vary with the structural location of decision makers (Gaba & Joseph, 2013; Vissa et al., 2010). Joseph et al. (2016) show that in the context of product phase-out, the degree of centralization affects how performance feedback is interpreted and how responses to performance problems are chosen and enacted. Centralized structures focus managerial attention on the entire portfolio of products when addressing performance problems and therefore increase the rate of product phase-out. Similarly, Vissa et al. (2010) find that structural embeddedness of the firms not only influences how decision makers set aspirations but also how they respond to feedback through adjusting market position and R&D expenditures. Aime, McNamara, and Kolev (2012) study the effects of organizational complexity, which arises from problems of scope on responsiveness to performance feedback, finding that diversification moderates the effects of attainment discrepancies on investments in R&D. Plambeck and Weber (2009) and Nadkarni and Barr (2008)’s papers focus on the effects of industry context on performance feedback. They link the attention-based view with

problemistic search and threat-rigidity perspectives to understand how industry context, and specifically stable versus turbulent environments, will determine the nature of attention mechanisms evoked and how they may promote either rigidity or change-oriented strategic responses.

Fang, Kim, and Milliken (2014) examine the implications of motivational bias that may systematically distort negative feedback in organizations. They argue that omitting or sugarcoating negative feedback is a pervasive organizational phenomenon because organizations are hierarchies, where the lower level members may perceive that it is not in their interest to convey performance problems to the top management. This systematic sugarcoating or distortion of performance feedback can affect search, learning, and change. In a simulation study, they find that organizations with high levels of feedback information distortions tend to do poorly, whereas information distortion at a low level can actually be adaptive for organizations. This is because low levels of information distortion allow start and continuation of beneficial slack search. Thus, the effects of such sugarcoating of information are contingent on behavioral assumptions surrounding search and organizational members' ability to evaluate alternatives.

Finally, studies show that decision makers' interpretation of poor performance is dependent on the characteristics of the feedback, which in turn can affect how managers make inferences of when to change or persist with a course of action. Kim et al. (2015) argue that the variability in past performance is further expected to increase the interpretive requirements of performance feedback. Maslach (2016) finds that decision makers tend to react more strongly to negative feedback from novel innovations as compared to negative feedback from incremental innovations. He reasoned that unlike in the context of novel innovations, negative feedback for incremental innovations is more easily understood and interpreted. This is because firms have more experience with the incremental innovations and therefore are able to more easily arrive at accurate and robust inferences about what went wrong. As a result, firms are likely to persist with a course of action.

In all, this important emphasis on performance feedback interpretation suggests that firms' selection of aspiration levels, performance-aspiration comparisons, and responsiveness far from being a straightforward linear sequence are in fact more complex and dynamic than previously assumed.

Problemistic Search

Problemistic search is central to the performance feedback theory, yet few studies have focused on the problemistic search processes preceding the search for solutions. Instead, the studies have focused on the final outcome of organizational change. Problemistic search is "search that is stimulated by a problem and directed toward finding a solution to that problem" (Cyert & March 1963, p. 121), and an organization engages in problemistic search as a result of obtaining performance below an aspiration level that is

based on its own experience or that of other organizations. Cyert and March (1963) further lay out three assumptions of problemistic search: problem solving is motivated by problems in areas which are considered important by managers and their key constituents; problem solving is shaped by the experiences of managers and the information available to them for decision making; and problem causes are sought “near” the symptoms. However, the theory also specifies that organizational search is made wider when initial solutions do not seem to work. Thus, the basic prediction is that organizational performance below the aspiration level increases problemistic search, which in turn can lead to incremental or larger organizational changes. However, few studies test the prediction empirically. Billinger, Stieglitz, and Schumacher (2014) in a simulation study find that search behavior gradually adapts to performance feedback. Success constrains search for new alternatives and thereby promotes local improvements. Persistent failure, on the other hand, motivates progressively more distant, exploratory search. The study also finds that task complexity systematically influences feedback conditions. Higher complexity makes negative feedback more prevalent and the identification of better alternatives more difficult. This defining feature of task complexity tends to lead to more distant search because individuals experience more failure.

