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THE EFFECTS OF GOAL ORIENTATION ON PERFORMANCE EVALUATION ACROSS OCCUPATIONS

By

Kerry Allison Delbridge

A Thesis

Submitted to
Michigan State University
in partial fulfillment of the requirements
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ABSTRACT

THE EFFECTS OF GOAL ORIENTATION ON PERFORMANCE EVALUATION ACROSS OCCUPATIONS

By

Kerry Allison Delbridge

This study examines the effect of similarity between rater and ratee on goal orientation on performance appraisal and the additional roles of self-esteem and job context. Rater attributions were examined as mediating processes between similarity and performance appraisal ratings. Results indicated no significant effect of actual similarity or job context on performance ratings. A model incorporating perceived similarity and liking as mediating variables, though, was found to be significant. Thus actual similarity with respect to goal orientation led to increased perceived similarity, rater attributions of understanding and reinforcement, liking, and in turn, performance ratings.

To 1

To Mike and Marisa, who know me better than anyone, often better than I know myself,

and whose love and support give me the courage to be me.

ACKNOWLEDGEMENTS

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been an inspiration to me, and continues to be a reminder that there are truly wonderful

people in the world.

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INTRODUCTION

The use of performance appraisal ratings is based on the premise that people can accurately determine how well others are performing their jobs. The need for such determinations is reflected in their wide application. Performance appraisals are used as the basis of promotions and dismissals. They are used to give feedback to employees and employees use this feedback to make changes in the way they approach their jobs. In addition to these direct applications, performance appraisals are used as a dependent variable in all kinds of research. Various factors are examined to determine what effects they will have on performance, and often this performance is measured by some sort of rating. Because of this, the quality of performance appraisals are of great concern to both researchers and practitioners alike.

Factors that affect the performance appraisal process have been widely examined, and not surprisingly, the focus has been on rating errors. Many "categories" of factors can be examined, such as characteristics belonging to the rater, characteristics of the ratee, and the particular rating process used. Rater characteristics such as demographic variables, psychological characteristics, and job-related variables such as the rater's job experience or performance level have been the focus of much performance literature (Landy & Farr, 1980). Demographic characteristics have been the most commonly studied rater characteristics (Landy & Farr, 1980). A typical example of this is a study done by London and Poplowski (1976) who found that female raters gave higher performance ratings than males.

Many researchers have shown that the personalities of the raters affect performance appraisals (e.g. Buffardi & Gibson, 1980). Schneier (1977) investigated the impact that the cognitive complexity of raters has on the accuracy of performance ratings, and Drory and Ben-Porat (1980) investigated the effects of the leadership style of the rater. Wexley and Youtz (1985) investigated an entire battery of personality variables, including self-esteem and adaptability. Based on this research, it is clear that individuals systematically differ in the way they rate others.

Ratee characteristics that have been examined include demographic variables (again the most common), personality variables and job-related variables. (Landy & Farr, 1980). Given the historical imbalance between men and women in the workplace, gender is one of the most obvious choices for study, and has been examined repeatedly. (e.g. Maurer & Taylor, 1994; Sackett, DuBois, & Noe, 1991; Schmitt & Hill, 1977) Similarly, researchers have looked to ratee race for effects on performance appraisal (e.g. Sackett, DuBois, & Noe, 1991; Schmitt & Hill, 1977).

Performance appraisal research has also examined interactions between rater and ratee characteristics. Most of this research has been limited to matching the sex and/or race of the raters and ratees (Landy & Farr, 1980). For instance, Pulakos, White, Oppler and Borman (1989) ran a study in which soldiers in the army were used to examine the effects of both rater and ratee sex and race on performance ratings.

There are, however, other possibilities for interactions. Instead of concentrating on one particular variable, Pulakos and Wexley (1983) examined the relationship between performance appraisal and the general similarity between particular supervisors and

subordinates. The potential also exists for other variables to be studied, especially those more directly related to work behaviors. Landy and Farr suggested that performance appraisal research has often neglected the cognitive processes of the rater. They further indicated a need to determine what mental processes occur as the rater forms his judgments. Ilgen, Barnes-Farrell and McKellin (1993) have more recently stated that attempts need to be made at combining knowledge from the different domains. For example, knowledge about raters, ratees, and setting should be combined. Thus, the recommendations of these researchers indicate that interactions involving thought processes, motivations and values are needed.

The research has also tended to ignore the content of a specific situation (Ilgen et al., 1993) In other words, researchers have tended to assume that the rating process is the same in every situation rather than dependent upon any sort of context. In contrast, Cleveland, Murphy, and Williams (1989) stress the importance that context plays in the performance appraisal process. For example, the purpose for which the performance appraisal is conducted can have great impact on the ways in which the raters gather and use information (Williams, DeNisi, Blencoe, & Cafferty, 1985)

Thus, although the performance appraisal literature has explored a wide variety of variables, there is room for expansion, especially by combining the effects of several different types of variables.

Accuracy

Ilgen, Barnes-Farrell, and McKellin (1993) conducted a review of the performance appraisal literature to determine what changes, if any, had occurred since

Landy and Farr's (1980) call for more cognitive research. They stated that Landy and Farr's article caused a shift from an emphasis on scales and rater training to attempts to understand that the rater is a decision-maker who processes social cues.

The performance appraisal process is subject to biases such as halo, and leniency (Bernardin, 1978), and these influences have been the focus of much research (e.g. Borman, 1975; Feldman, 1986; Havenstein, 1992; Murphy & Balzar, 1986; Murphy & Reynolds, 1988). Leniency represents a general tendency to give favorable ratings (Bernardin, 1978). Halo generally refers to "the inability to discriminate among conceptually distinct and potentially independent aspects of ratee performance" (Murphy & Reynolds, 1988 pp 235). The latter is seen as failing to distinguish between dimensions of performance (Feldman 1986).

Correcting a problem with performance appraisal requires a deep understanding of the underlying influences and processes. While it is clear that accurate performance appraisals are very important, this focus may limit the types of questions that get asked. If researchers are only interested in accuracy, this may keep them occupied with the *what* of performance appraisal rather than the *how*. In other words, this may put the focus on the results rather than the process. A complete understanding may thus be more difficult to achieve.

Conversely, a researcher who ignores the focus on accuracy is more free to examine how ratings occur without feeling that each study must directly point out which raters are more accurate. He can examine the effects that variable X has on how the rater processes information and can thus gain a greater understanding of how the rater is

thinking and behaving without feeling tied to the idea that this must somehow directly explain a portion of the accuracy gained or lost.

Ilgen et al. (1993) stated that research on cognitive processes has the potential to make two contributions: 1) understanding basic cognitive processes, 2) showing how to improve rating processes. They also emphasize that there are three steps in the rating process: 1) acquisition of information, 2) organization and storage of information, and 3) retrieval and integration of information that leads to an evaluation. They stated that it is time for the performance appraisal literature to go in new directions including investigating what kind of thought processes affect the evaluation.

It is extremely important to understand the mental activities that underlie the appraisal process and the cognitions of raters. Once there is understanding, one is in a better position to evaluate the effects of these processes and cognition in order to determine the extent to which they are fair, useful or accurate. The knowledge gained about the deeper processes will allow increased success in improving performance appraisal.

Further, this understanding will allow researchers to make distinctions in performance appraisal that are more complex than just between right and wrong or good and bad. For example, one can address the issue of whether a particular characteristic of the performance appraisal process makes it more accurate in some situations and worse in others.

Summary

In summary, the performance appraisal literature has a need for research of a different type than typically seen in the past. There is a need for research that incorporates new variables, that focuses on processes, that takes context into account, that makes use of basic research, and that integrates research from different domains. Also, while most research involving the effects of rater characteristics on performance appraisals have centered around the issue of the susceptibility to particular biases, there is a need for research that explores what makes supervisors differentially interpret and value particular behaviors in their subordinates.

The purpose of this study is to incorporate some variables and processes that have not yet been applied to the performance appraisal literature. The performance appraisal process is influenced by many different factors including the way in which the rater and ratee define "good" performance. A relatively less explored personality construct, goal orientation, has direct implications both for the way in which employees perform their jobs and the way in which supervisors will evaluate these behaviors. The more the employee and supervisor see eye to eye on how the job should be performed, the better the performance rating for the employee should be. These perceptions may be additionally influenced by the supervisor's feelings about *herself*. The lower the supervisor's self-esteem, the more likely she may be to try to enhance that self-esteem by rating employees who are similar to herself highly. Finally, the context in which the performance takes place should affect supervisor perceptions of the appropriateness of employee behaviors. What would constitute "good" performance in one context might

not in another. Thus, some jobs will be more appropriate for particular goal orientation profiles than others. The following sections provide justification for this perspective.

Similarity and Attraction

Extensive research has documented that similarity of attitudes causes attraction and liking (e.g. Byrne, 1971; Byrne & Griffitt, 1969; Byrne & Nelson, 1965; Golightly, Huffman, & Byrne, 1972; Hamilton, & Fallot 1974; Lydon, Jamieson, & Zanna 1988; Tan, & Singh 1995). In other words, the more similar two people are, the more they will tend to like each other. For the purposes of this discussion, unless otherwise specified, similarity refers to *actual* congruence between people as measured or manipulated in some manner rather than to the perceptions people may have about their similarity to someone else.

There have been many practical applications of this effect. van Lange, Liebrand, & Kuhlman (1990) examined the effects of subjects' strategies on the prisoner's dilemma scenario. They found that people presented with the dilemma made positive attributions of people with similar strategies and negative attributions of people with dissimilar strategies. Golightly, Huffman and Byrne (1972) showed that similarity of attitudes affected attraction to a person and further, that it affected decisions about this person, namely how large of a loan business students were willing to approve for that person. Good and Good (1972) demonstrated that potential counselors were rated more positively when their attitudes were similar to the raters. Thus, the similarity-attraction effect has been shown to be robust and generalizable to many different situations. In most of these

studies, a hypothetical other's similarity to the subject is manipulated and then the subject is asked to indicate how much they like this person.

There has also been research that applies this phenomenon to different areas in the work place. Griffitt and Jackson (1970) demonstrated that similarity of attitudes increased the probability that subjects would hire a job applicant. Baskett (1973) found that similarity significantly affected the amount subjects would recommend paying a prospective employee. Good and Good (1974) showed that supervisors were more positively rated on several work-related dimensions when their attitudes were similar to the raters.

Finally, the similarity-attraction paradigm has been applied to performance appraisal. Smith, Meadow, and Sisk (1970) showed that attitude similarity increased the favorability of performance evaluations when subjects were asked to rate a previously unknown person and were led to believe that this person was either similar or dissimilar to themselves. Senger (1971) ran a study with actual managers and their subordinates. Actual measures of value-similarity were taken, and the experimenters found that more similar subordinates were rated higher. Pulakos and Wexley (1983) used actual manager-subordinate pairs and a real performance evaluation. Subjects were selected such that they represented diverse occupations and were asked to rate subordinates on five dimensions: performance, conformance, dependability, personal adjustment, and general satisfactoriness. Further, they were asked to rate the degree to which the subordinate was similar to themselves in general. The researchers found that ratings were related to how similar to themselves the mangers perceived the subordinates to be.

This finding brings up an important idea: that it might be the *perceived* similarity rather than the actual similarity that affects ratings. The problem with the Pulakos and Wexley study is that because actual manager-subordinate pairs were used, and no measures of actual similarity were taken, there is no way to determine causality. It is equally plausible that managers were motivated to believe that they were similar to the successful subordinates. In fact, there is literature that supports the idea that people will be more likely to perceive themselves as similar to a person if that person is successful than if that person is unsuccessful (Krahe, 1983).

Turban and Jones (1988) did a similar study and measured both perceived similarity and actual similarity. Both types of similarity were found to be related to ratings, but perceived similarity was more highly related to ratings than was actual similarity. A problem with this study is that perceived similarity was measured in terms of outlook, perspective, values and work habits while actual similarity was measured in terms of demographic variables such as race, educational level, department tenure, and age. The conclusion can not be drawn, then, that perceived similarity is more important than actual similarity.

