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Social comparison processes in an organizational context: New directions

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Abstract

The goal of this article is to frame some new directions to social comparison research in organizational settings. Four themes are developed. First, we examine the role of organizational variables in shaping the basic sub processes in social comparison, such as the selection of referents. The second theme focuses on the meaning of level of analysis in social comparison processes. The third theme develops how time can enhance our understanding of social comparison. Lastly, we explore some methodological issues inherent in the three prior themes.

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The goals of this paper are to build on some themes in this issue, particularly the three invited papers, and to frame directions for future research on social comparison processes in organizational settings. There has been a long, incremental stream of research since Festinger's seminal paper (1954). Our focus will be to suggest some themes that provide newer research directions and opportunities, as this research continues to evolve. We selected four themes particularly relevant for understanding social comparison processes in organizations:

- the role of organizational variables
- the role of levels of analysis
- time as a dimension in social comparison
- methods in social comparison research

We have selected meta-themes—ones that should transcend a particular problem or population. For

example, Greenberg, Ashton-James, and Ashkanasy (in press) explore new problem areas, such as leadership and stress, where social comparison can be applied. This is a useful way to identify new research directions. Alternatively, one could identify underrepresented populations (e.g., blue-collar or service workers) to focus new research on social comparisons. We identify research areas that cut across problems, populations, or for that matter, disciplinary orientations.

A number of factors motivated us to select these themes. First, we think they are important topics in understanding social comparison processes. Second, they are underrepresented in the body of this research. Some have been selectively addressed by papers in this Special Issue, while others have not. Third, there are many well-rehearsed topics in the social comparison literature, such as the selection of upward or downward comparisons (Buunk & Gibbons, in press) or “Better-than-Average Effects” (e.g., Moore, in press). As we look toward the next 10 years of research, we expect work will continue in these two example areas but, at the same time, we see the need to diversify the range

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of topics and to focus on new theoretical approaches in order to gain a better understanding of social comparison processes.

This paper is organized by four themes. We begin with the rationale and basic argument for exploring a theme. Then we present some definitions, selectively discuss some relevant studies, and explore some directions for future research. In this last point, future research, our intention is to relate the theme to some basic social comparison questions, rather than providing a laundry list of research topics.

Theme 1—organizational factors

We spend a good deal of our lives in an organizational setting. Most of our waking hours are spent in work organizations, or in interactions with various organizations for the purpose of obtaining goods or services. Social comparison processes unfold in these organizational settings. However, there is not a well-developed theory or empirical body of research about how organizational factors influence, and are influenced by, social comparison processes. Our goal is to build an effective research strategy for linking organizational factors to social comparison processes.

Let’s start by clarifying the meaning of organizational factors. Basically, these factors are features of an organization. They include (1) the organization’s task and technology infrastructure; (2) the organizational structure, composed of authority, communication, decision-making, reward systems, etc.; (3) the social infrastructure, including culture, norms, and informal networks; and (4) the unique qualities of the workforce in terms of distributions of knowledge, skills, and abilities. These organizational factors exist independently of any individual, have relatively stable properties, and shape or affect individual behavior.

Our thesis is that these variables influence social comparison processes. If one individual works in a face-to-face office setting, while another works in a distributed environment, the availability and specificity of social

comparison referents should be different for these two individuals (Greenberg et al., in press). For example, the former setting should offer greater verbal and non-verbal information, which should in turn affect that individual’s social comparisons. Or, let’s assume you are in a hospital recovering from surgery. A relevant activity is to make sense of your rate of recovery. This is a basic social comparison question. How does the organizational context, such as your access to other potential comparisons referents at different stages of recovery influence your self-assessment? Additionally, the interaction patterns of health care givers and the norms about open communication within the hospital all may influence how you evaluate your rate of recovery and your subsequent well-being.

There are three premises in our argument about organizational variables. First, organizational variables are pervasive in our lives. Questions about how good are one’s grades, what are one’s promotion prospects, is one making a speedy recovery from surgery, did one get a fair price on one’s house sale, did one’s children get a good college education, are all evaluated in an organizational setting. Second, the types of organizational variables vary considerably. They can range from complicated technological environments to small, informal social networks. The fundamental idea is that these different organizational variables affect how people make social comparison judgments about different objects.

The third premise—central to this discussion—is to build the theoretical linkages between organizational variables and key social comparison processes. Table 1 shows the four basic classes of relevant organizational factors. While there are a number of ways to classify social comparison processes, we identify initiation, selection of referents, and an evaluation process. Finally, we examine three potential outcomes or consequences. To illustrate our linkage approach we will focus on the process of selecting referents. The new research question becomes: how do organizational factors affect referent selection, and what are the key mediating mechanisms? Table 2 is a visual representation of this question. Before

Table 1
Organizational factors and social comparison processes

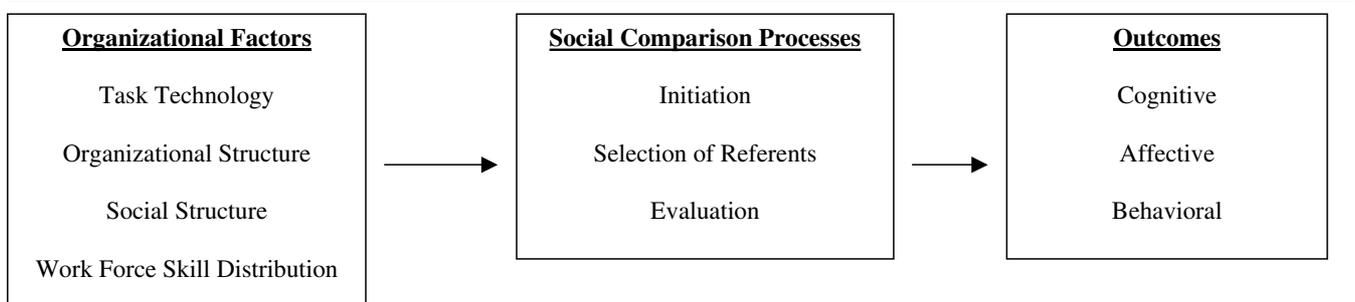
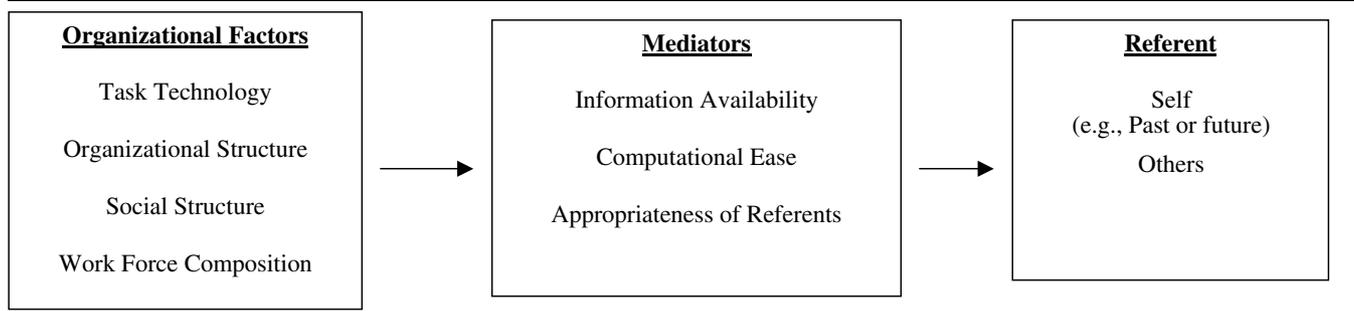


Table 2
Organizational factors and selecting referents



we explore the ideas in Table 2, let’s look at the existing literature.