A few recent studies also show that problemistic search processes are affected by the focal organization’s environmental and organizational context. For example, Vissa et al. (2010) compared the responsiveness of business group-affiliated firms and unaffiliated firms to performance feedback and found that structural embeddedness makes business group-affiliated firms more externally orientated in their search behavior. Gaba and Joseph (2013) examined the problemistic search process at different levels within the corporate hierarchy. They argued that the implications of the underlying assumptions of problemistic search—that problemistic search is motivated, local, and biased—differ across corporate and business unit levels, as do the actions employed to respond to performance problems. Greve and Zhang (2016) found that the composition of the decision-making group directed problemistic search, with the likelihood of change being more sensitive to performance for activities in which decision makers had greater expertise.

In all, recent research in performance feedback theory has led us to examine how firms set aspirations, and their selection of social referents, and to better understand problemistic search. Recent studies pose new questions and offer some answers about the conditions under which the interpretations and responsiveness to performance feedback vary and the outcomes which naturally follow from this variation. Attending to the questions and the different issues provides a large research opportunity, given the importance of performance feedback for strategic decision making, organizational action, and firm performance.

Performance Feedback Research on Individuals

Performance feedback has also been an important topic in research at the individual level, with a very active research tradition based on goal-setting theory (Locke & Latham, 1990). Goal-setting theory developed separately from the behavioral theory of the firm (e.g., Locke, 1978) and differs on some dimensions, but key insights overlap. The main insight shared by the two theories is that individuals use feedback from their tasks, when available, and alter their behavior to improve it. The first main difference is that goal-setting theory emphasizes artificially set goals, and it has provided the insight that individuals respond better to specific goals than to vague instructions such as “do your best” (Locke & Latham, 1990). The reasoning behind this proposition is similar to that of an aspiration level: As long as a specific goal is sufficiently difficult to reach, it will lead to performance below the goal and subsequent effort to improve (Locke & Latham, 2002). The second main difference is that goal-setting theory usually examines the performance improvement rather than the actions taken to improve performance. This emphasis is a good fit with the individual tasks (experimental or field) that provide most of the evidence, as these have a shorter and more certain transition from improvement-seeking behaviors to performance improvement than one can expect for organization-level outcomes. Even with this emphasis, research on goal setting has found mechanisms of performance improvement that include directed attention, greater effort and persistence, and mobilization and use of knowledge (Bandura & Jourden, 1991; Latham & Locke, 1975; Locke & Latham, 2002).

There is also individual-level research on performance feedback that examines when decision makers choose to act based on performance below the aspiration level. A pioneering study by Audia, Locke, and Smith (2000) paired an organization-level examination of performance feedback with an experimental study of individual decision making, showing that individual goals and information-seeking patterns had significant mediating effects on the likelihood of making changes. Later work specifically examined whether multiple goals could let decision makers avoid change by giving an opportunity for self-enhancement by choosing the goal with the easiest aspiration level, finding clear support for this proposition (Audia & Brion, 2007; Audia et al., 2015; Jordan & Audia, 2012).

Performance Feedback in Groups

Organizational theories are sometimes, but not always, scalable over levels of analysis. For example, network theory is scalable across any level of analysis, as is well demonstrated by the many tests of similar propositions at the individual, group, and organization levels of analysis (Brass, Galaskiewicz, Greve, & Tsai, 2004). Other theories also have claims of scalability, though for many theories the claims do not have solid evidence. Given the evidence supporting performance feedback at the organizational and individual level, it seems that we are close to making at least an empirical case for performance feedback as being a scalable theory, and perhaps this can lead to useful propositions to develop the theory further by examining the issues that are particularly important at the group level.