Wetzel and Insko (1982) found that people are attracted to those who are like their ideal selves. In other words, we like people who are similar to who we *want* to be rather than who we *are*. This *does* represent a departure form the traditional similarity/attraction paradigm. It implies that this literature should be concentrating on people's values rather than on people's actual traits. According to this research, managers should like employees who behave the way that the manager wants to behave rather than

the way that the manager actually behaves. For example, suppose that manager A really places high value on being focused. He does not believe that workers should converse about topics that are not related to work. Despite this, he finds himself slipping every once in a while, and talking about his children. This particular manager should, in general, like a subordinate that remains focused on work better than one who converses about his family. This line of thinking has direct implications for the current research, and will be discussed further.

Although the similarity attraction effect is strong and its extension to performance appraisal seems promising, the exact underlying process remains cloudy. Byrne and colleagues' theories of similarity and attraction phenomenon stem from reinforcement (Byrne & Clore, 1967; Byrne & Griffitt, 1969; Byrne & Nelson, 1965). According to this logic, a person who is similar to us reinforces our belief that we are correct or appropriate. Researchers have, for the most part, either ignored this explanation or taken it for granted, probably due to the fact that testing this as an underlying process would be difficult or due to a greater interest in the practical implications of the phenomenon itself rather than the processes. Byrne and Griffitt (1969), though, found that this relationship holds even when the effects of perceived similarity are partialed out. Thus, awareness of similarity is not essential to increased attraction. Logically, it does not seem likely that a person who does not see another as similar is being affirmed by that similarity, suggesting that other processes may be at work either instead of or in addition to the reinforcement proposed by Byrne and his colleagues. Wetzel and Insko's (1982) findings that people like those who are similar to their *ideals* also suggests other mechanisms at work. An

ideal cannot serve as reinforcement about one's own correctness because it implies that the ideal has not been reached. In fact it might serve to reinforce the discrepancy between that ideal and oneself.

There remains, then, questions as to the underlying processes that cause this phenomenon. There is also a need to explore the effects of similarity with respect to particular attitudes or personality constructs instead of just as a general concept.

Goal Orientation

While it is a start to say that actual similarity affects attraction and performance appraisal ratings, this statement is meaningless unless one denotes a frame of reference (Medin, Goldstone, & Gentner, 1993). One person cannot be generically similar to another, they must be similar with respect to specific characteristics. One individual difference that is especially applicable to the workplace is goal orientation. Goal orientation encompasses performance orientation and mastery orientation.

Dweck (1986) defined a learning (mastery) orientation as those where "individuals seek to increase their competence, to understand or master something new," and a performance orientation as those where "individuals seek to gain favorable judgments of their competence or avoid negative judgments of their competence." More recently, Dweck (1992) conceptualized learning (mastery) as "seeking to improve one's competence," and performance as "seeking to prove one's competence." Thus, each orientation represents the degree to which a person values a particular goal and is driven to accomplish it, specifically the goals of learning or achieving.

Performance orientation is based on great concern over ability level, and avoidance of negative judgments of competence (Button, Mathieu, & Zajac, 1996; Dweck, 1986; Elliot & Dweck, 1988). Performance oriented people derive satisfaction from displaying their ability, and have a preference for tasks that maximize competence judgments (Dweck, 1986; Dweck & Elliot, 1983). When they choose a task, they will tend to avoid challenge, and if possible, will choose a task that appears most difficult to outsiders and is easiest for them (Button, Mathieu, & Zajac, 1996; Dweck, 1986; Dweck & Leggett, 1988; Dweck & Elliot, 1983). Thus the reasons they approach tasks and the motivation behind the way they perform them are different from non-performance oriented people.

These characteristics should affect work habits as they have implications for the types of tasks that are enjoyed and the ways in which mastery oriented people go about performing them. Performance oriented people should be concentrating on how they can display their ability to others. If they choose assignments that fit their particular strengths and avoid their weaknesses, they can perform really well and impress their coworkers and supervisors. If they are confident that they can perform well, they should pick high-profile tasks, and they should work very hard at perfecting the tasks they do work on.

When faced with obstacles or difficulty during a task, high performance people exhibit low persistence, negative affect and self-cognition, withdrawal of effort, and deterioration of performance (Button, Mathieu, & Zajac, 1996; Dweck, 1986; Dweck & Leggett, 1988; Elliot & Dweck, 1988). They have a tendency to evaluate negative outcomes in terms of ability (Button, Mathieu, & Zajac, 1996; Dweck, 1986). They

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evaluate their competence by using normative standards, do not believe that success is repeatable, tend to over estimate their failures, and have difficulty remembering their successes (Diener & Dweck, 1980; Dweck & Elliot, 1983).

These negative reactions should affect future workplace actions. Highly performance oriented people should try to discontinue or avoid tasks that are difficult for them. If they are in a position of power, they would probably delegate these tasks to others while choosing to confine themselves to the tasks at which they excel. They should also spend time comparing their performance to that of others doing the same job.

Due to the fact that performance oriented people place such a high value on performing well, their tendency to succeed and/or fail should have broader consequences on their feelings of self-worth, or self-esteem. Difficulty and failure are common in life for everyone, regardless of their orientation. Nobody does everything perfectly on the first try. Very few children ride their bike perfectly down the street the first time they get on, and very few adults perform as well on the first day of their first job as well as other employees performing that job. For performance oriented people, these failures should take on greater importance, and since failures and difficulties occur in all aspects of life, they will experience lower satisfaction with themselves and lowered worth.

Mastery orientation is based on a desire to learn and master. People with high mastery orientation enjoy exerting effort in the process of mastering a task, increasing ability level over time, striving to understand something new, attempting to acquiring knowledge or skills, and seeking of tasks that maximize learning (Button, Mathieu, & Zajac, 1996; Dweck, 1986; Dweck & Elliot, 1983; Elliot & Dweck, 1988). Mastery

oriented people also tend to seek challenge, and derive satisfaction from exerting effort (Button, Mathieu, & Zajac, 1996; Dweck, 1986; Dweck & Leggett, 1988).

Again, there are implications for the workplace. People high on mastery orientation should try to improve their skills, understand the tasks they are working on, and learn about their jobs, whether about the specific tasks themselves or about the relationships between those tasks and the jobs of other employees. They should also show a tendency towards picking tasks that will allow them to learn the most, which would usually be the more challenging, or diverse assignments.

When faced with obstacles or difficulty during a task, mastery oriented people tend to exhibit persistence, continued positive affect, optimism about future outcomes, and maintenance of effective efforts (Button, Mathieu, & Zajac, 1996; Diener & Dweck, 1980; Dweck, 1986; Dweck & Leggett, 1988; Elliot & Dweck, 1988). They treat failure as useful feedback, and have a tendency to use difficulty as a sign that strategies should be changed or effort should be increased (Button, Mathieu, & Zajac, 1996; Dweck, 1986; Elliot & Dweck, 1988). They will also place some value on partial attainment of a goal (Dweck & Elliot, 1983). Since almost everyone experiences some sort of failure or difficulty on the job, these reactions should occur with some frequency and should have effects on future tasks. People high on mastery orientation should be more willing to stick with an endeavor with which they are having difficulty, and to change the way they are approaching a particular assignment on which they are working if it is not going well.

Mastery oriented people base judgments of their competence on their own performance, attribute success to effort and are optimistic about future outcomes (Diener

& Dweck, 1980; Dweck & Elliot, 1983). These attitudes have less direct implications for workplace behavior, but affect attitudes and should affect work behavior through these attitudes.

Since mastery oriented people place such a high value on learning, their feelings of self-worth, or self-esteem should be heavily based on the learning they experience. Learning, unlike high performance, occurs in almost all situations. "Success" and "failure" do not determine whether or not a person learns because they will learn in both situations if they desire to do so. In fact, they probably learn *more* when they fail than they do when they succeed. Because their learning is what they measure themselves by, they should have high self-esteem.

Originally, goal orientation was conceptualized as one variable. Mastery-oriented people were on one end of the continuum, and performance-oriented people were on the other (Dweck, 1986). More recently, researchers have come to the understanding that mastery and performance values are not mutually exclusive, and that they should be measured separately (Bouffard, Boisvert, Vezeau, & Larouche, 1995; Button, Mathieu & Zajac, 1996). While some hypothesized characteristics of mastery and performance orientation would appear to be mutually exclusive, this may be an artifact of the fact that in most of the literature, people were classified as one or the other. For example, traditionally, mastery oriented people were theorized to choose difficult tasks while performance oriented people were theorized to choose easy ones. When examining this from the continuum perspective, it makes perfect sense: Mastery oriented people pick the difficult tasks because they are looking for opportunities to learn, while performance

oriented people pick the easy tasks because they want to perform well. Applying this to

the two-variable perspective appears difficult at first because a person who is high on

both mastery and performance should want to pick tasks that are both easy and difficult.

The problem is easily reconciled, though, when one considers the true motivations. This

person would like a task that offers a chance to learn a great deal, but is also easy.

Obviously, finding these types of tasks might be difficult, and this person may have to

compromise by choosing a medium-difficulty task. This problem would thus not be

detected by the continuum perspective, because the high performance high mastery

person would score in the middle of the continuum and would therefore be hypothesized

to choose a medium-difficulty task anyway. Because the theory that goal orientation is

really two variables is new, there may be issues to be worked out, but they should present

little difficulty in the way of matching raters and ratees.

The research which applies the similarity-attraction paradigm to performance

appraisal can be applied to mastery and performance orientations. As discussed, many

researchers have shown that personality affects performance appraisals, but generally this

research either deals with the personality of the rater, *or* the personality of the ratee, but

not both (e.g. Buffardi & Gibson, 1980; Drory & Ben-Porat, 1980; Hartel, 1993;

Schneier, 1977; Wexley & Youtz, 1985). If the personality characteristics of both the

rater and the ratee are taken into account, more complex processes can be explored.

Because of goal orientation's implications for the workplace, it is a natural choice for

matching raters and ratees in the performance appraisal setting. According to the above

descriptions, mastery orientation and performance orientation have strong implications

for how people approach tasks. Since people must perform many tasks on most jobs, this means that the way people approach their jobs is also affected. Performance oriented people attempt to turn out a perfect product and mastery oriented people attempt to learn while they work and thereby improve their ability to do future work. People pursuing mastery goals should want to spend time gathering information that is less directly relevant to the task at hand because of their desire to learn, and people pursuing performance goals should want to spend energy on the specific task on which they are working because it is more directly relevant to the performance that will be evaluated.

A supervisor should be able to witness first hand the kinds of actions caused by goal orientation because goal orientation directly affects how people attack their work. These actions are either similar or dissimilar to the ways in which the supervisor would perform those tasks. Thus, the supervisor should have lots of information readily available to him about how similar this subordinate is to himself on this particular personality trait. The behaviors that are affected by goal orientation are not only applicable to both the rater and the ratee, but are exhibited in the performance context and may be felt by most raters to be completely reasonable indications of performance. They should thus have a potentially great impact on performance ratings.

Wetzel and Insko's (1982) earlier cited hypothesis that we like our ideals also has applications here. While a distinction between liking people who are similar to us and liking people who are similar to who we want to be is meaningful and should affect most research that deals with similarity, goal orientation is unique. Goal orientation focuses on the *values* of the person in question. A mastery oriented person values learning while a

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performance oriented person values performing well. The degree to which a supervisor is successful at learning or performing is irrelevant to the measurement of his goal orientation. Thus, supervisors with a mastery orientation should like subordinates who are exhibiting mastery-oriented actions based on the fact that the subordinate is being what the supervisor would like to be, regardless of way the supervisor behaves. In this case, the similar subordinate is one who is successfully exhibiting the characteristics that the supervisor values. Regardless of how successful the supervisors are at achieving their mastery or performance goals, they should be attracted to people who *are* successful in this sense.

Thus, while raters and ratees can be similar or dissimilar according to many variables, goal orientation is particularly relevant because it is a value held by the rater and ratee that also affects behavior in the workplace. It should therefore be both more visible and more important in the workplace.