Representative research

A study by Scheer, Kumar, and Steenkamp (2003) reported differences between American and Dutch companies in their assessment of positive inequity (overpayment) vs. negative inequity (underpayment). Dutch firms reacted adversely to positive inequity, while U.S. firms did not. These differences were explained by differences in a cultural variable between the two countries and the studied firms.

A study in international joint ventures (Chen, Choi, & Chi, 2002) examined perceptions of justice between Chinese locals and foreign expatriates. Chinese workers were more willing to view compensation as unfair when comparing themselves with expatriates than when comparing their pay against that of locals. An international joint venture is an organizational variable that brings together people from different countries. It creates an environment where people often do similar work but get compensated differently. The situation sets up social comparisons and opportunities for perceived unfairness. A study (Ang, Van Dyne, & Begley, 2003) in a similar setting demonstrates a different type of organizational variable—task interdependence. They examined justice perceptions of foreign workers vs. local workers in Singapore. A basic finding was that foreign workers perceived lower levels of distributive justice than did locals, a condition that was heightened under conditions of higher interdependence. All these studies relate organizational variables (e.g., interdependence) to affective outcomes (see Table 1).

Several studies look at the impacts of other organizational features. O’Reilly, Main, and Crystal (1988) examined CEO relationships with the Board of Directors and the relationship between board members’ salary and CEO salary. A network perspective found that people engage in different types of social comparisons depending on the network characteristics of the tie.

Shah (1998) found evidence that employees rely on structurally equivalent actors for job-relevant information (e.g., task mastery and performance), whereas they rely on cohesive ties for information related to organizational assimilation (e.g., behavioral norms). The same study also found that job characteristics (an organizational variable) influenced the quantity of social comparisons. For example, social comparisons were more common in job categories with higher uncertainty and higher performance demands. Job stress, job uncertainty, and feelings of reduced personal accomplishment increase the desire for social comparison information (Buunk, Schaufeli, & Ybema, 1994).

A line of work by Oldham, Kulik, Stepina, and Ambrose (1986) focused more specifically on the role of organizational factors on referent selection. They present a theoretical model that links organizational characteristics (e.g., changes in allocation procedures, physical proximity) and distribution of personal characteristics (e.g., ethnic diversity in an organization) to the selection of referents in social comparison processes (Kulik & Ambrose, 1992). Oldham et al. (1986) reported that employees in high job levels or in large job classifications used other-outside referents when evaluating the complexity of their jobs. Employees who used other-inside referents to evaluate job complexity or compensation tended to have longer organizational tenure.

A cursory review of the above studies shows a wide range of situational variables, ranging from broad cultural variables to job-specific variables. Although we have presented these variables along a macro-to-micro continuum, there is no intellectual organization of these studies in the literature or a cumulative body of work. That is, you would not find a systematic body of evidence developing around these organizational variables. Indeed, many of the cited studies are not focused primarily on social comparison theory; rather, this research uses social comparison theory as an *ex post* explanatory variable.

Another class of studies focuses more directly on social comparison processes in an organizational context.

These studies take the perspective of the “customer” rather than the worker or employee. For example, one study examined hospital patients’ social comparisons with their roommates prior to or after surgery (Kulik, Mahler, & Moore, 1996). Overall, the study found that patients engaged in more cognitive clarity affiliations (e.g., questions about how to make the recovery easier) with roommates who were recovering from a similar operation. Impressively, they found that cognitive clarity affiliation with post-operative roommates mediated the speed of the patient’s recovery.

Another example is a study by Blanton, Buunk, Gibbons, and Kuyper (1999), which was set in schools. The research question focused on (1) how students compared themselves to other classmates and the relationship to performance and (2) the impact of the specific types of comparison: “comparison level choice”—the level of performance of the person one compares oneself against and/or “comparative evaluations”—the evaluation of one’s ability relative to others. The results of this field study of more than 800 students in 33 different classes across four schools were that both comparison level choice and comparative evaluation predicted improved performance. Another example of a studies in this category is research on downward comparison in a smoking cessation clinic (Gibbons, Gerrard, Lando, & McGovern, 1991).

One distinguishing feature of these studies is a valuable focus on understanding underlying social comparison processes. In Kulik et al. (1996), the design permitted the examination of high- and low-threat surgery patients who were matched to roommates in the hospital with either similar or dissimilar surgical procedures and who differed in regards to whether they were pre- or post-operative. Additionally, the measurement processes helped distinguish affiliations involving emotional comparisons, cognitive clarity, and emotional support. In this design, the researchers were able to show the linkages between the levels of threat associated with one’s surgery and increasing verbal affiliation directed at achieving cognitive clarity. Similarly, in Blanton et al. (1999), the study design permitted both concurrent and longitudinal assessment of how different types of comparisons relate to performance as well as the relative impact of comparisons.

The key strength of studies in this class is that they drill down to the basic processes (see Table 1) underlying social comparison, and they do so in an organizational context. The objects of comparison are real consequential human issues, such as experiencing life-threatening surgery and making sense of that event by comparing your experience with others. The subjects in these studies range from adults in a hospital to students in a secondary school.

While there are attractive features of studies in this class, there also are clear drawbacks. Most important,

these studies do not acknowledge directly the role of organizational variables. Blanton et al. (1999) drew from 4 schools and 33 different classrooms. Classrooms are social systems with their own organizational structures, technologies, norms, and social arrangements. Some classes may be very centralized with authoritarian leadership. Other classrooms may have strong norms encouraging communication and collaboration. These organizational factors can affect the availability of information about others and how a student may evaluate his or her ability compared to others. Schools are a different kind of social system. The unanswered question is, how did the organizational factors such as leadership, communication norms, rules, and grading systems affect students’ performance and how students evaluated their performance? Kulik et al. (1996) is an example of a very-well-designed study that deals with high- and low-threat surgery patients who have roommates experiencing similar or dissimilar surgery. The assignment of roommates is an important feature of this study and also an organizational feature. However, hospitals are very complex systems. Each patient comes in contact with a whole host of caregivers, who are sources of information. Floors or units differ in terms of the number of caregivers and their norms about dealing with patients’ care, in terms of monitoring procedures, other organizational factors, and by type of medical care (e.g., cardiac vs. oncology). This complex context provides different types of information and rationales for interpreting this information about one’s medical state and potential for recovery.

The key is that it is not enough to study social comparison processes in an organization; rather, one should examine how the organizational context plays a role in understanding and shaping how the social comparison processes unfold.

An alternative direction

The challenge is to identify a productive research approach for exploring organizational factors and social comparison processes. As noted earlier, our strategy is to select a process, such as selecting referents, and examine the mediating mechanisms that link organizational factors to referent selection. That is, we want to demonstrate how organizational factors change mediating mechanisms, which in turn affect the selection of referents (Table 2). The same approach could be applied to other processes such as the initiation of referents.

What are the mediating mechanisms? One theoretical position (Goodman, 1974; Kulik & Ambrose, 1992) holds that there has to be information about referents available to the focal person. The perceived relevance of the possible referents will determine which, if any, are selected. The relevance and/or attractiveness of referents is affected by how easy it is to assess the referent

and how appropriate the referent is to resolve the focal person's needs. Additionally, organizational factors can affect the attractiveness of referents by influencing the motivational goals of a social comparison, such as the desire for self-enhancement.

Organizational factors affect the availability of information. If two individuals work on highly interdependent tasks, they will have much more information about each other than they would in a situation where their tasks are primarily independent.