An important starting point is that there is already some work on performance feedback in groups, nearly all of which is aligned with goal-setting theory. Group goal-setting research has proceeded slowly, which is best illustrated by two meta-analyses that found usable data from 10 studies (O'Leary-Kelly, Martocchio, & Frink, 1994) and 38 studies (Kleingeld, van Mierlo, & Arends, 2011), respectively. These are low numbers overall and represent slow progress in a 17-year span. The good news is that the studies found clear evidence of performance feedback at the group level. Whether group goals can affect individual behaviors when individual goals are also present is an important question to address because it affects the ability to predict behaviors by group goals. The findings so far are that group goals still affected behaviors with individual goals present, provided the individual goals were phrased as individual contributions to the group rather than just individual performance (Kleingeld et al., 2011). The usual finding that difficult goals led to greater performance increase was also obtained, along with an indication that the results could be robust to the interdependence of individuals in executing the group task.

A select few studies, so far, have examined the impact of performance feedback on group responsiveness. One possibility for group-level responsiveness to performance below aspirations may be guided by Staw, Sandelands, and Dutton (1981)'s threat-rigidity theory. Performance below aspirations can be perceived as a threat, leading groups to rely on well-learned responses that restrict information processing and constrict decision control. In other words, groups are likely to respond to threatening situations rigidly by becoming less open to change, less accepting of new ideas, and more uniform in their group decision-making processes. This is more so when the group makes internal rather than external attributions of threat. A few studies have found support for the threat-rigidity hypothesis. Gladstein and Reilly (1985) found partial support for the threat rigidity hypothesis in their simulation involving 24 groups. They found that perceptions of external threat restricted the way in which groups processed information. Groups reacted to external threat by using less information and fewer communication channels and by having less interaction than they would under nonthreatening conditions. Similarly, Peterson and Behfar (2003) studied the impact of negative performance feedback on

future group process and performance. They found that negative performance feedback is correlated with an increase in task and relationship conflicts within the group. However, groups with high intragroup trust are buffered from experiencing the future relationship conflict. This research suggests that the group's attribution of the threat has an impact on decision making and that groups are particularly sensitive to negative rather than positive feedback information (Guzzo, Wagner, Maguire, Herr, & Hawley, 1986).

Additional insights comes from work examining the effects of performance feedback jointly with the effects of emotions on group behavior, finding that groups experiencing performance below aspiration level were more likely to make routine changes (Døjbak Håkonsson et al., 2016). Success resulting from new routine mastery, in turn, increased positive emotions.

The few studies of performance feedback in groups, and their promising findings, suggest that performance feedback in groups could be a very promising research direction. It would have the benefits of (1) filling the gap between the rich research on organization-level performance feedback and individual-level goal setting, and (2) getting closer to some concerns in the original formulation in Cyert and March (1963), which had an emphasis on organizational units rather than whole organizations as the locus of problemistic search. To fulfill its promise, group-level performance feedback research should address both the original theoretical formulation and the new findings so far. A few issues are particularly important.

First, how are aspiration levels formed and updated in groups? Cyert and March (1963) formulated aspiration-level updating as a function of organizational experience, with both comparisons with others and accommodation to own past performance as key factors. In part as a result of goal-setting research, organizations seek to artificially set aspiration levels rather than have them formed by groups, but there is evidence that goal acceptance by the group varies and is consequential for the pursuit of the artificially set goal (e.g., Podsakoff, MacKenzie, & Ahearne, 1997). An important research question is the extent to which group aspiration levels are influenced by managerially set aspiration levels versus experience-based aspiration levels, and what happens when the two sources yield divergent aspiration levels. Thus, research on how aspiration levels are set, which is so important at the organization level of analysis, should also be done at the group level.

Second, how do groups respond to performance below the aspiration level? The original formulation suggested problemistic search but left the form of search loosely specified (Cyert & March, 1963), with much of the later research focusing on behavioral change that essentially applies different strategies to the problem of obtaining higher performance (Shinkle, 2012). However, this focus seems specific to the organizational level of analysis, as organizations can often address profitability problems better through large-scale changes such as market entry, innovation, and strategic change. Groups have more narrowly assigned tasks and specific goals, and instead need to focus on ways to increase output, as specified by the organization. It is likely that theory development at the group level requires reconsideration of the individual-level approaches of directed attention, greater effort and persistence, and mobilization and use of knowledge, along

with specifically group-level approaches such as changes in the division of labor or planning of task execution (Weingart, 1992). Indeed, a research of particular interest seems to be the extent to which the group redesigns its tasks when performance is below the aspiration level or simply resets individual aspiration levels in order to match the group aspiration level (Van Mierlo & Kleingeld, 2010).