Attributions

Supervisors should make different attributions about the way in which their subordinates go about performing their jobs. Any particular behavior has many possible interpretations that can be paired with it (Feldman, 1981). Perceptions and judgments of people reflect two things: the actual stimuli that are present and the perceiver's inferences and expectations (Fiedler, 1993). For instance, it has been shown that people's personalities can affect the ways they interpret other people's motives and actions (Dweck 1995). Thus, person A and person B can both witness person C exhibiting a behavior, but A may interpret the behavior as "thinking" while B interprets it as "staring

off into space and not getting anything done." If A and B are asked to evaluated how productive C is being, A is likely to evaluate C more highly than B does. These attributions have direct implications for performance appraisal.

Research has also shown that the match between personalities can color perceptions and interpretations. van Lange, Liebrand, and Kuhlman (1990) examined the causal attributions of people faced with prisoner's dilemmas. In a prisoner's dilemma, two people must each choose between cooperating or defecting. The "game" is set up so that each person's payoff is determined by the combination of their own choice and the choice of the other person. Regardless of whether the other person chooses to cooperate or defect, a person's payoff is larger if he/she chooses to defect. The catch is that if both "players" defect, they both get much lower payoffs than if they both cooperated. (See Figure 1)

Based on the choice made by a player, he or she can thus be categorized as a "cooperator" or a "defector." van Lange et al. (1990) found that cooperators tended to attribute defection to ignorance while defectors tended to attribute cooperation to ignorance. This illustrates a discrepancy in understanding and thus interpretation. Individuals made different attributions depending on whether the target approached the task in the same way the evaluator did. If the target handled the situation the way that the evaluator did, the evaluator understood the action and thus evaluated the decision and the individual positively. Conversely, if the target handled the situation in a different way than did the evaluator, the evaluator could not understand the action and thus attributed this choice to ignorance, an obviously lower evaluation.

A's Choice

Cooperate   Defect

	Cooperate	Defect
Cooperate	A: 7 B: 7	A: 10 B: 1
Defect	A: 1 B: 10	A: 3 B: 3

B's Choice

Figure 1
Payoff in Prisoner's Dilemma

This process can be applied to the workplace. A supervisor who witnesses his subordinate performing her job in the same way the supervisor would (or does) should understand better what the subordinate is doing. The supervisor himself has chosen (or would choose) that same strategy, and thus has already decided that it is the "best" way. Conversely, a subordinate performing the job in a different way is more likely to be seen as "ignorant" or less competent because she has chosen another option. Thus, the subordinate who performs the job in line with the way the supervisor believes it should be done will tend to be evaluated more positively while the subordinate who tackles the job in a different way will tend to be evaluated less positively.

Mount and Thompson's (1987) subjects rated the degree to which their supervisors behaviors were congruent with the subject's expectations. In other words, they rated the degree to which the manager performed responsibilities "in the way the subordinate believed they should be performed." (pp 241) They found that ratings of those supervisors who were behaving as expected contained more leniency and halo than the ratings of those supervisors who were not behaving as expected. This can be seen as the same process. Congruent supervisor's actions are understood and evaluated positively.

Goal orientation affects work strategies, and the performance appraisal process requires supervisors to make judgments about subordinates who are either similar or dissimilar to themselves on these strategies. In accordance with the above research, subordinates who have different goal orientations use different strategies and are likely to

be seen as making less than optimal choices. Thus they should receive lower performance evaluations than subordinates who are similar to their supervisors.

Combining these literatures produces the result that goal orientation should have an effect on performance appraisal through two routes. First, it provides a personality construct on which supervisors and subordinates can be similar or dissimilar, and the similarity-attraction paradigm would indicate that this should sway performance evaluations based on reinforcement. Second, supervisors who differ on goal orientation will make different attributions about the same actions performed by a subordinate, and these attributions will directly affect the performance appraisal process. It is completely reasonable, though, that both may be operating to produce higher ratings for subordinates who are similar to their supervisors on goal orientation.

Context Effects in Performance Appraisal

Another key concept in performance evaluation is the context in which it is made (Cleveland, Murphy, & Williams, 1989). Performance evaluations are not made in a vacuum. They are made about people in a particular setting. Cleveland et al. pointed out that performance appraisals can be done for different purposes such as making promotion decisions, making salary decisions, assessing training needs and guiding employee development, and that there are logical reasons why the rating processes that occur for each of these is different. The purpose for which observation is done can have an effect on the information gathering process and also on the ratings that are obtained (Murphy, Philbin, & Adams, 1989). Raters are also likely to use the information they *do* gather in a

different way (Williams, DeNisi, Blencoe, & Cafferty, 1985). For example, if the purpose is to distinguish between people, (as in the promotion situation), the raters are likely to search for comparative information so that they can distinguish between people. On the other hand, if the performance appraisals are being conducted as part of a training needs assessment, the raters will make within-individual comparisons (Cleveland et al., 1989).

If there are differences in the cognitive activities of raters that are dependent upon purpose *within* the same setting (i.e. same job), then it makes sense that varying the setting should also have effects. In other words, the specific job that is the context for the performance appraisal affects the rating process. If a rater is evaluating a person's performance as a cartoonist, the rater certainly uses different types of information that if she is evaluating a computer programmer. It is important, then, to investigate the effects that different contexts have on the hypothesized rating processes.

In order for the type of job to make a difference in performance appraisals, raters must have ideas about what different jobs entail and what kinds of people should be in them. Research has shown that people have occupational stereotypes. In other words, they believe that people in different jobs have different personality traits (Hakel, Hollmann & Dunnette, 1970; Jackson, Peakcock & Smith, 1980; Levy, Kaler & Schall, 1988; Paunonen & Jackson, 1987). Further, applicants who most closely resemble the stereotype of the job are viewed more favorably and are thus most likely to be hired (Jackson, Peakcock & Smith, 1980; Paunonen & Jackson 1987).

For example, Paunonen, Jackson, and Oberman (1987) reviewed the literature and found that accountants are more likely to be high on order and cognitive structure and low on autonomy, change and impulsivity. Similarly, engineers are more likely to be high on endurance, achievement, and understanding and low on social recognition and succorance. The researchers then manipulated hypothetical interviewees on these traits and found that subjects rate interviewees more highly when their personalities match the jobs than when they are inconsistent with the job. This is person-job fit, not from the typical perspective of the incumbent or in an objective sense, but from the perspective of the rater.

Because of the previously mentioned effects that goal orientation has on work strategies and the fact that different jobs require different strategies, it is important to examine the effects of goal orientation in more than one setting. Jobs vary in the degree to which they emphasize learning and performance. Therefore jobs should be differentially suited for mastery and performance approaches. Raters should rate highly mastery oriented ratees favorably when in the context of a job that is suited for a mastery approach, and should rate highly performance oriented ratees favorably when in the context of a job that is suited for a performance approach. This represents not only a tendency on the part of the rater to desire the person to match the job, but also the fact that this type of matching probably does, in fact, increase performance.

Because goal orientation has only recently been applied to the work setting, no research directly tests which jobs are more suitable for performance oriented people, and which are more suitable for mastery oriented people. The literature does, however,

provide us with information about the types of behaviors that will be exhibited, and we can match these with jobs that benefit from those behaviors.

Jobs that require that a person do the same thing over and over do not require the constant learning that more changing and diverse jobs do. Instead, they require that an incumbent learn how to do the job well initially and then use the skills he or she has to consistently perform the job well. They may require a strict attention to detail and perfection, but "perfection" is static in this case. For example, a worker on an auto assembly line that is in charge of making sure that the brakes are assembled correctly does not need to constantly change and improve. Ideally then, he should be performance oriented. It is much more important that this worker come as close as possible to perfection than it is that he learn more about the brakes, how they work, why they are designed that way, what other systems they are related to, etc. That is not to say that learning is not important to his job, but that it is less important than focusing on making sure that a car doesn't leave the factory with faulty brakes.

On the other hand, some jobs have tasks that are constantly changing and therefore require that the worker change their strategies and methods. For example, a research engineer must do a variety of ever-changing, but related tasks. Thus, it is important that she learn as much as possible about her tasks, her job, and how these relate to other ideas, other peoples' jobs, etc. Concentrating on performing computations better than the other people around her is not as important as being able to come up with new ideas and being able to put ideas together creatively. Perfect performance is not the

primary goal in this job. Instead, the emphasis should be on constantly learning and being creative, so that the incumbent can keep up with the changing requirements of the job.

Because "good performance" in these two jobs requires completely different strategies, the incumbents in these two positions are likely to have different personality traits, and raters are likely to perceive that these differences are advantageous (Jackson, Peakcock & Smith, 1980; Paunonen & Jackson, 1987; Paunonen, Jackson, & Oberman, 1987). If a high performance, low mastery oriented person were in the research engineering position, he or she would probably not be able to adapt very well as the job evolved and fluctuated whereas a high mastery, low performance oriented person would have less trouble. On the other hand, if a high mastery oriented, low performance oriented person were in the assembly-line job, he or she would probably be bored after an initial learning period and would not concentrate enough on the perfection required of such a position.

Adding this information to the previous sections produces a theory that the highest performance ratings should be made when the goal orientations of the rater, and the ratee match and when the job context fits that orientation. Thus, if the ratee is high performance and low mastery, his ratings will tend to benefit when he's being evaluated for a job that rewards performance behaviors such as an assembly line job. Conversely, if the ratee is low performance and high mastery, he will tend to receive the highest ratings when being evaluated by a low performance, high mastery rater and his ratings will tend to benefit when he's being evaluated for a job that rewards mastery behaviors such as a research and development job.

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Self-Esteem

Self-esteem is a variable that has been widely studied in psychology (Rosenberg, Schooler, Schoenback, & Rosenberg, 1995). Simply put, global self-esteem is "the individual's positive or negative attitude toward the self as a totality." (Rosenberg et. al, 1995, pp 141) It is thus a mixture of self-acceptance and self-respect, a general feeling of self-worth. This particular variable is important to this study for several reasons.

First, as discussed previously, self-esteem may be related to goal orientation. Dweck and Elliot (1983) describe mastery oriented people as asking, "How can I do it?" while they describe performance oriented people as asking, "Can I do it?" Performance oriented people suffer when they experience failure, and they are not buffered from this failure by previous success (Diener & Dweck, 1980). When they experience success, they do not expect it to continue, and when they experience failure, they think that it indicates that they have low ability. As Elliot and Dweck (1988) put it, performance oriented people are "vulnerable to the helpless response in the face of failure, setting up low ability attributions, negative affect, and impaired performance" (p 5). Mastery orientation, on the other hand, does not have this pattern associated with it (Diener & Dweck, 1980). All people experience failures during their lives. Since good performance is highly valued by performance oriented subjects, these feelings of failure and negative affect should influence their general feelings of self worth and thus lower their self-esteem. Similarly, since mastery oriented people value learning, which should be obtainable in most situations, mastery oriented people should have high self-esteem.

In this context, self-esteem needs to be distinguished from self-efficacy. According to Bandura (1986), self-efficacy refers to people's judgments about their *capabilities*. Generally, this concept has been used in a very specific sense. In other words, people have a self-efficacy with respect to a specific task. Self-efficacy has also been applied as a general concept (Bandura, 1986). In other words, people can believe that they're capable of performing well on *tasks in general*, rather than limiting it to a specific task. Generalized self-efficacy, then appears to be very much like self-esteem in that they both apply to more than one situation and describe the feelings that a person has about himself. The critical difference between generalized self-efficacy and self-esteem is that self-efficacy still refers to *capabilities* while self-esteem refers to self-worth. The arguments made above are based on people's perceptions of their own worth, and not their perceptions of capabilities, in either a general or specific sense.

Research has supported the hypotheses linking self-esteem to mastery and performance orientation. Positive correlations between self-esteem and mastery orientation and negative correlations between self-esteem and performance orientation have both been found (Button, Mathieu & Zajac, 1996; Fisher, Delbridge & DeShon, 1997).