Depending on the information one possesses, some referents are computationally easier to evaluate than others. Consider the example of pay raises. Let's assume you learn about raises given to three individuals in your organization. But in only one case, where the person works proximate to you, do you have information about the person's inputs (e.g., training) or outputs (e.g., performance). In addition you understand well the nature of this person's job. In this case, it is computationally easier to assess the meaning of the pay raise for the individual who works closely to you than the two who do not.

The appropriateness of the referents is determined by the distribution rules of the organization. These are general normative rules about how valued outcomes are to be distributed. Let's consider an organization that values experience in which the distribution rule is that resources should be distributed based on length of service. In this case, the distribution rule informs members that it is appropriate to compare their situations with those of other members of this organization and to focus only on outcomes or resources received in the light of length of experience. Assessments of outcomes reflect the ratio between outcomes and inputs, in this case length of service. People with greater length of service should receive more benefits.

The basic idea in Table 2 is that organizational variables influence the information available about referents and their appropriateness. Given information on referents, people will gravitate toward referents that are both appropriate and computationally easy to assess. Our goal is to examine the linkages between organizational variables, mediating mechanisms, and the selection of referents. Earlier we identified studies that considered factors such as proximity (Gartel, 1982), job level, size of job category (Oldham et al., 1986), tenure (Oldham et al., 1986), task interdependence (Ang et al., 2003), and network tie strength (Shah, 1998), with the assumption that these factors contribute to differing availability of information on referents. While this is a reasonable list of organizational variables, it is important to note that in most cases the researchers have not formally established the linkage between specific organizational variables and differential availability of information or relevance about referents. In most cases, this connection is inferred. Also, findings about why certain factors

affect referent selection, while others do not, are not all that clear.

Let's next explore in more detail the linkages between organizational variables, the appropriateness of referents, and the selection of referents. Distribution rules, the shared understandings about relationships among inputs, outputs, and outcomes, are key elements in this analysis. At least two groups of organizational variables should shape distribution rules. One group of variables would include the basic structure of the organization's reward system as well as the cultural values within the organization. For example, consider an organization with an authoritarian culture and a reward system that reinforces only position or status. In such a case, the reward system signals the distribution rule which emphasizes ascriptive vs. achievement criteria. The distribution rule should affect the meaning of appropriate referents. In this setting, a person would likely assess their well-being by selecting others who have similar status or position, not on how well they performed.

Another group of organizational variables directly impacts the socialization process. Socialization processes lead to shared understanding of distribution rules. For example, if people work in a face-to-face environment rather than a distributed environment, learning about distribution rules should be easier, and prediction of referents should therefore be clearer. If one works in a closely knit group, that group will be the primary focus of one's socialization. The basic idea is that organizational variables, such as proximity and interdependence, shape the form and content of socialization processes. These socialization processes shape beliefs about appropriate distribution rules, which in turn affect the type of referent selection.

Most of the above examples linking organizational variables and mediating mechanisms on selecting referents have been couched in a formal organizational context, with the focus on the worker or employee. We would expect the same theoretical approach if we changed the perspective. For example, considerable work in social comparison has been done in health organizations. This is very important work because it ties our theories to fundamentally important social issues.

Consider the example of a person who has just gone through cardiac surgery, an object of study in this literature. Such a life-threatening situation evokes many of the motivational forces underlying social comparison. While a series of studies identifies what kinds of referents are selected and why, these studies pay little attention to the role of organizational context. Nonetheless, the concept of information availability should play a role in what types of referents are salient to the patient. Patients in a hospital interact with a complex set of caregivers. All of these people, plus family members and other patients, can be a source of information about others who are recovering from surgery. Organizational

variables such as proximity and interdependence are likely to play the same role in making information available whether the evaluation is about your recovery from surgery or your last pay raise.

Learning about and using the distribution rules will be more complicated in this hospital setting. How well one recovers from surgery relates to a variety of input factors, such as age, prior health conditions, and complexity of the operation. In addition, a variety of potential outcome variables serve as indicators of recovery. To be able to select meaningful referents, the issue here is not just availability of referents; one also needs some understanding about the relationships between input characteristics and outcomes. That is, if the complexity of an operation rather than the patient's age affects recovery rates (within certain limits), the patient is more likely to focus on information about other patients whose surgeries match his or hers on the scale of complexity.

This example raises a host of questions for the researchers working in health care systems. What interaction patterns provide information to the patient? How do those patterns change over time, i.e., due to shift work? How do status and interdependence with the communicator affect the availability of information? How do patients learn about different recovery outcome variables? How do they learn simple distribution rules and related input factors and tie those pieces of information to recovery metrics? Why are certain referents selected and others rejected?

The key is to trace the mechanisms that connect these organizational variables to the availability of information and relevance of referents. We need to be clear how specific variables, such as face-to-face vs. distributed work, shape the amount and types of information available on referents. It would not be sufficient to infer this linkage. We can learn more about the role of organizational variables by first measuring the amount of actual information about referents that was processed and then distinguishing this from the actual referents selected. However, there has been very little work on how people learn the distribution rules of an organization. When a worker evaluates the fairness of rewards, they have some implicit or explicit understanding between input factors and rewards. When patients evaluate their recovery rates, they have created some mental model about inputs, such as age, time since operation, and a recovery metric. Understanding how these rules are learned—and from whom—would provide new insights on social comparison processes and recovery rates.

Summary

Much of our lives unfold in an organizational context, whether it is focused on work or non-work. There

is a rich opportunity for social comparison in this environment; however, the relationships between organizational factors and social comparison processes are relatively unexplored. Some researchers have examined organizational factors, but in most cases, the interest in social comparison was more of an *ex post* explanation rather than an *ex ante* theory building. Similarly, we examine studies that occur in an organizational setting, but the context is not explicitly considered.

As one strategy for future research, we have advocated for greater attention on organizational factors and their specific linkage to mediating processes that define key elements of social comparison. We illustrated this idea by examining the linkage between organizational variables, such as proximity and interdependence, and their relationship to the availability of information about referents and the perceived relevance of referents, which in turn should affect the types of referents selected. We tried to identify the major concepts and their linkages, both theoretically and operationally (see Table 2).

We could have extended a similar analysis to other critical processes, such as how social comparison processes are initiated. The basic question still would be the same: how do organizational factors affect mediating mechanisms that would initiate the social comparison processes? In the literature there is a series of studies on threat and social comparison behaviors. Kulik and Mahler (1997) review this literature with a focus on social comparison reactions to surgery; Taylor and Lobel (1989) examine the threat of cancer; Lane, Gibbons, Gerrard, Blanton, and Buunk (2002) focus on threats to academic performance; and Taylor, Buunk, Collins, and Reed (1992) consider responses to life crises or losses. Basically, these studies indicate that threat evokes goals of self-evaluation and self-enhancement, which initiate social comparisons and lead to different kinds of referent selections and coping behavior. Little consideration has been given to other organizational variables. The most obvious organizational variables related to initiation of social comparisons would be formal mechanisms for evaluating performance and allocation rewards. The more institutionalized and visible these mechanisms are, the more they should stimulate social comparison processes. Organizations that use 360°-type reviews and broadcast performance outcomes and reward allocations should stimulate underlying goals (self-esteem, self-enhancement) that drive the initiation of social comparison processes. Similarly, the use of customer surveys or the multiple and regular monitoring systems in a hospital could evoke these motives as well as stirring an individual's propensity to engage in social comparison about his or her satisfaction with an economic transaction or his or her own well-being. We want to note that while social comparisons can be evoked by the formal measurement

systems mentioned above, informal interactions can have a similar effect. For example, proximity can lead to social conversations with a fellow worker who was recently subjected to procedural or distributed injustice. The informal telling of such incidents may evoke self-esteem or self-enhancement motives that should stimulate social comparison activities. The key idea is that whether one examines how the process gets initiated or how referents are selected, one should follow the linkage from the organizational variables to the mediating processes to the social comparison activity under consideration.