For examining group aspiration levels in organizations, it is particularly important to know whether problemistic search at the group level will be directed in ways that lead to innovations. Crude approaches to performance below the aspiration level, such as effort increase, are effective up to a point but are typically exhausted soon as workers and processes reach their boundaries. However, it is clear that groups can also resort to more advanced solutions such as adoption of new routines (Døjbak Håkonsson et al., 2016). For examining such questions, it is likely that the researchers need to consider the environment of the group, especially with respect to its interactions with other groups, ability to redesign its work, and managerial support. Such issues are typically consequential when groups search for ways to alter their work processes, rather than just speed up the work. They point to a need for more field study of groups that fall below aspiration levels, which is an approach that has become less frequent in group goal-setting research lately (Kleingeld et al., 2011).

In sum, group-level research on performance feedback currently has the same research agenda as organization-level research, but with much less work completed, and in addition it has specific research questions that address the role of groups as organizational components with specific and delineated tasks. As a result, group-level research is an open field from which we expect significant theoretical and empirical contributions.

Discussion and Conclusion

Performance feedback theory has a central role in organizational learning theory because it addresses the question of when organizations and groups change, and it is gaining increasing precision in also addressing the question of what type of changes they make. This turns performance feedback and the resulting problemistic search into engines of organizational learning, because it drives their attention to learning opportunities from other organizations, and it creates the organizational changes that fuel learning from own experiences. Given this central role of performance feedback theory, it is very helpful that this theory has had the solid accumulation of theory and evidence documented here and in earlier reviews (Gavetti et al., 2012; Shinkle, 2012). However, although this is a very vigorous research tradition, there are still gaps in the work done as a result of some areas attracting more attention than others.

A key gap is evident from the significant difference in research accumulation in the organizational level and the group level. Indeed, the research at the group level even lags behind the individual level, although strictly speaking, performance feedback theory does not make individual-level predictions. Goal-setting theory does, however, and has accumulated findings both at the individual and group levels that suggest opportunities for group-level research on performance feedback (Kleingeld et al., 2011). Filling this gap is a high-priority task because group-level search and change processes are clearly within the domain of performance feedback theory.

Other gaps are also evident. The theory posits a string of events from performance below the aspiration level, via problemistic search, via organizational change, to performance or risky change. The middle step of problemistic search has seen much less investigation than work simply linking performance to organizational change or risk change. This is in part because of data-collection problems, as problemistic search inside an organization is much less visible to the researcher than organizational change or risk taking.

Development of data collection or research methods that help address this issue would be the start of significant progress in performance feedback research. Finally, scholars have tended not to address whether the organizational changes actually increase the organizational performance as well, in part because there are significant methodological problems associated with attributing performance change to organizational changes (Greve, 1999; March & Sutton, 1997). These problems, although significant, are not unsolvable, and it is reasonable to expect additional work testing both the conditions under which performance feedback and problemistic search leads to increased performance and whether organizational changes failing to increase performance result in continued problemistic search. The behavioral theory of the firm is largely agnostic on the quality of organizational changes in response to performance feedback, but it clearly predicts that search and change continue until either performance is increased or aspirations are decreased so much that performance exceeds aspiration levels (Cyert & March, 1963; Levinthal & March, 1981).

Performance feedback theory has generated a strong line of research, and it continues to do so. In fact, pointing out the largest gaps in the literature so far is potentially problematic because so much currently is done in the most active areas of research. There is still work to do on what types of organizational actions are influenced by performance feedback, what goals (internal or externally imposed) organizations pay attention to, how they form aspiration levels, and how factors either related to the organizational structure or its environment mediate the effects of performance feedback on the likelihood and form of change. In each of these areas, significant work has been done, and the findings point to the potential for additional investigations to become fruitful. There is significant research activity on performance feedback in organizations, and it is likely that this literature will need an additional update through a review in just a few years' time.

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