The similarity-attraction research would also seem to naturally be influenced by how well people like themselves. Subjects suffering from low self-esteem may be motivated to enhance their feelings about themselves. They might thus be more inclined to give similar people high ratings in order to boost their feelings about themselves. In other words, a person who is low on self-esteem would be more motivated to exhibit the

similarity/attraction phenomenon simply because they can feel better about themselves if similar others are rated highly. In agreement with this idea, Weiss (1978) found that the relationship between value similarity and perceived success and perceived competence of a supervisor was moderated by self-esteem. Specifically, for the *low* self-esteem subjects, there was a positive correlation between similarity of values and both perceived success and perceived competence. For the high self-esteem subjects, this correlation was actually negative. At first glance, the negative correlation for the high self-esteem subjects may be puzzling, but Weiss broke this down by value category and the negative correlations here seem to be mostly caused by a specific value category, people orientation, which deals with a value placed on interactions with others.

It is possible that self-esteem might be directly related to how similar ratees perceive raters to be. In other words, self-esteem might enable, or disable a person to see that another person is similar. There does not appear to be a large logical connection between the two, and Weiss (1978) found no correlation between self-esteem and perceived similarity of values.

Thus, if low self-esteem increases the similarity attraction phenomenon, low self-esteem raters will show a stronger preference for ratees of the same goal orientation. If performance oriented people have lower self-esteem, performance oriented raters should display a stronger difference in their ratings of performance and mastery oriented ratees than would mastery oriented raters.

Because of the effects that performance orientation may have on self-esteem and the effects that self-esteem may have on the similarity-attraction effect, self-esteem will also be measured to determine whether or not it is affecting the hypothesized results.

Model and Hypotheses

The model representing the conceptual relationships between the goal orientations of the rater and ratee, the job context, attributions, and the rater's self-esteem are presented in Figure 2. In this figure, the interaction of the rater's performance orientation and mastery orientation with that of the ratee, represent actual similarity. Likewise, the interaction of the ratee's mastery and performance orientations with job represent person-job fit. Person-job fit has a direct effect on the performance ratings given. Actual similarity has an effect on performance rating through both types of attributions and also interacts with the rater's self-esteem to affect the performance rating. These relationships are detailed by the following hypotheses.
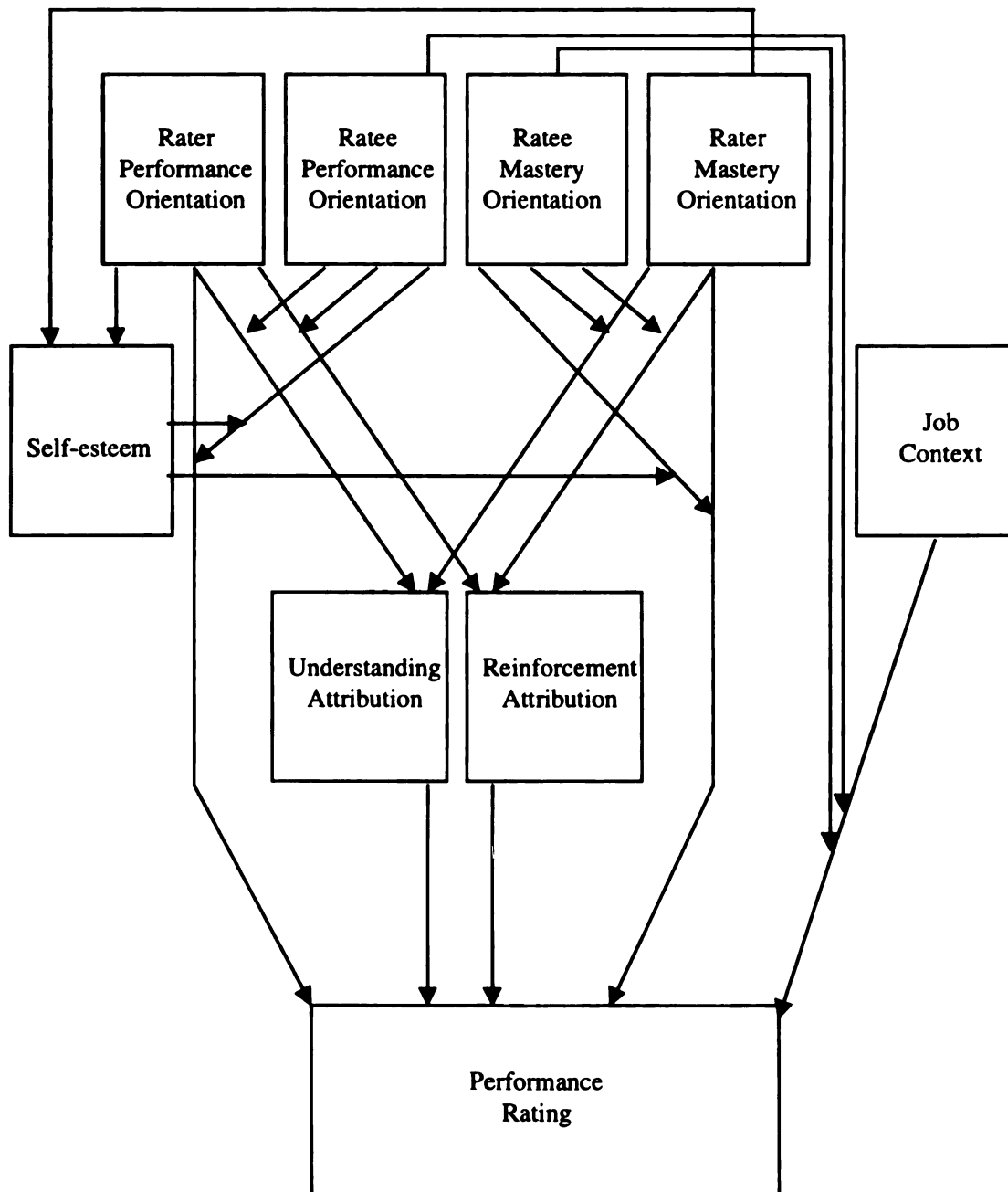
Figure 2

Hypothesized Model

The similarity-attraction literature indicates that the similarity between rater and ratee should cause an increase in performance ratings. Two respects for similarity, mastery orientation and performance orientation have been chosen due to their direct implications for work place behavior. Similarity is thus defined as the degree to which the rater and ratee match on mastery and performance orientations.

Hypothesis 1a: A subordinate exhibiting performance oriented behaviors will be more highly evaluated by a high performance rater than by a low performance rater.

Hypothesis 1b: A subordinate exhibiting mastery oriented behaviors will be more highly evaluated by a high mastery rater than by a low mastery rater.

People have stereotypes about what the incumbents in certain positions are generally like. These occupational stereotypes affect how well suited raters judge people to be for particular positions such that a person who seems most similar to the prototype will be judged more favorably (Paunonen, Jackson, and Oberman, 1987). Because goal orientation has direct implications for work-place behavior, particular jobs should be more suited to mastery or performance oriented incumbents. Person-job fit, then, is defined as the degree to which the ratee's goal orientation profile matches that of the job.

Hypothesis 2a: A ratee in a performance-focused job will be evaluated more positively if his actions reflect a performance orientation.

Hypothesis 2b: A ratee in a mastery-focused job will be evaluated more positively if his actions reflect a mastery orientation.

People experience failures and difficulty as part of their everyday lives. High performance oriented people place more value on performance, and thus more importance on a lack of performance than do low performance oriented people. Because of this value placement, failures are more important to their feelings of self-worth than they are to people who place less importance on performance. Thus, their self-esteem will be lower, on average, than low performance oriented people.

Hypothesis 3: Performance orientation will be negatively correlated with self-esteem. Thus, strongly performance oriented subjects will have lower self-esteem than non-performance oriented subjects.

People who try to learn from situations should be successful in that endeavor, regardless of their objective performance. Whether the person fails or succeeds at tasks, information is gathered, and thus success is attained. High mastery oriented people place a high value on learning and doing so should increase their feelings of self-worth. Because of this, high mastery oriented people should on average have higher self-esteem than low mastery oriented people.

Hypothesis 4: Mastery orientation will be positively correlated with self-esteem. Thus, strongly mastery oriented subjects will have higher self-esteem than non-mastery oriented subjects.

People with low self-esteem are likely to try to boost their self-image through positive comparisons. Subjects suffering from low self-esteem may be motivated to enhance their feelings about themselves, and one way in which they can accomplish this is by believing that people who are similar to themselves are good performers. Thus, a

person who is low on self-esteem may exaggerate the similarity/attraction literature

simply because they can feel better about themselves if similar others are rated highly.

Hypothesis 5: Self-esteem will moderate the relationship between actual similarity

and ratings. Raters with low self-esteem will be more affected by the similarity-

attraction phenomenon than will high self-esteem raters.

Actual similarity, for the purposes of this study, revolves around mastery and

performance orientation. These constructs are especially relevant for work behaviors. As

such, the similarity between rater and ratee on these constructs should be reflected in a

correspondence in the way they approach their job. Based on van Lange et al (1990),

people who behave similarly understand the logic behind each other's actions. They

better understand a similar person's behavior and choices because those are the behaviors

they themselves would engage in and the choices they would make.

Hypothesis 6: When evaluating ratees who are similar to themselves, raters will

make attributions that indicate an understanding of the ratees' behavior.

Byrne and colleagues' similarity-attraction theory is based on reinforcement

(Byrne & Clore, 1967; Byrne & Griffitt, 1969; Byrne & Nelson, 1965). A ratee who is

behaving similarly to a rater thus reinforces the raters' belief that he is correct or

appropriate.

Hypothesis 7: Raters will report that rating similar ratees highly will cause them to

experience positive affect.

These attributions, that the rater understands the ratees' actions, and that rating

that ratee highly would make them feel good should in turn be related to the performance

ratings given. Mount and Thompson's (1987) study indicates that when ratees were

consistent with the expectations of the rater and were consistent with the way the rater

believed they should be performed, performance ratings were higher. The ratees actions

were understood and therefore evaluated more positively. By the same token, a rater who

has chosen or would choose the same work strategies has decided that those strategies are

best. Thus, when a ratee exhibits these strategies, they should be evaluated more

positively.

Hypothesis 8: The attributions indicating understanding of the ratee will be

positively correlated with performance ratings.

Reinforcement theory indicates that we engage in behaviors that are pleasing. Thus,

raters' agreement that rating a particular ratee highly would be reinforcing should lead to

a corresponding actual increase in the performance rating.

Hypothesis 9: Feeling good about rating a ratee highly will be positively correlated

with performance ratings.

Method

Subjects

Subjects were 201 psychology students at a large mid-Western university. They

received partial course credit for their participation in the study. One subject's data was

incomplete, and was thus dropped from any affected analyses.

<u>Materials</u>

Descriptions of fictional subordinates' job performance were written to reflect

three combinations of mastery and performance orientations: high-mastery/high-

performance; high-mastery/low-performance; and low-mastery/high-performance. Each

of these was based on the kinds of choices and behaviors that are exhibited by people

with the corresponding motivations. Because a low-mastery/low-performance

combination would not present any information as to what motivated the person or how

that person behaved, this particular combination was not evaluated. Care was taken to

ensure that each of the three descriptions covered similar aspects of the job and that they

contained both positive and negative statements. The high-mastery/high-performance

description was created by combining the characteristics of both types of personalities in

the literature, and reflects statements included in both the low-mastery/high-performance

and high-mastery/low-performance descriptions. The descriptions were written as general

statements that would apply to most jobs. In other words, they describe general

approaches and strategies to work, and not the specific job behaviors. Also, two filler

performance descriptions were written to be presented between the other three. These

reflect the same general content areas as the focal descriptions in order to make them

consistent. For example, the statement "He is pleased when he performs well." in the

high performance / low mastery description and its counterpart, "He is pleased when he

works hard and learns a lot." in the high mastery / low performance description, are

replaced by "He is pleased when he finishes quickly." and "He is pleased when he

completes a task without any help." in the two distractor descriptions. These descriptions are found in Appendix A.