Theme 2—level of analysis

Level of analysis refers to units of social behavior. The individual, group, organization, population of organizations, society, and so on represent traditional units of social analysis. Most of the social comparison literature focuses on how the individual makes sense of attitudes, opinions, abilities, and performance. The question is how we can extend our understanding of social comparison to other levels of analysis.

Why select this as a possible future direction for social comparison research? First, the theory is about social comparison processes, not necessarily about “individual” comparison processes. The word “social” suggests that an evaluation of objects in social reality may apply to different types of social entities. Second, there is not much social comparison research on other units of analysis. If we used the 60-plus submissions to this Special Issue as a measure of current research interest, for instance, the predominant focus tends to be on the individual. There are some thoughtful studies (see Levine & Moreland, 1987) on individual social comparison in a group context. However, we argue that these are not group-level studies. A third rationale is that there is a movement toward understanding human behavior in a multi-level context (Klein et al., 2000; Goodman, 2000; Rousseau, 2000). One interesting challenge in that work is whether fundamental processes change as levels of analysis change. For example, is social comparison at the individual level similar to or different from social comparison at the organizational level? Using a multi-level lens may provide new ways of thinking about social comparison processes.

We introduce Table 3 as a way to sharpen our understanding of social comparisons occurring at different

levels of analysis. To simplify the table we use only three levels of analysis: individual, group, and organization. The table distinguishes among the actor doing the comparison, the object of comparison, and the referent used in the comparison. As an example, an individual compares (cell 1) his or her promotion rates (cell 2) with a colleague (cell 3). Or an individual could compare (cell 1) the cohesiveness in his or her group (cell 5) with the cohesiveness of another group (cell 6) reported in a company survey.

We will explore the “level of analysis” concept by focusing on the group level of analysis, primarily for simplicity’s sake. This seems reasonable both because the group is distinct from the individual, and because groups are a basic, familiar unit of analysis in both organizational and social psychology. We argue that this approach to group-level social comparison can be generalized to other, higher levels of social analysis. Table 3 will serve as our guide in this discussion.

Representative research

Let’s begin with some representative studies. Levine and Moreland (1987) examine social comparison and outcome evaluation in group contexts. They develop a typology of outcome comparisons based on types of comparison (e.g., self/self, group/group) and social context (intra–inter). In their analysis they discuss a faculty member comparing her university’s current endowment with the endowment last year, or a faculty member comparing the endowment to that of another university last year. Both of these are social comparisons, if the question is how well-off or substantial the endowment is. The object of the evaluation, the endowment, is an organizational attribute rather than an individual-level attribute. The question, however, is whether this is an example of a group- or organizational-level social comparison. The answer is that it is neither. The faculty member, working alone, renders this an individual-level social comparison about an organizational-level object, and the referent is the current or past endowment of another university or the faculty member’s own university.

Guimond (2006) focuses on intra- and inter-group social comparisons. This research examines what kinds of comparisons are selected, as well as the underlying explanations for the comparisons. While these studies clearly focus on different types of groups (ethnic majority

Table 3
Social comparison and levels of analysis

Levels	Actor doing social comparison	Object of social comparison	Referent of social comparison
Individual	Individual worker 1	Promotion rates 2	Colleague 3
Group	Workgroup 4	Cohesiveness 5	Outside group 6
Organization	Company 7	Sales rates 8	Outside competitor 9

or minority), the comparison is still at the individual level. For example, a study by Zagefka and Brown (2006) asked participants to assess their economic situation. On a five-point scale, they evaluated how important it was to compare themselves to different majority and minority groups. In this case, the referent is a group, but the individual is the actor making the comparison.

An empirical paper by Molleman, Nauta, and Buunk (in press) examines social comparison processes and their consequences on groups. The basic argument in this paper is that social comparisons among group members affect group-level outcomes. They found that positive upward comparisons were associated with individual achievement, while downward comparisons were associated with lower individual achievement. Neither the upward or downward comparisons, however, were associated with changes to group grades. The question, again, is whether this study is about social comparison at the group level. The answer is no. Judgments of social comparison were at the individual level about other members in the group. The basic theoretical assumption was that the forms of these comparisons would affect group processes (e.g., trust) that would in turn affect group performance (grades). This is a valuable observation. However, the important idea is not a specific finding, but rather than this is a study about individual-level social comparison that may have implications for group functioning. Our point is that it is not a group-level study on social comparison. One must distinguish among the level of analysis of the actor making comparisons, the object of comparison, and the referent.

An alternative direction

Given the above, what is a group level of analysis study? Let's start with a different concept, learning, which will serve as an analogy. Individuals can learn from others in their group, which in turn can improve group-level performance. But this is still an example of individual-level learning that has consequences for other levels of analysis. Group learning means there has been a change in the group's repertoire (Wilson, Goodman, & Cronin, in press). That means the group has generated a new set of responses related to an event, and when that event occurs, the group will evoke that new repertoire.

Individuals in a group can do social comparisons about individual-level objects (e.g., how well someone communicates) and use others in the group as referents. Group members' individual beliefs about communication can affect group-level processes and outcomes. On the other hand, if my group wants to evaluate how well it is performing and compares its performance to that of other groups, that is a group-level comparison. The key factor is where the comparison takes place—the individual, group or organizational level. We acknowledge that the object of evaluation (e.g., my pay or my university's

endowment) and the referents also may vary in terms of the level of analysis. The critical issue is what actor actually does the social comparison.

At our university we have a Management Game where instead of sitting in class, students in a group run a simulated company, making basic decisions on marketing, manufacturing, human resources, and so on. The game's computer-based platform permits real time decision-making in a complicated competitive environment. The students get immediate feedback about how they are doing against their competitors on a host of performance indicators.

A basic question is what social comparison at the group level means in this context. If one member seeks comparative data on the group, that behavior is still at the individual level. If that same person gathers the comparison data and emails the results to everyone in the group, that in itself will not constitute social comparison at the group level. If, on the other hand, the group collectively agrees that it wants information on how it stands, seeks and obtains information about other groups, and develops a shared understanding about the meaning of the data, that does represent group-level social comparison. In Table 3 terms, this group would be operating in cells 4, 5, and 6. The key features are a collective interest in the need to know, a search for comparative information, and a shared understanding of the meaning of the data. The first and third features are truly critical for the group to share in. It is conceivable, given efficiencies from division of labor, that a single group member could be designated to collect the data and disseminate it. However, even in this case, it was a group-level decision about the division of labor. The features of "need to know" and "shared understanding" emerge out of group-level discussion.

If these are some of the features of group-level social comparison, they pose a set of newer research questions. What factors generate a collective need to know? Do the underlying motives of self-protection and self-enhancement play a similar role in group-level vs. individual-level comparisons? What types of group processes lead to clearer shared understanding about the meaning of comparison information? What are the consequences of group-level social comparisons on group performance and then on subsequent dimensions of group process or performance?