Descriptions of the two particular jobs studied include the duties associated with that job and some information about the relevant organization. Half of the subjects received information that stated that the employees they were rating work in a factory, working on truck brakes. The remaining subjects were told that the employees were research engineers for a chemical company. The factory job was chosen because it seemed most typical of a performance orientation, and the research job was chosen for its similar affiliation with the mastery orientation. These descriptions are found in Appendix B.

Measures

Goal orientation was measured using Button et al.'s (1996) 8-question mastery scale and 8-question performance scale. (See Appendix C). Self-esteem was measured using Rosenberg et al.'s (1989) 10-item scale. (See Appendix D)

Three performance appraisal measures were used. The first was one of two behavioral expectation scales (BES) which were created by slightly adapting existing performance measures so that they were appropriate for the jobs being studied. The one used to measure the research engineers' performance was originally developed to measure engineers' performance and has been used on research and development engineers. The measure used for the truck brake assembly job was originally created for a similar position, a truck mechanic and slight modifications were made to ensure applicability. These measures can be found in Appendices E and F.

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The second performance rating consisted of five general performance statements that are identical for both jobs so that comparisons can be made across jobs. Subjects were asked to indicate the degree to which they agreed with the statements on a five point Likert scale. These items can be found in Appendix G.

The third performance appraisal measure was a global measure consisting of a single question asking how well the employee is performing his/her job. ("How well is this person performing his/her job?") The subjects were asked to give the employee a rating between 1 and 5.

In order to assess the attributions made by the rater, two types of attributions were measured. First, subjects were asked to indicate how much they believed that rating this person highly would make them feel good. This measure was aimed at addressing Byrne and colleagues' (Byrne & Clore, 1967; Byrne & Griffitt, 1969; Byrne & Nelson, 1965) contention that the similarity-attraction effect is caused by the reinforcement model. Second, subjects were asked to indicate the degree to which they understood the employee, thought that the employee's choices made sense to them, and would approach the job in the same way. These questions were aimed at determining the remaining attributional processes that mediate the relationship between similarity and liking.

Manipulation checks were included to determine the extent to which the subjects perceived the employees as similar to themselves, and how much they liked the employees. Subjects were asked to rate how similar each employee was to themselves and were asked to respond to a modified portion of the Interpersonal Judgment Scale (IJS) which has been used to assess interpersonal attraction. The two IJS items ask how

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likely it is that the subject would like this person and how much they would want to work with them. Two other perceived similarity items and one more attraction item were asked of the subjects. All of these were assessed with a 5 point Likert scale from Strongly disagree to Strongly agree. These statements can be found in Appendix H.

Procedure

Pilot sessions were conducted in which raters were trained on mastery and performance orientation and were then asked to give each performance description a rating on both the mastery and performance orientation on 8 point scales. Pilot subjects were also asked to indicate how appropriate mastery and performance oriented approaches would be for each job on a 5 point scale.

The results of the pilot sessions are presented in Table 1. The results indicated that the performance descriptions adequately reflected the differences in performance and mastery orientation. The low mastery-high performance ratee received an average of 1.10 for mastery orientation and 7.90 for performance orientation on the eight-point scales. Conversely, the high mastery-low performance ratee received an average of 8.00 for mastery orientation and 1.10 for performance orientation. The high mastery-high performance ratee received high ratings for both mastery orientation and performance orientation, 6.50 and 6.30 respectively. The distractor ratees were given middle-range scores on both mastery orientation and performance orientation. The first received 3.10 on mastery orientation and 4.20 on performance orientation while the second received scores of 4.50 and 3.30 respectively. The results also indicated that pilot subjects perceived the engineering job as primarily mastery oriented, giving it a mastery

orientation score of 3.5 and a performance orientation score of 1.90 on the five-point

scales, and that they perceived the truck break assembly job as primarily performance

oriented, giving it a mastery orientation score of 1.40 and a performance orientation score

of 3.00. Thus, the pilot subjects indicated that the mastery and performance orientation

manipulations were appropriately made.

Table 1

Pilot Study Results

Stimulus Material	Mean MO Rating	SD	Mean PO Rating	SD
Low MO / High PO Ratee	1.10	.32	7.90	.32
High MO / Low PO Ratee	8.00	.00	1.10	.32
High MO / High PO Ratee	6.50	.53	6.30	.82
Distractor Ratee 1	3.10	1.60	4.20	1.87
Distractor Ratee 2	4.50	1.43	3.30	1.06
Research Job	3.50	1.27	1.90	1.20
Assembly job	1.40	.52	3.00	.943

Note: MO = Mastery Orientation, PO = Performance Orientation

For the main study, subjects were asked to assume that they were a supervisor evaluating five employees' performance in a single job. Subjects were informed that they may not have the exact information presented in the performance evaluation form, but that they should use their best judgments based on the information they were given. First, the subjects were given one of the descriptions of the job, and were asked to read it carefully. Next, the subjects were given one of the descriptions of job performance and were instructed to also read it carefully. They were then asked to rate this employee according to how well he or she was performing the job. They were asked to complete the global performance measure first, then the general performance appraisal measure and finally the BES measure. The three focal performance descriptions were separated by the two filler descriptions. The order in which the vignettes were presented to the subjects was varied to ensure that order effects were controlled. To this end, the order of the three focus vignettes was reversed for half of the subjects. Next, the subjects were told that the researcher was interested in the other types of impressions that the subject had formed about the employee, and the subjects were asked to answer the similarity, liking and attribution questions. This procedure was repeated for all five performance descriptions, with the three experimental descriptions being separated by the two distractor descriptions. The subjects were then asked to answer the goal orientation and self-esteem questionnaires. Finally, the subjects were debriefed and thanked for their participation.

This design thus contained four between subjects variables: rater mastery orientation, rater performance orientation, job context, rater self-esteem. All of these

were continuous variables except for job context, which had two levels. The design also contained three within subjects variables, ratee profile, understanding attribution, and reinforcement attribution. The attributions were continuous variables, and the ratee profile had three levels.

Results

Table 2 presents the means and standard deviations of each of the measured variables. Since perceived similarity, liking and the performance ratings were assessed for each ratee, each is treated separately. Also, the BES scores in this table are separated by job but represent the raw scores. In all remaining analyses, the BES scale scores were standardized so that they could be combined. None of the analyses included the two distractor ratees. Each of the scale scores was created by computing a mean of the scale items. Thus each could range between 1.00 and 5.00. The means and standard deviations do not suggest that range restriction was a serious concern for any of the variables.

Table 2

Descriptive Statistics for Measured Variables Across Ratees

Variable	H_mL_p Mean	SD	H_mH_p Mean	SD	L_mH_p Mean	SD	Mean	SD
MO							2.03	.48
PO							1.94	.48
Self-Esteem							2.03	.64
Psim	3.09	.89	2.83	.90	3.41	.86		
Liking	2.80	.77	2.61	.79	3.24	.76		
Global	2.40	.91	2.02	.87	2.55	.84		
BES – Research	2.17	.62	2.10	.71	3.00	.74		
BES - Assembly	2.20	.66	1.76	.50	2.33	.65		
General	2.13	.71	1.96	.69	2.34	.62		
Understanding	2.82	.80	2.51	.85	3.09	.73		
Reinforcement	3.05	.98	2.76	.96	3.34	.90		

Note: H_mL_p = High mastery/low performance ratee, H_mH_p = High mastery/high performance ratee, L_mH_p = Low mastery/high performance ratee, MO = Mastery Orientation, PO = Performance Orientation, Psim = Perceived similarity, Global = Global Performance Measure, BES = Behavioral Expectation Scale, General = General Performance Measure

The internal consistency reliabilities of each of the scales are listed in Table 3.

Three different estimations for reliability were available for perceived similarity, liking,

general performance and BES due to the fact that subjects rated three different ratees.

Reliabilities for the scales were calculated for each ratee and then averaged together. The

reliabilities of these scales are all considerably high, especially when one takes the small

number of items into account.

Table 3

Scale Reliabilities

Scale	# of items	L_mH_p Reliability	H_mH_p Reliability	H_mL_p Reliability	Average Reliability
Mastery Orientation	8				.82
Performance Orientation	8				.76
Self-esteem	10				.88
Perceived similarity	3	.87	.91	.90	.89
Liking	3	.88	.86	.84	.86
General performance	5	.79	.87	.85	.84
BES - Research	9	.85	.80	.86	.83
BES - Assembly	13	.89	.90	.86	.88
Understanding Attributions	3	.86	.79	.73	.79

Note: BES = Behavioral Expectation Scale

Table 4 presents the correlations between the variables in the model. Most of the significant correlations are between variables pertaining to the same ratee. Correlations between variables measured with respect to different ratees do not correlate as frequently or as highly.

Table 4

Correlations of Hypothesis-Relevant Variables Across Ratee

Variable	1	2	3	4	5	6	7	8	9
1 MO	1.00								
2 PO	.20**	1.00							
3 Self-Esteem	.38**	.02	1.00						
4 L_mH_p Global	.04	.03	.15*	1.00					
5 L_mH_p BES	.11	.10	.07	.53**	1.00				
6 L_mH_p General	.03	.08	.04	.61**	.59**	1.00			
7 L_mH_p Understand	-.10	.12	-.09	.26**	.48**	.41**	1.00		
8 L_mH_p Reinforce	-.01	.15*	-.04	.24**	.42**	.34**	.61**	1.00	
9 H_mH_p Global	.15*	.04	.18*	.21**	.17*	.22**	.10	-.01	1.00
10 H_mH_p BES	.15*	.03	.14	.11	.20**	.15*	.07	.00	.70**
11 H_mH_p General	.14*	.08	.19**	.19**	.13	.25**	.03	.01	.70**
12 H_mH_p Understand	.25**	.10	.06	.03	.13	.16*	.24**	.08	.62**
13 H_mH_p Reinforce	.14	.10	.06	.09	.08	.15*	.10	.16*	.53**
14 H_mL_p Global	.06	.02	.03	-.04	-.01	.04	.07	.07	.19**
15 H_mL_p BES	.08	.07	.06	-.05	.01	-.03	.02	.07	.20**
16 H_mL_p General	.12	.15*	.13	-.03	.04	.06	.07	.105	.21**
17 H_mL_p Understand	.12	.08	.03	-.11	.09	.02	.19**	.19*	.15*
18 H_mL_p Reinforce	.05	.09	-.01	.04	.17*	.07	.15*	.24**	.08

Note: MO = Mastery Orientation, PO = Performance Orientation, H_mL_p = High mastery/low performance ratee, H_mH_p = High mastery/high performance ratee, L_mH_p = Low mastery/high performance ratee, Global = Global performance measure, BES = Behavioral Expectation Scale, General = General performance measure, Understand = Understanding attribution, Reinforce = Reinforcement attribution

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Table 4 (cont'd).

Variable	10	11	12	13	14	15	16	17	18
1 MO									
2 PO									
3 Self-Esteem									
4 L_mH_p Global									
5 L_mH_p BES									
6 L_mH_p General									
7 L_mH_p Understand									
8 L_mH_p Reinforce									
9 H_mH_p Global									
10 H_mH_p BES	1.00								
11 H_mH_p General	.63**	1.00							
12 H_mH_p Understand	.55**	.55**	1.00						
13 H_mH_p Reinforce	.50**	.50**	.60**	1.00					
14 H_mL_p Global	.16*	.24**	.19**	.24**	1.00				
15 H_mL_p BES	.27**	.22**	.17*	.26**	.62**	1.00			
16 H_mL_p General	.19**	.35**	.25**	.24**	.71**	.73**	1.00		
17 H_mL_p Understand	.09	.17*	.24**	.13	.64**	.67**	.66**	1.00	
18 H_mL_p Reinforce	.13	.15*	.17*	.27**	.52**	.58**	.55**	.61**	1.00

Note: MO = Mastery Orientation, PO = Performance Orientation, H_mL_p = High mastery/low performance ratee, H_mH_p = High mastery/high performance ratee, L_mH_p = Low mastery/high performance ratee, Global = Global performance measure, BES = Behavioral Expectation Scale, General = General performance measure, Understand = Understanding attribution, Reinforce = Reinforcement attribution

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Repeated measures analysis of variance was used to analyze hypotheses 1, 2, and

5 with the ratee profiles used as a within subjects variable and rater mastery orientation,

rater performance orientation, rater self-esteem and job used as between subjects factors.

All of the analyzed variables were continuous with the exception of ratee profile and job.

Because three performance measures were included in this study, three different

ANOVA's were run. The correlations between the performance measures are presented

in Table 5. The correlations for each ratee are presented in the first three columns and the

last column represents the average of these correlations. All of the correlations were

significant (p<.01), consistent with the idea that each represents the raters'

conceptualization of performance.

Table 5

Performance Correlations Across Ratees

	L_mH_p	H_mH_p	H_mL_p	Average
$r_{global\ \&\ general}$	.61**	.70**	.71**	.67
$r_{global\ \&\ BES}$	.53**	.20**	.62**	.45
$r_{general\ \&\ BES}$	.59**	.63**	.73**	.65

Note: H_mL_p = High mastery/low performance ratee, H_mH_p = High mastery/high performance ratee, L_mH_p = Low mastery/high performance ratee, ** = p<.01, BES = Behavioral Expectation Scale

Hypotheses 1a and 1b predicted interactions between rater performance orientation and ratee, and between rater mastery orientation and ratee. Specifically, hypothesis 1a predicted that subordinates exhibiting performance behaviors would be more highly evaluated by a highly performance oriented rater than by a rater low on performance orientation. Similarly, hypothesis 1b predicted that subordinates exhibiting mastery behaviors would be more highly evaluated by a highly mastery oriented rater than by a rater low on mastery orientation. The results of these analyses are presented in Table 6. None of the ANOVA's indicated significant interactions between the mastery or performance orientation of the rater and the orientation of the stimulus ratee. Thus, hypothesis 1 was not supported.

Table 6

Repeated Measures ANOVA on Performance Rating

Source	Sum of Squares	df	Mean Square	F
DV = Global				
Ratee	29.563	2	14.782	21.678**
Ratee x MO	.944	2	.472	.692
Ratee x PO	.005	2	.002	.003
Ratee x SE	2.010	2	1.005	1.474
Ratee x Job	1.337	2	.669	.981
Ratee x MO x SE	2.447	2	1.223	1.794
Ratee x PO x SE	.335	2	.167	.246
Ratee x Job x SE	.149	2	.075	.109
Ratee x PO x MO	.070	2	.035	.051
Error	260.474	382	.682	
DV = General				
Ratee	14.581	2	7.291	20.589**
Ratee x MO	.589	2	.295	.832
Ratee x PO	.302	2	.151	.427
Ratee x SE	.630	2	.315	.890
Ratee x Job	.489	2	.245	.691
Ratee x MO x SE	1.572	2	.786	2.220
Ratee x PO x SE	.825	2	.413	1.166
Ratee x Job x SE	.283	2	.142	.400
Ratee x PO x MO	.299	2	.150	.423
Error	135.208	382	.354	
DV = BES				
Ratee	.001	2	.001	.001
Ratee x MO	.540	2	.270	.321
Ratee x PO	.687	2	.343	.408
Ratee x SE	.426	2	.213	.253
Ratee x Job	.006	2	.003	.003
Ratee x MO x SE	3.488	2	1.744	2.073
Ratee x PO x SE	2.445	2	1.223	1.453
Ratee x Job x SE	3.772	2	1.886	2.242
Ratee x PO x MO	.690	2	.345	.410
Error	321.355	382	.841	

Note: MO = Mastery Orientation, PO = Performance Orientation, SE = Self-esteem, BES = Behavior Expectation Scale, ** = p<.01

Hypothesis 2 predicted an interaction between job context and ratee such that the degree of performance and mastery orientation of the ratee would interact with the job context in which that ratee was being rated. Because the BES performance measure differed between jobs, this measure was not used as a dependent measure in this analysis. Neither of the two remaining ANOVA's indicated significant interactions between job context and stimulus ratee (see Table 6). Thus, hypothesis 2 was not supported.

Correlational analyses were run to assess the relationship of rater mastery and performance orientation with self-esteem. Hypothesis 3 predicted that performance orientation would be negatively correlated with self-esteem. This hypothesis was not supported by the data ($r=.018$, ns). Conversely, hypothesis 4 predicted that mastery orientation would be positively correlated with self-esteem. This hypothesis was supported ($r=.38$, $p>.01$).

Hypothesis 5 predicted a three way interaction between rater mastery orientation, stimulus ratee, and rater self-esteem, and a second interaction between rater performance orientation, stimulus ratee, and rater self-esteem. These analyses are also presented in Table 6. The later interaction was clearly not significant in any of the three ANOVA's and thus this hypothesis was not supported. The former interaction was also not significant, but all three ANOVA's showed that this interaction was close to significant. The probabilities for this interaction using the global, BES, and general measures were p = .157, p = .107, and p = .055 respectively, suggesting the possibility of a weak effect. Thus, hypothesis 5 remains unsupported, but closer inspection is warranted.

Hypotheses 6 and 7 predicted a relationship between the rater-ratee similarity and the attributions made by the rater. Both of these hypotheses were examined using repeated measures ANOVA's to examine the hypothesized effects of the similarity interactions (mastery orientation by ratee and performance orientation by ratee) on each attribution.

Hypothesis 6 predicted that the understanding attributions would be more likely when the ratee was similar to the rater. The ANOVA was used to examine the mastery orientation by ratee and performance orientation by ratee interactions on this attribution. The results of this analysis are presented in Table 7. The ANOVA supported the mastery by ratee interaction but not the performance by ratee interaction. This interaction is illustrated in Figure 3. The effect size for this interaction was $\eta^2 = .04$.

Table 7

Repeated Measures ANOVA on Understanding

Source	Sum of Squares	df	Mean Square	F
Ratee	32.19	2	16.09	34.05**
Ratee x MO	7.44	2	3.72	7.87**
Ratee x PO	.51	2	.25	.54
Error	186.22	394	.47	

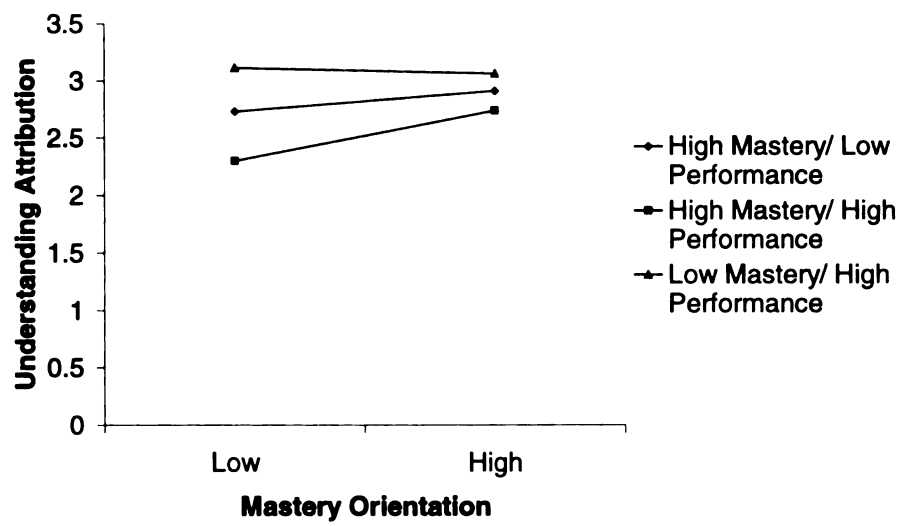Note: MO = Mastery Orientation, PO = Performance Orientation, ** = p<.01

Figure 3
Ratee by Rater Mastery Orientation Interaction on Understanding

Hypothesis 7 predicted Byrne's explanation that rating someone similar highly makes the rater feel good. Thus, the same interactions were hypothesized: a mastery orientation by ratee interaction and a performance orientation by ratee interaction on this attribution. This analysis is summarized in Table 8. The ANOVA did not support either the mastery by ratee interaction or the performance by ratee interaction.

Table 8

Repeated Measures ANOVA on Reinforcement

Source	Sum of Squares	df	Mean Square	F
Ratee	178.95	2	89.46	116.39**
Ratee x MO	.35	2	.18	.23
Ratee x PO	.76	2	.38	.50
Error	301.30	392	.77	

Note: MO = Mastery Orientation, PO = Performance Orientation, ** = p<.01

Hypotheses 8 and 9 predicted relationships between the attributions and the performance ratings given by the raters. Repeated measures ANOVA's were run in order to examine these effects. Because there were three types of performance measures, these analyses were run three times, using the global measure, the general performance measure and the BES measures as the dependant variable.

Hypothesis 8 predicted that raters who report understanding a ratee would give that ratee a higher performance rating. Thus this attribution should be positively related to the performance rating. This ANOVA is summarized in Table 9. The hypothesis was supported using all three performance ratings. For the global performance rating, the effect size was $\eta^2 = .30$. When raters indicated low understanding of the ratees' actions, the mean global rating was 1.93. When raters indicated high understanding of the ratees' actions, the mean global rating was 2.76. For the general performance measure, the effect size was also .30. When raters indicated low understanding of the ratees' actions, the mean general rating was 1.83. When raters indicated high understanding of the ratees' actions, the mean global rating was 2.49. Similarity, for the BES measure, the effect size was .33. When raters indicated low understanding of the ratees' actions, the mean (standardized) rating was -.50. When raters indicated high understanding of the ratees' actions, the mean rating was .55.

Table 9

Repeated Measures ANOVA - Understanding on Performance Rating

Source	Sum of Squares	df	Mean Square	F
DV = Global				
Subject	189.84	199	.95	2.00
Ratee	29.49	2	14.75	30.91**
Understanding	77.77	1	77.77	163.04**
Ratee x Understanding	1.36	2	.68	1.43
Error (Subject x Ratee)	189.38	397	.48	
DV = General				
Subject	131.27	199	.66	2.66
Ratee	14.50	2	7.25	29.23**
Understanding	41.70	1	41.70	168.15**
Ratee x Understanding	.27	2	.14	.54
Error (Subject x Ratee)	98.50	397	.25	
DV = BES				
Subject	207.88	199	1.05	2.13
Ratee	101.81	2	50.90	103.67**
Understanding	94.33	1	94.33	192.12**
Ratee x Understanding	1.08	2	.54	1.10
Error (Subject x Ratee)	194.90	397	.49	

Note: BES = Behavior Expectation Scale, ** = p<.01

Hypothesis 9 predicted that those who report that rating the ratee highly would make them feel good would, in fact, give that ratee a higher rating. This analysis is summarized in Table 10. This hypothesis was also supported using all three performance ratings.

For the global performance rating, the effect size was $\eta^2 = .19$. When raters indicated low reinforcement, the mean global rating was 2.10. When raters indicated high understanding of the ratees' actions, the mean global rating was 2.81. For the general performance measure, the effect size was $\eta^2 = .21$. When raters indicated low reinforcement, the mean general rating was 1.96. When raters indicated high understanding of the ratees' actions, the mean general rating was 2.54. Finally, for the BES, the effect size was $\eta^2 = .23$. When raters indicated low reinforcement, the mean (standardized) rating was -.30. When raters indicated high understanding of the ratees' actions, the mean rating was .67.