Also, if we are clear that the theory, measurement, and analysis are at the group level, then there is another set of research questions fundamental to social comparison. Earlier in this chapter, we pointed out that the initiation of social comparisons is a relatively unexplored question. How does initiation occur at the group level? Is it theoretically different from what might happen at the individual level? In the earlier discussion, we pointed out several structural factors, particularly in an organizational context, that initiate social comparisons. One

would think that these same factors (e.g., performance reviews) would have a similar effect on the group level. On the other hand, a group is a collection of individuals. Any of these individuals could stimulate the group's "need to know" about their standing.

A dominant question in the social comparison literature has focused on the selection of referents. An interesting challenge will be to identify both the similarities and differences in referent selection between individuals and groups. An investigation of the underlying mediating processes, such as availability of information or computational ease, should be relevant to the group's selection of referents. How organizational variables affect the availability of information and subsequent referent selection are likely to be similar at the individual and group levels. That is, organizational evaluation or monitoring systems may publicize performance differences among teams. Company attitude surveys may provide information on group processes. All of these sources can stimulate comparison processes and influence the kinds of referents that are considered. One important difference in a group is the need for consensus about the appropriate referents. Process skills among the leaders and members will predict the nature of agreement on referents. Similarly, given that multiple referents may be combined to make a judgment on a particular issue, groups provide an interesting opportunity to study this process. The reason is simply that shared meaning ascribed to multiple referents will unfold in the course of a group discussion. In that sense, one can see how a group comes to an understanding about what referents are considered, which ones are discarded, which ones form the basis of comparison, and the final judgment. The group process mechanisms of conflict resolution and consensus building will be visible to the researcher. At the individual level, this evaluation process is not easily observable in real time.

In our discussion on group-level comparison, we have focused primarily on the group entity making comparisons about group objects using group referents. In Table 3, we could have varied the cells for the object or referents. For example, the group may decide to evaluate the performance of a newcomer. The group would remain the actor, and the object would be at the individual level (cell 2). Or the group could decide to evaluate the marketing function in its organization compared to that in other organizations (cells 8 and 9). One question is whether changing the level of the objects or referents would alter the basic group comparison processes.

Summary

While incorporating multiple levels of analysis is a promising research strategy, it requires explicit identification of the level of analysis. Most of the so-called "group" studies focus instead on individuals making

comparisons within the context of groups. While that is an interesting research area, it is different from social comparisons at the group level. We first need to distinguish among the actor or entity making the comparison, and then the object and the referent, all of which can vary in terms of level of analysis. A focus in this discussion is how to separate individual and groups as units for social comparison. For groups, this means there must be group-level consensus on the initiation of a social comparison, collection of referent data, and developing a shared understanding of the object of evaluation. That distinction is critical. Understanding the commonalities as well as the differences in switching across levels is the second basic idea in this analysis. Moving to the organizational level is even more complex. Perhaps research in the learning literature could be a guide for social comparison research. In that literature, while some aspects of that process remain the same, the meaning of learning across individual, group (cf. Wilson et al., in press) and organizational levels (Argote, 1999) remains quite distinct. Therefore, as we move to larger units of social analysis, we need to examine how both the processes and the consequences change. For example, rankings of academic institutions, a form of social comparison, have become quite popular in the United States, with potential consequences in the forms of acquisition of resources (e.g., people and money). How organizations seek to manage both the interpretation of these rankings and their actual positions in the ranking systems represents a different approach to research on social comparison consequences at the individual level.

Theme 3—time

The third topic in this paper is the temporal dimension of social comparison. We selected this theme because it is fundamental to understanding human behavior, yet often is only dealt with implicitly. Temporal factors permeate all aspects of human behavior. Examining social comparison through a temporal lens may uncover new explanations and understandings about human behavior (Goodman, Lawrence, Ancona, & Tushman, 2001). Most of the published research in this area is a cross-sectional survey or one-shot laboratory studies. Some of the fundamental "review books" on social comparison (cf. Suls and Wheeler, 2000; Suls & Wills, 1991) do not focus on temporal matters. Indeed, in the 60-plus papers submitted for this Special Issue, few explicitly focused on time or had research designs that incorporated time.

Social comparison is fundamentally about how people make sense of or evaluate their abilities, attitudes, or performance. A whole host of time-related questions may be asked, such as when people make these evaluations,

how often they conduct evaluations, and how evaluations of outcomes or performance affect the consequences for people over time. For example, if a person thinks he or she has been inequitably treated, what is the time lag between experienced inequity and attempts to resolve that inequity? Questions such as these suggest that time is a meaningful lens through which to examine social comparison processes, and a temporal approach can provide a direction for future research.

Representative research

There are, of course, some studies focusing on temporal issues. A study by Stepina and Perrewé (1991) examined the stability of referents and feelings of inequity over time. Collecting data in an organization 24 months apart, they reported that referents dealing with compensation remained relatively stable over time, but referents related to other job facets (e.g., job complexity, security) changed as often as they remained the same. The study also examined whether people who felt disadvantaged at time 1 engaged in a resolution process and were able to achieve a more equitable situation in time 2. A basic idea in the equity and justice literatures is that feelings of inequity represent an uncomfortable psychological state that people try to resolve. For some of the job facets (e.g., complexity and security), there was a movement to feeling advantaged at time 2; however, this was not the case for people who felt disadvantaged about compensation at time 2.

Another longitudinal study examined social comparison among women with breast cancer (Bogart & Helgeson, 2000). They reported that the majority of comparisons were downward and associated with positive affect, such as one feeling fortunate that one's condition is better than another's. Over a 7-week period, the comparisons reported in each category remained relatively stable. A study by Buunk, Zurriaga, Gonzalez-Roma, and Subirats (2003) examined changes in perceived relative deprivation among nurses over a 1-year period. They show that, for example, downward comparisons at time 1 are associated with increases in perceived relative deprivation at time 2, and some of these effects of comparisons over time are stronger for those high on social comparison orientation (i.e., an individual difference measure). A longitudinal study by Blanton et al. (1999) examined the relationship between social comparison processes and academic performance. They found that both upward comparisons and favorable self-evaluations relative to the class average were associated with improved academic performance over time.

These are informative studies and are good examples of studies in the temporal domains. They address at least two interesting questions. First, if people make a particular kind of comparison at one time, what are the con-

sequences of that comparison at another point in time, in terms of levels of effect? A second question is the selection of referents over time. For example, Bogart and Helgeson (2000) provide a nice description of referent selection over time. It appears that the selection of referents in this context is relatively stable, although there is a slight decline over the 7-week period they studied. Underlying this finding are some broader questions about whether referent selections are stable or not, and in what contexts does the stability of selections vary across the objects being evaluated?

The purpose in enumerating these studies is to demonstrate that temporal dimensions are important in social comparison research and are feasible to examine. Two of the studies we reviewed took place in formal organizations where there is some natural stability in one's sample, and it is easier to collect data over time. In the Bogart and Helgeson (2000) research, a panel of women was brought together through participation in a health study. This approach represents an alternative way to collect data in a longitudinal design.

An alternative direction

If we agreed that the temporal lens frames some interesting questions in social comparison research, and the research can be done, what are some possible research themes? We organize this section along some of the major processes, such as the initiation of the social comparison process, selection of referents, the cycle of comparisons, and, finally, the consequences of social comparison (see Table 1).

Earlier in this paper we discussed where and why social comparisons get initiated. A relatively unexplored question is when do social comparisons get initiated? Ancona, Okhuysen, and Perlow (2001) present a useful typology of different types of physical and social time that one could use to characterize initiation cycles. Bogart and Helgeson (2000) capture aggregate weekly diaries illustrating when women compare themselves against other women with respect to breast cancer. We could drill down into these diaries to determine when the comparison got initiated, was the initiation predictable or not, and how frequently comparisons are initiated.

A related task is to explore initiation frequency across domain areas. Is the frequency of initiations homogeneous or heterogeneous across domains, such as one's work, health, or athletic performance? This would be informative in the examination of individual differences and the salience of different domains or objects for comparison. Some of the validation tests of individual difference measures of social comparison have used relationships with other self-report scales and predictive validity of moderator effects. (cf., Gibbons & Buunk, 1999; Buunk & Gibbons, in press). Understanding the

frequency of social comparison initiation cycles across different domains in one's life would help to theoretically delineate the role of individual differences. Also, if there are structural frequency differences across domains, it might be useful to explore the features of high- and low-initiation domains and the implications of these domain differences on the other processes of social comparison.

The selection of temporal referents is another important issue. A person can select himself (or herself) or other external referents. These referents can be located in the past, present, or future. A simple way to evaluate your tennis performance at time 2 is to compare it to time 1. This past referent is computationally very easy to use, because you are controlling for certain input characteristics (e.g., playing time, physical ability). Similarly, if we have a simple representation of learning curves, we could project future performance by evaluating present performance. Conversely, one's current projected position on the learning curve should shape how we evaluate future performance. Another consideration of this temporal focus is understanding the relative weights given to past, present, or future referents in any evaluation.

Another temporal dimension is the type of referents selected over time. Many objects are evaluated over time. The worker evaluates pay over time. The cancer patient does multiple discrete evaluations over time. One general question is the stability of the evaluation process over time. Does one select the same referents and generate similar evaluations, or does one select different referents and/or do the evaluation differently? In the Bogart and Helgeson study (2000), similar classes of comparisons were used over time. Stepina and Perrewe (1991) found that while respondents used the same referents over time when evaluating compensation, referent selection was less stable when other job facets (e.g., security, complexity) were the focus of comparison.

The arguments for stability of referent selection and evaluation can be tied to several factors. First, a dispositional position (e.g., Staw, 2004) would argue that the stability of evaluations of objects or attitudes can be traced to basic personality differences and their effect on how people represent their environment. A structural position would hold that constancies in the environment will lead to stable attitudes. If an organization treats people equitably, we should find constancy of reported attitudes over time. A third position ties into our concept of computational ease. In evaluating referents, we argued that people will gravitate toward referents that simplify the process of evaluating a particular object. If an individual finds a referent that works, there should be a tendency to gravitate to that referent the next time a similar comparison opportunity arises.

While the arguments for stability of choice seem reasonable, we cited some empirical evidence where stability holds for some objects and not for others. For

example, Stepina and Perrewe (1991) found stability in selecting compensation referents but not in referents involved in job complexity. One reason we might observe stability in one facet but not in another may be tied to certain features of the object being evaluated. For example, compensation is a relatively concrete object. Pay can be expressed in numerical values, and inputs such as length of service also can be expressed in numerical terms. Job complexity, on the other hand, typically is expressed in more abstract terms. You could have a job with three or 15 assigned activities with high complexity in both. While we do not know the real reason for differences in the Stepina and Perrewé study, distinctions among the objects being evaluated could be relevant.

Another factor offsetting stability may simply be the results of learning. How does an individual evaluate the quality of his or her driving? Most likely, the individual would start with his or her current record. Let's say this driver had no accidents with other cars in the past 10 years, but during the recent winter the individual went off the road twice. Is that good or bad? Let's say this individual asks colleagues about their experiences. There are different answers, and there are different levels of driving experiences among the colleagues. The individual may feel he or she has an initial answer to the question. Then he or she does a web search and finds statistics about driving outcomes for someone with similar characteristics. This is good quality, relevant data. Up to this point, the individual has considered different referents in order to best answer the question, but now the answer has changed. From that point forward, this person would probably use the same referent information for this question over time. This simple example of learning explains the switching or lack of stability of referents over time followed by a period of stability.

The critical idea is that most social comparison of objects occurs over time. There are forces leading to similarities and dissimilarities in the selection and evaluation of referents over time. Thus, a fair question is why most social comparison studies are single-trial examinations.

Another opportunity area might be in the micro temporal processes of a social comparison act. We define an act as being initiated by some stimulus event and ending with an evaluation of a particular object. For example, perhaps you get a letter with your annual pay raise, which initiates a question about how good was this raise. Earlier we mentioned, given your need to know, you will begin to search for referents, a process that will be shaped first by available information. This search proceeds serially to identify information about others' raises and about their inputs. For a given referent, another sub-process will test the computational ease of comparing this referent to your situation and then for the appropriateness (i.e., distribution rule) for making

this comparison. You might retain this referent, and assess their outcome–input ratios, and decide whether your pay raise appears to be fair or unfair. Affective consequences should unfold from this evaluation. At this point, one referent evaluation process or cycle is complete. However, people may use multiple referents in their overall evaluation. So a new referent process will be initiated. The evaluation act is completed when you make a final judgment about whether your pay raise was fair or unfair, across the set of referents used.

Social comparison is dynamic. But we do not know a great deal about the temporal features of this process. How long do each of these referent evaluation cycles last? Does the nature of the object (i.e., pay raises, job complexity) change the length of these referent evaluation cycles? What happens when you run across referents that are difficult to process computationally? What is the sequence by which referents that are threatening to the focal person are rejected? How do these processes continue, and when do they terminate? One choice in future research is to examine this temporal sequence of evaluation cycles in detail. Some form of protocol analysis (cf. Ericsson & Simon, 1993) would seem appropriate. This would be a strong alternative to a lot of studies on social comparison that give subjects the referent for evaluation.

The last temporal topic deals with lag structures. Given a causal relationship between X and Y, we are interested in when Y might occur. In the context of our analysis, this means people who feel disadvantage at time 1 would be motivated to achieve a more equitable situation in time 2. The question is specifying when time 2 will occur. The challenge in these longitudinal studies is to specify the lag structure. Unfortunately, as well argued by Mitchell and James (2001), this question is rarely discussed *ex ante*. Rather, the time periods suggested are quite arbitrary. In the studies we used to illustrate temporal issues, the time periods between time 1 and time 2 vary from 7 weeks to 24 months. These time periods seemed more a matter of convenience than driven by theory.

One research opportunity is to think more deeply about the lag structure. In another paper (Ancona, Goodman, Lawrence, & Tushman, 2001), we have argued it is unlikely that one can identify specific point estimates for when Y will occur, given X. Rather, the better approach is to look for conditioning variables that will point to when the consequences in question will likely occur. Consider the simple example of a person who feels inequitably paid. There is a set of cognitive strategies (change referents or revise estimates), as well as attitudinal and behavioral options (e.g., absenteeism, resignation) this person may follow. The questions are what consequences will be evoked and when? These questions are not well explored. The attitudinal and cognitive options might be quickly evoked. For behavioral

options, the range is more time-sensitive depending on the option being considered/evoked. Absenteeism could be easily implemented, while switching jobs or renegotiating salary are longer-term tasks. Reducing one's effort may be the way to redress this situation. In this case, we are looking at numerous possible resolution strategies and the inherent (and different) temporal features of these varied strategies. Another approach might be to look for structural changes that lead to a more equitable environment. Changes in leadership or pay systems may signal temporal changes in feelings of equity. While it is difficult to make specific temporal estimates, one can *ex ante* specify possible consequences and make time estimates of when some consequences are more likely to occur.