Table 10

Repeated Measures ANOVA - Reinforcement on Performance Rating

Source	Sum of Squares	df	Mean Square	F
DV = Global				
Subject	189.90	199	.95	1.73
Ratee	29.32	2	14.66	26.51**
Reinforcement	49.04	1	49.04	88.68**
Ratee x Reinforcement	.67	2	.33	.60
Error (Subject x Ratee)	218.80	397	.55	
DV = General				
Subject	131.23	199	.660	2.35
Ratee	14.73	2	7.37	26.22**
Reinforcement	28.75	1	28.75	102.30**
Ratee x Reinforcement	.12	2	.06	.21
Error (Subject x Ratee)	111.20	397	.28	
DV = BES				
Subject	207.98	199	1.05	1.86
Ratee	101.68	2	50.84	90.63**
Reinforcement	66.40	1	66.40	118.35**
Ratee x Reinforcement	1.60	2	.80	1.43
Error (Subject x Ratee)	222.28	397	.56	

Note: BES = Behavior Expectation Scale, ** = $p < .01$

In sum, then, hypotheses 1a and b, predicting a relationship between actual similarity and performance rating were not supported. Similarly, hypothesis 2, predicting a relationship between ratee and job was not supported by the data. Performance orientation was not found to be correlated with self-esteem, failing to support hypothesis 3; however, mastery orientation was positively correlated with self-esteem, supporting hypothesis 4. Hypothesis 5 predicted an interaction between actual similarity and self-esteem on performance rating. This hypothesis was not supported by the data. Partial support was found for hypothesis 6, indicating that actual similarity was related to the raters' indication that he understood the ratee. Hypothesis 7, predicting a relationship between actual similarity and the reinforcement attribution, was not supported. Both attributions were significantly related to the performance ratings, supporting hypotheses 8 and 9.

Supplementary Analyses

Two variables not directly involved in the hypotheses were also measured: how well the rater liked each ratee and how similar they perceived themselves to be to each ratee. These variables may prove useful in understanding the failure of some of the hypotheses by allowing us to examine the underlying processes. Actual similarity should be related to perceived similarity. If they are not related, it would indicate that subjects may not have been sensitive to the similarity manipulation. It is possible then, to replace actual similarity with perceived similarity in the hypothesized model. Also, including

liking in the model will allow further examination of the processes underlying the

connection between similarity and ratings. A correlation table summarizing the

relationship of these additional variables with the other variables under study is presented

in Table 11.

Table 11

<u>Supplementary Correlations</u>

	L_mH_p Psim	L_mH_p Liking	H_mH_p Psim	H_mH_p Liking	H_mL_p Psim	H_mL_p Liking
L_mH_p Psim	1.000					
L_mH_p Liking	.589**	1.000				
H_mH_p Psim	.187**	.075	1.000			
H_mH_p Liking	.289**	.209**	.699**	1.000		
H_mL_p Psim	.197**	.143*	.154*	.206**	1.000	
H_mL_p Liking	.167*	.160*	.138	.288**	.673**	1.000
MO	-.085	.001	.282**	.150*	.208**	.097
PO	.217**	.103	.128	.102	.002	.088
SE	-.222**	-.084	.121	.065	.063	-.030
L_mH_p Global	.289**	.244**	-.024	.072	-.057	-.033
L_mH_p BES	.575**	.392**	.105	.185**	.116	.154*
L_mH_p General	.440**	.371**	.088	.235**	.002	.129
L_mH_p Understand	.763**	.608**	.134	.221**	.153*	.189**
L_mH_p Reinforce	.605**	.563**	.094	.152*	.137	.199**
H_mH_p Global	.111	.039	.542**	.583**	.121	.157*
H_mH_p BES	.090	.050	.503**	.525**	.102	.102
H_mH_p General	.039	-.014	.534**	.561**	.116	.162*
H_mH_p Understand	.244**	.121	.800**	.716**	.222**	.237**
H_mH_p Reinforce	.199**	.099	.605**	.618**	.138	.123
H_mL_p Global	.055	.111	.140*	.208**	.561**	.573**
H_mL_p BES	.039	.028	.162*	.206**	.550**	.558**
H_mL_p General	.079	.077	.207**	.243**	.535**	.614**
H_mL_p Understand	.190**	.121	.150*	.169*	.776**	.746**
H_mL_p Reinforce	.210**	.109	.139*	.120	.547**	.580**

Note: Psim = Perceived similarity, H_mL_p = High mastery/low performance ratee, H_mH_p = High mastery/high performance ratee, L_mH_p = Low mastery/high performance ratee, MO = Mastery Orientation, PO = Performance Orientation, SE = Self-esteem, BES = Behavior Expectation Scale, * = $p<.05$, **=$p<.01$, Global = Global performance measure, BES = Behavioral Expectation Scale, General = General performance measure, Understand = Understanding attribution, Reinforce = Reinforcement attribution

To examine the failure of hypothesis 5, which predicted an interaction between actual similarity (in terms of mastery and performance orientation) and self-esteem on performance ratings, a similar analysis was conducted using perceived similarity instead of actual similarity. This ANOVA is summarized in Table 12. In the analyses using the global performance measure and the general performance measure, the interaction did not quite reach significance (p=.06). For the BES scales, though, the interaction was significant. The effect size, however, was small ($\eta^2 = .01$). These interactions are illustrated in Figures 4, 5 and 6, respectively. Thus, substituting perceived similarity for actual similarity in this case was partially successful. It is also interesting to note that perceived similarity was significantly related to the performance rating given.

Table 12

Supplementary Repeated Measures ANOVA - Performance Rating

Source	Sum of Squares	df	Mean Square	F
DV = Global				
Subject	189.836	199	.954	1.897
Ratee	29.490	2	14.745	29.314**
Psim	62.010	1	62.010	123.280**
SE	.667	1	.667	1.326
Psim x SE	1.857	1	1.857	3.692
Ratee x Psim	5.363	2	2.681	5.330
Error (Subject x Ratee)	198.614	395	.503	
DV = General				
Subject	131.272	199	.660	2.578
Ratee	14.496	2	7.248	28.312**
Psim	37.661	1	37.661	147.113**
SE	.107	1	.107	0.418
Psim x SE	1.036	1	1.036	4.047
Ratee x Psim	.593	2	.297	1.160
Error (Subject x Ratee)	101.074	395	.256	
DV = BES				
Subject	207.884	199	1.045	.377
Ratee	101.805	2	50.902	18.356**
Psim	81.873	1	81.873	29.525**
SE	.550	1	.550	0.198
Psim x SE	2.773	1	2.773	5.428*
Ratee x Psim	3.309	2	1.654	3.238*
Error (Subject x Ratee)	201.805	395	.511	

Note: **Psim** = Perceived Similarity, **SE** = Self-esteem, **BES** = Behavior Expectation Scale
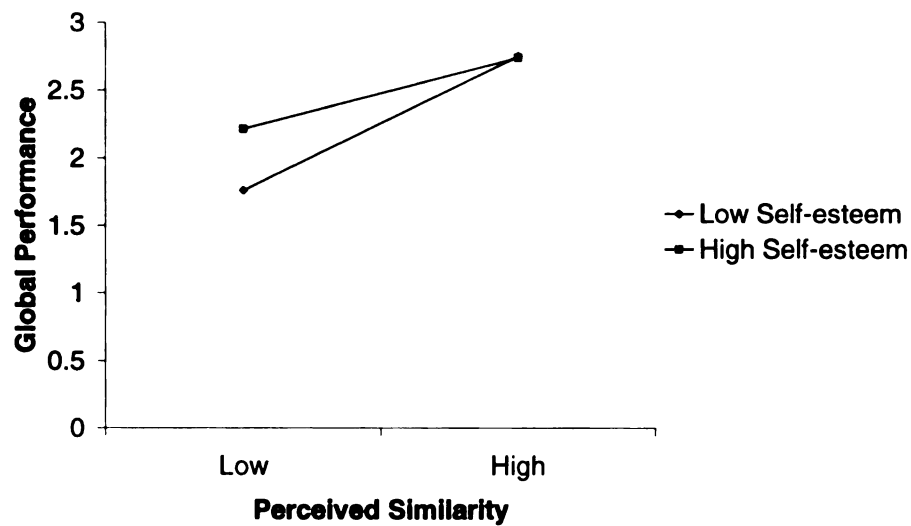
Figure 4
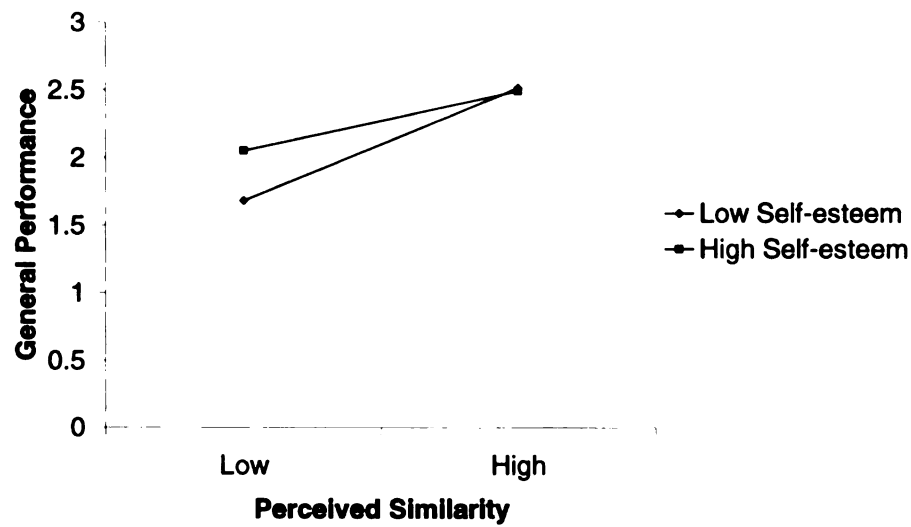Perceived Similarity by Self-Esteem Interaction on Global Performance

Figure 5
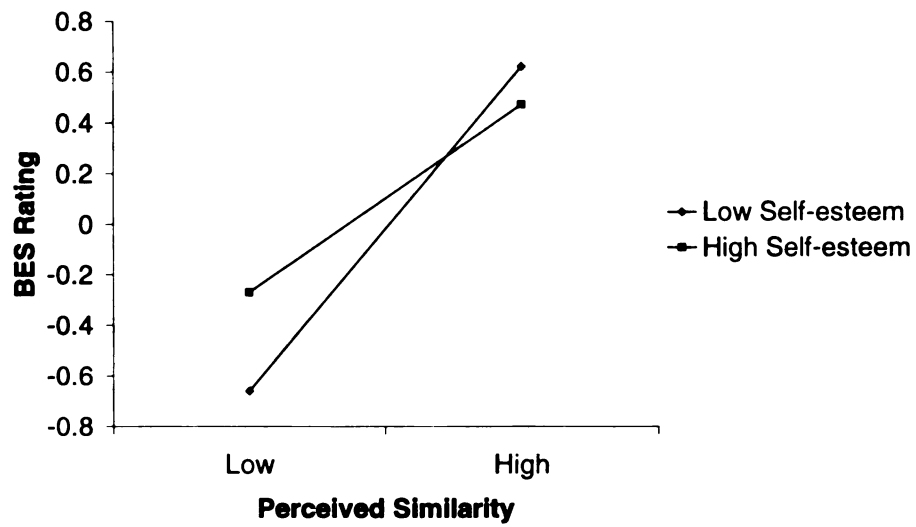Perceived Similarity by Self-Esteem Interaction on General Performance

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Figure 6
Perceived Similarity by Self-Esteem Interaction on BES Rating

In order to assess why actual similarity failed to lead to increased performance ratings, the underlying processes were examined. Several analyses were conducted to assess the similarity manipulation. First, the correlations between the perceived similarity of each subject and the mastery and performance orientations of the rater were examined. If subjects were sensitive to the similarity manipulation, the correlations between their perceived similarity ratings and the rater's orientation should follow the pattern indicated in the top half of Table 13. When the target ratee is highly mastery oriented, the mastery orientation of the rater should correlate with perceived similarity. Similarly, when the target ratee is highly performance oriented, the performance orientation of the rater should correlate with perceived similarity. Conversely, when the target is low on mastery orientation, the mastery orientation of the rater should lead to a negative correlation with perceived similarity, and when the target is low on performance orientation, the performance orientation of the ratee should be negatively correlated with perceived similarity.

An examination of the actual correlations found between these variables is summarized in the lower half of Table 13. These correlations indicate that in four out of the six cases, actual similarity led to perceived similarity. In the two remaining cases, a negative relationship would be expected, but no relationship was found.