Implicit in this discussion about lag structure is the relationship between a social comparison judgment and some outcome variable that may have an affective or behavioral dimension. It also is clear the reverse may be true. That is, experiencing the outcome frames how the social comparison process unfolds rather than the other direction. This reverse causation hypothesis also has not been the subject of research.

Summary

We applaud studies that have adopted a temporal focus. Unfortunately, there are few. We have identified a rich set of research questions that requires a temporal lens. Our questions deal with the initiation, temporal referent selection, stability of referents, cycles of social comparison, and lag issues. There are other temporal issues. Our message is encourage researchers to move away from cross-sectional studies and use a temporal lens to frame the social comparison process.

Theme 4—methods

The social comparison literature has employed diverse methods for understanding this fundamental human process. Studies have focused on assorted populations, from cancer patients to the mentally ill to students to factory workers. Social comparison has been examined using many types of research design in both the laboratory and the field and has been measured in an abundance of ways, from open-ended interviews to precise physiological measures. This diversity highlights the need to review the plethora of methods to understand best practices for specific research goals. Others have examined methodological issues in studying social comparison processes, as elaborated by other articles in this issue (cf. Buunk & Gibbons, in press; Greenberg et al., in press; Moore, in press).

Our discussion of methodological issues will be organized around the earlier themes in this article. That is,

instead of commenting on methodological questions in general, we will raise some issues on methodological approaches from prior themes of organizational variables, levels of analysis, and time. This approach should enhance our understanding of these themes and stimulate thinking on alternative methods.

Organizational

In our discussion of the influence of organizational factors on social comparisons, we address two fundamental processes—referent selection and the initiation of social comparisons. The study of these processes involves careful measurement and assessment of social comparisons—when do people make comparisons and with whom do they compare themselves? A methodological challenge for addressing these questions is what we term “measurement priming.” That is, to what extent are the measurement procedures eliciting referents rather than the true value of the construct? Researchers have echoed the concern that ideally, we want to understand how social comparison processes occur naturally, unconstrained by the framing of measurement questions and without merely relying on retrospective accounts (Suls & Wills, 1991; Wheeler & Miyake, 1992). However, even asking the question, “With whom do you compare?” forces the subject to engage in a comparison that may not naturally occur otherwise. Further, many methodologies dictate the choice of referent, forcing the subject to engage in a comparison with someone who is in a similar job or with the largest business supplier (cf. Scheer et al., 2003). While these methods are important for studying specific types of comparison, they may not reflect the comparisons that people would actually use if left to their own devices.

There also are pitfalls in specifying referents that are general and vague. Many social comparison studies ask subjects to compare themselves to a general population group, which may lead to the unearthing of “better-than-average effects,” when more naturalistic comparisons with specific comparisons may yield different results. In their review of research on social comparison in the health domain, Tennen, McKee, and Affleck (2000) find that many studies ask subjects to compare themselves to a general comparison, others in the community, people their age, or relative to a peer group. Many studies find that downward comparisons are common among people faced with threats to their health. Given the research on motivated reasoning, downward comparison is not surprising, as people are optimistically biased towards seeing themselves as doing better-than-average on threatening dimensions (see Klein & Weinstein, 1997, for review in the health domain). Indeed, Van der Zee, Buunk, and Sanderman (1995) found that only five percent of a community sample reported that they were in worse health than others.

These improbable findings underscore the importance of naturalistic methods that allow subjects to select their own referents rather than directing the subject to compare their experience or situation to that of a general group or population, which will help to avoid biases in the data.

Another form of measurement priming occurs when there is inherent ambiguity in some of the items eliciting comparison referents. For example, a number of studies ask subjects to think about (i.e., select) referents who are “worse off” or “doing better,” or ask “how well-off compared to others are you on . . .” The problem with these items is the meaning of “better off” or “worse off.” Consider the following: Colleague A received a 15 percent bonus, and B received a 5 percent bonus. Who is better off? One can only ascertain this if there is also information available about these colleagues’ relative inputs. Finding out that colleague A generated three times more revenue than B did, for example, would put the comparison raises in a different perspective.

The problem with the above items is that we do not know if the respondent is thinking only about outcomes or some outcome–input ratio. If a respondent answers a question based on someone who makes more money, that in itself is not informative unless we also understand the pay/input relationship. If the person makes more but has more experience or a more responsible job, the comparison is an appropriate referent, and the relationship is just. The person is technically better off in terms of absolute salary, but not better off in terms of how well he or she is doing relative to the other inputs. The basic call for future research is to measure the ratio between the object under investigation (salary, tennis performance, recovery rate from an operation) to the relevant input factors (experience, training, age).

Researchers have employed different methods to address measurement priming, typically by allowing subjects to select their own referents. In research on health education, Blalock, Afifi, De Vellis, Holt, and De Vellis (1990) coded spontaneous social comparisons during the course of an interview. Taylor, Apinwall, Giuliano, Dakof, and Reardon (1993) inquired about the stories that cancer patients sought out and heard about the experiences of others. Wilson and Ross (2000) coded biographical and autobiographical articles from popular magazines for temporal and social comparison. Bogart and Helgeson (2000) used open-ended questions to measure social comparisons and specified that respondents should answer the comparison question only if they had thought about or encountered someone else with cancer that day. An innovative technique employed by Van der Zee, Buunk, and Bos (1998) used a computer program that allowed patients to read interviews of people who were doing worse or better than the average cancer patient. The program recorded the time spent reading different interviews. This technique

eliminates the impact of social context, allowing for a naturalistic simulation of information acquisition tendencies and preferences.

Studies of the initiation of social comparisons and selection of referents lend themselves particularly well to “experience sampling” techniques. These techniques require subjects to record social comparison processes at set intervals, in reaction to an event, or in reaction to a signal from the researcher, such as when a beeper goes off (e.g., Csikszentmihalyi, Larson, & Prescott, 1977). An example of event-contingent recording of social comparisons is the Rochester Social Comparison Record, which spurs subjects to record details of a comparison directly after it occurs (Wheeler and Miyake, 1992). The use of signal-contingent self-reporting of social comparisons has not been studied. While this method risks missing comparisons that occur outside of the signaling, it can shed light on the frequency of comparisons. While experience sampling techniques may be impeded by the reluctance of the subject to record comparisons until right before the study materials are handed in, the use of technologies such as personal data assistants may reduce subjects’ reluctance to report in real time.

Another issue raised in our discussion of the importance of organizational variables is studying social comparison processes in rich vs. sparse settings. We argued that organizational variables can affect the information available about a potential referent and the eventual selection of referents. We need to look at ways to trace the effect of organizational structure on referent information and selection.

Research in populations facing medical threats has yielded vast methodological strategies for measuring and studying the effects of social comparison processes within a very specific context. In one study, patients with rheumatoid arthritis were shown a slides and heard audiotaped interviews of a patient who was coping either well or poorly with the disease (De Vellis et al., 1991). Other studies expose subjects to interviews with upward or downward comparison information (Van der Zee et al., 1998). Kulik et al. (1996) manipulated the type of referent patients were exposed to prior to surgery by systemically varying the target’s roommate. Many of these health-related methods have yet to be applied in work organizations. Field experiments in organizations that manipulate exposure to poor- or well-performing workers are ideal, though difficult to implement. Exposing subjects to videos, interviews, or performance appraisals of others in similar professions may help address research questions using realistic materials.

In summary, we raise several methodological considerations for the study of how situational variables affect social comparison processes. The main issue (for both the initiation of comparisons and the selection of refer-

ents) is to use techniques that are open enough to allow subjects to specify their own referent, rather than priming them with leading, general or ambiguous questions. Experience sampling techniques, such as event-contingent reporting and signal-contingent self-reporting, have great potential to elucidate aspects of both referent selection and initiation. We also note that the measurement of upward and downward social comparisons should be very specific. Simply asking if another is “better off” does not specify if they are considered to be better off due to effort, privilege, ability, or some other reasoning, and thus can be interpreted in many different ways. Finally, although organizational variables are usually best examined in the context-rich field, we endorse the use of laboratory techniques that add context to experimental design.

Level

Our conceptual discussion of levels of analysis has some implications for research methods. The basic position was that we need to be much more precise when switching levels of analysis or working at the individual, group, or organizational level of analysis. Both conceptually and methodologically, we need to distinguish among the levels of actors making comparisons, the object of comparison, and the referents used for comparison (see Table 3). All of these can be positioned at different levels of analysis.

At the group level of analysis, we pointed out that there needs to be some group-level interest (and involvement) in (1) the need to obtain comparison information, (2) the act of collecting that information, and most importantly, (3) developing some shared understanding about the meaning of that information. Shared understanding means individual members have a common understanding about certain group dimensions and together acknowledge that this understanding is shared among members of the group. The implication of this position is that one simply cannot collect individual-level information and aggregate the data to reach a group-level conclusion. One needs to determine that there is shared understanding that exists independently of any individual, so the departure of one member does not change what the others share. We also should be able to observe the shared understanding passed on through a socialization process with new members.

Group settings raise complex issues regarding the need to measure the three dimensions mentioned above (see Table 3). One could use structured questionnaires or surveys to tap these multiple dimensions. However, these tools must measure and analyze information at the appropriate level (i.e., group rather than individual). An alternative is to develop video transcripts of groups (Goodman, 2004; Weingart, 1997) to capture some of these complex processes. There is growing evidence that

this is a viable, although somewhat costly, way to capture key group behaviors. This approach would be particularly useful for understanding how a group decides to initiate comparisons and how they develop a shared meaning of information embedded in referents.

Time

There are several methodological issues to consider that involve time, the most obvious being the importance of longitudinal research. In their review of social comparison studies in the health domain, Tennen et al. (2000) lament the overwhelming amount of cross-sectional research and the relative paucity of longitudinal studies. The same problem exists with social comparison processes studied in organizational contexts. Social comparison processes occur both as reactions to events (e.g., as coping mechanisms in response to threat or as a method for ascertaining information about one's abilities or beliefs in reaction to an uncertainty) and as predictors of future abilities or affective states (e.g., upward comparisons may improve performance over time and downward comparisons may increase relative deprivation). These twofold, reactive and predictive effects of social comparison processes indicate that the importance of longitudinal research cannot be overstated.

Inherent in our discussion of the different research challenges with respect to time is the need to consider alternative study designs and measurement strategies. One challenge is to examine the frequency with which social comparisons are initiated over time. This requires a sampling of domains with different features and a measurement process sensitive to different frequencies of initiation over time. Similarly, we discussed micro temporal features of a social comparison act that starts with an initiation and ends with a judgment. Using some form of protocol analysis (Ericsson & Simon, 1993) may be the best way to capture these relatively short judgment cycles. There has been a wide variation in the time periods used to assess the consequences of social comparison judgments—from minutes to months to years. The challenge is to properly specify the lag structure and identify variables that are likely to moderate the timing of a social comparison judgment, its psychological consequences, and possible resolution strategies.

Another methodological issue relating to time is the use of methods that study automatic, vs. controlled or deliberative, judgments and reactions. Automatic processes are parallel, effortless, and generally below conscious awareness, whereas controlled processes are serial, deliberate, and generally conscious. Most of our designs and measurement strategies (with or without temporal features) are focused on controlled judgments. The distinction between automatic and controlled processes was first proposed by Shiffrin and Schneider (1977) and has received growing attention in numerous

fields of psychology, such as stereotype judgments (e.g., Devine, 1989) and, more recently, social comparison.

While most studies examine explicit social comparisons that operate at a level conscious enough for subjects to report, there is growing interest in how social comparisons occur automatically at a subconscious level. Recent research has found that the presentation of a comparison target subliminally spurs social comparisons outside of the subjects' conscious awareness, with conscious effects on self-evaluation (Mussweiler, Ruter, & Epstude, 2004; Stapel & Blanton, 2004). This research underscores a need for methodologies that capture the rich array of information encountered in daily social life. Moreover, it reminds us that, although social comparisons may occur spontaneously and frequently in daily life, we also should examine how deliberate social comparison processes change and develop over extended time frames.

We encourage researchers to examine social comparison processes through a temporal lens. Of course, more work should be done using longitudinal analysis with attention to elucidating the relevant time lags. The newer findings that social comparisons can occur spontaneously without conscious awareness has important implications for how researchers measure these phenomena.

Conclusion

The goal of this article is to chart directions for social comparison research by framing some new research areas. We tried to identify meta-themes that would cut across different problem areas, populations, and methodologies. An organization perspective is embedded in this discussion, but we tried to reflect social comparison processes in both formal and informal social organizations.

The most important call is for more focus in future research on mediating mechanisms. One way to accomplish this may be to look at well-researched topics with a new focus. For example, there has been a large body of research on referent selection. One way to reframe some of that research is to consider organizational variables. That is, how does the situation surrounding the individual influence the selection of referents and how social comparison processes unfold? Some of the most interesting work in this area has been in health care contexts, where social comparisons occur in real settings with real human consequences and where the social environment can make a major difference. Our purpose is not to advocate for the use of applied settings vs. more controlled environments, such as laboratory experiments, but rather to encourage an understanding of the referent selection process in the context of organizational factors and key mediating mechanisms.

Another part of our call for more focused research on mediators can be answered by looking at domains that have heretofore been neglected in social comparison research. In the discussion of level of analysis, our first goal was to develop a framework for distinguishing among social comparison at different levels of analysis. As most of the literature is at the individual level, moving to the group level of analysis would be a welcome change. Then, the task is to understand the fundamental similarities and differences of doing social comparison processes at different levels of analysis. This type of comparative analysis should stimulate new insights into the basic mechanisms of social comparison processes and enhance theory on this topic.

In addition to analyzing and comparing social comparison processes at different levels, using a temporal lens would further redirect research in this area. Simply capturing in real time how often people make comparisons across different objects would be informative. Some studies have captured this information with very specific populations (e.g., women with breast cancer), but similar descriptive accounts are not available in other domains. This type of data would be useful for understanding the initiation of social comparisons and how individual differences influence social comparisons. Studies have produced conflicting findings on the stability of referents, or the types of resolution processes enacted over time. These are, of course, ripe areas for further investigation.

In the methods area, we highlighted the issue of measurement priming. The basic question is whether the results of studies are artifacts of the measurement instrument itself. We raised questions about eliciting referents with general, overly leading, or ambiguous stimuli. A simple countermeasure to this issue is to use more protocol-based assessments. Researchers should ask: what are the cognitive processes elicited by the instrument? Do they match the overall theoretical construct of the study?

We recognized the diversity of methods being used in current studies and call for new methods. For example, the use of videos as stimulus materials in evaluating patient recovery was a movement away from traditional paper-and-pencil manipulations. Similarly, in research on group levels of analysis, film could be a powerful data collection mechanism, capturing how groups select referents and assign meaning to these referents. Overall, we would encourage this diversity in both methods and populations, with a movement toward studies that incorporate both quantitative and qualitative methods.

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