Table 13

Similarity Correlations

		H_mH_p	H_mL_p	L_mH_p
Expected	r$_{PSim}$ & Mastery Orientation	+	+	-
Expected	r$_{PSim}$ & Performance Orientation	+	-	+
Actual	r$_{PSim}$ & Mastery Orientation	.28**	.21**	.00
Actual	r$_{PSim}$ & Performance Orientation	.13*	.00	.22**

Note: Psim = Perceived similarity, H_mL_p = High mastery/low performance ratee, H_mH_p = High mastery/high performance ratee, L_mH_p = Low mastery/high performance ratee, * = p<.05, ** = p <.01

Second, a repeated measures ANOVA was run to further examine the link

between actual and perceived similarity. . This ANOVA, summarized in Table 14,

examined the expected mastery orientation by ratee and performance orientation by ratee

interactions on perceived similarity. If subjects were sensitive to the similarity

manipulation, these interactions should be significant. The analysis showed both the

mastery orientation by ratee interaction and performance orientation by ratee interaction

to be significant. These interactions are illustrated in Figures 7 and 8 respectively. The

effect size for the mastery interaction was $\eta^2 = .05$, and the effect size for the

performance interaction was $\eta^2 = .02$.

Table 14

Repeated Measures ANOVA - Perceived Similarity

Source	Sum of Squares	df	Mean Square	F
Ratee	33.250	2	16.625	27.659**
Ratee x MO	11.412	2	5.705	9.493**
Ratee x PO	5.830	2	2.915	4.850**
Error	236.823	394	.601	

Note: MO = Mastery Orientation, PO = Performance Orientation, ** = p <.01
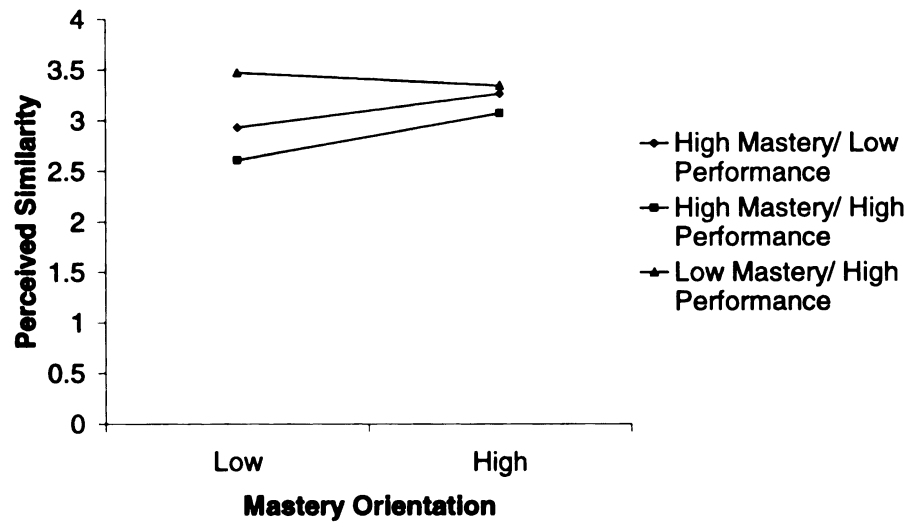
Figure 7
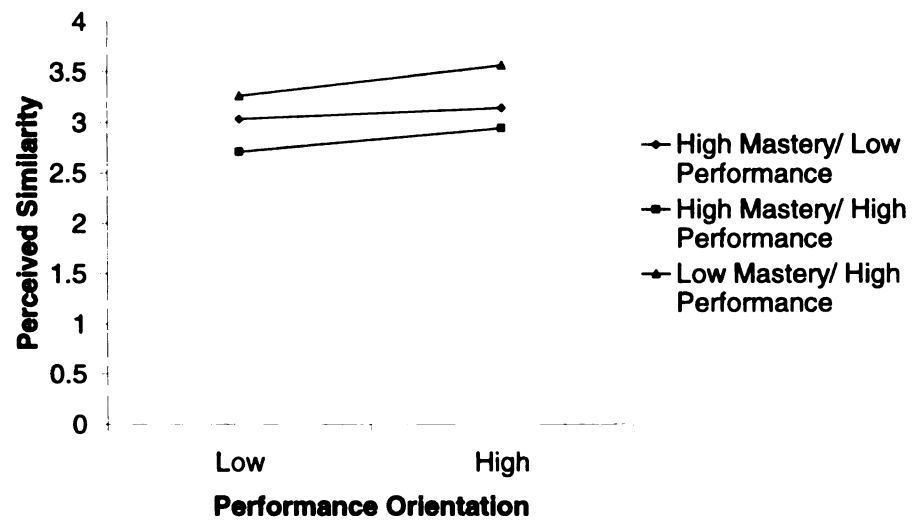Ratee by Rater Mastery Orientation Interaction on Perceived Similarity

Figure 8
Ratee by Rater Performance Orientation Interaction on Perceived Similarity

Further analyses were conducted to determine whether perceived similarity was related to liking and performance ratings. If the failure of hypothesis 1 can be explained by perceived similarity, then perceived similarity should be positively correlated with liking and performance ratings. Table 15 illustrates the correlations between perceived similarity, liking and the three performance measures. The first three columns indicate the correlation for each ratee, and the final column illustrates the average correlation. The table shows that the perceived similarity of a ratee was consistently correlated with how much the subject liked the ratee. Accordingly, the perceived similarity of the ratee was consistently correlated with the performance score given to that ratee. Finally, the degree to which the subject liked the ratee was correlated with the performance score given to that ratee. A note should be added here that the correlations in the low mastery/high performance column appear to be lower than those for the remaining 2 ratees. This mirrors the weaker effects found throughout this study with reference to performance orientation as compared to the effects produced by mastery orientation (See tables 7 and 14). This suggests that the performance orientation manipulation may have been weaker than the mastery orientation manipulation.

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Table 15

Correlations - Perceived Similarity, Liking, and Performance Ratings

	H_mH_p	H_mL_p	L_mH_p	Average
$r_{PSim\ \&\ Liking}$	.699**	.673**	.589**	.654
$r_{PSim\ \&\ Global}$	.542**	.561**	.289**	.464
$r_{PSim\ \&\ BES}$	.503**	.552**	.522**	.526
$r_{PSim\ \&\ General}$	.534**	.535**	.440**	.503
$r_{Liking\ \&\ Global}$	.583**	.573**	.244**	.467
$r_{Liking\ \&\ BES}$	.520**	.562**	.370**	.484
$r_{Liking\ \&\ General}$	.561**	.614**	.371**	.515

Note: PSim = Perceived similarity, BES = Behavior Expectation Scale, H_mL_p = High mastery/low performance ratee, H_mH_p = High mastery/high performance ratee, L_mH_p = Low mastery/high performance ratee, ** = p <.01

If hypotheses 6 and 7 can be explained in terms of perceived similarity, then perceived similarity should be related to both attributions. The links between perceived similarity and the attributions were examined through repeated measures ANOVA's, summarized in Table 16. Both of the attributions showed a significant relationship with perceived similarity (p< .01). The effect size for understanding was $\eta^2 = .56$, and the effect size for reinforcement was $\eta^2 = .29$.

When raters indicated low perceived similarity, the mean understanding rating was 2.31 and the mean reinforcement rating was 2.59. When raters indicated high perceived similarity, the mean understanding rating was 3.39 and the mean reinforcement rating was 3.58. Thus, the perceived similarity of the ratees to the rater was associated with the degree to which the rater indicated an understanding of the ratee's actions and a perception that rating that ratee would make them feel good.

Table 16

<u>Repeated Measures ANOVA Between Perceived Similarity and Attributions</u>

Source	Sum of Squares	df	Mean Square	F
Understanding				
Subject	183.409	199	.922	4.288
Ratee	32.244	2	16.122	74.986**
Psim	108.599	1	108.599	505.111**
Ratee x Psim	.298	2	.149	.693
Error (Subject x Ratee)	85.340	395	.215	
Reinforcement:				
Subject	230.485	199	1.158	2.838
Ratee	14.901	2	7.450	18.260**
Psim	75.255	1	75.255	184.449**
Ratee x Psim	.107	2	.053	.130
Error (Subject x Ratee)	161.237	395	.408	

Note: Psim = Perceived Similarity, ** = p <.01

If liking mediates the relationship between the attributions made by the rater and the performance rating given, then these attributions should be significantly related to liking. The relationship between the attributions and the degree to which the raters indicated they liked the ratees was similarly examined through a repeated measures ANOVA. These analyses are summarized in Table 17. Both attributions were significantly related to liking ($p<.01$). The effect size for understanding was $\eta^2 = .29$, and the effect size for reinforcement was $\eta^2 = .34$. When raters indicated low understanding, the mean liking rating was 2.44. When raters indicated high understanding, the mean liking rating was 3.38. Similarly, when raters indicated low reinforcement, the mean liking rating was 2.62, and when raters indicated high reinforcement, the mean liking rating was 3.46.

Table 17

Repeated Measures ANOVA - Attributions on Liking

Source	Sum of Squares	df	Mean Square	F
Subject	171.935	199	.864	3.323
Ratee	41.508	2	20.754	79.823**
Understanding	81.733	1	81.733	314.358**
Ratee x Understanding	.190	2	.095	.365
Error (Subject x Ratee)	103..385	397	.260	
Subject	171.927	199	.864	2.805
Ratee	41.258	2	20.629	66.977**
Reinforcement	62.662	1	62.662	203.448**
Ratee x Reinforcement	.546	2	.273	.886
Error (Subject x Ratee)	122.052	397	.308	

Note: ** = p <.01

Further, liking should be related to the performance measure given. Three analyses were run to examine the relationship between liking and performance, summarized in Table 18. Each of the performance measures, the global measure, the general measure and the BES measure were significantly related to liking. The effect size for the global performance rating was $\eta^2 = .21$. When raters indicated low liking, the mean global rating was 1.87. When raters indicated high liking, the mean global rating was 2.65. For the general performance measure, the effect size was $\eta^2 = .24$. Raters indicating low liking gave an average general performance rating of 1.79. Raters indicating high liking gave an average general performance rating of 2.40. Finally, the effect size for the BES measure was .22. When raters indicated low liking, the mean rating was -.53. When raters indicated high liking, the mean rating was .37.

Table 18

Repeated Measures ANOVA - Liking on Performance Rating

Source	Sum of Squares	df	Mean Square	F
DV = Global				
Subject	189.836	199	.954	1.790
Ratee	29.490	2	14.745	27.664**
Liking	55.210	1	55.210	103.584**
Ratee x Liking	1.889	2	.944	1.771
Error (Subject x Ratee)	211.412	397	.533	
DV = General				
Subject	131.272	199	.660	2.463
Ratee	14.496	2	7.248	27.045**
Liking	33.716	1	33.716	125.806**
Ratee x Liking	.430	2	.215	.802
Error (Subject x Ratee)	106.325	397	.268	
DV = BES				
Subject	207.884	199	1.045	1.830
Ratee	101.805	2	50.902	89.145**
Liking	62.218	1	62.218	108.963**
Ratee x Liking	1.525	2	.762	1.335
Error (Subject x Ratee)	226.567	397	.571	

Note: BES = Behavior Expectation Scale, ** = $p < .01$

Finally, a structural equation model was used to examine the relationships between these underlying processes. The model encompasses three separate but structurally identical models, one for each ratee. Figure 9 shows the structure of each model. In the model, mastery and performance orientation (actual similarity) have a direct effect on perceived similarity. The direction of these effects should differ by ratee. For example, mastery orientation should be positively related to perceived similarity when the target ratee is high mastery and negatively related to perceived similarity when the target ratee is low mastery. Correspondingly, performance orientation should be positively related to perceived similarity when the target ratee is high performance oriented and negatively related to perceived similarity when the target ratee is low performance oriented. This represents the expected relationship between actual and perceived similarity. Perceived similarity, in turn, has a direct effect on both of the attributions made by the rater, which have direct effects on liking. Liking then leads to the performance rating.

Figure 9
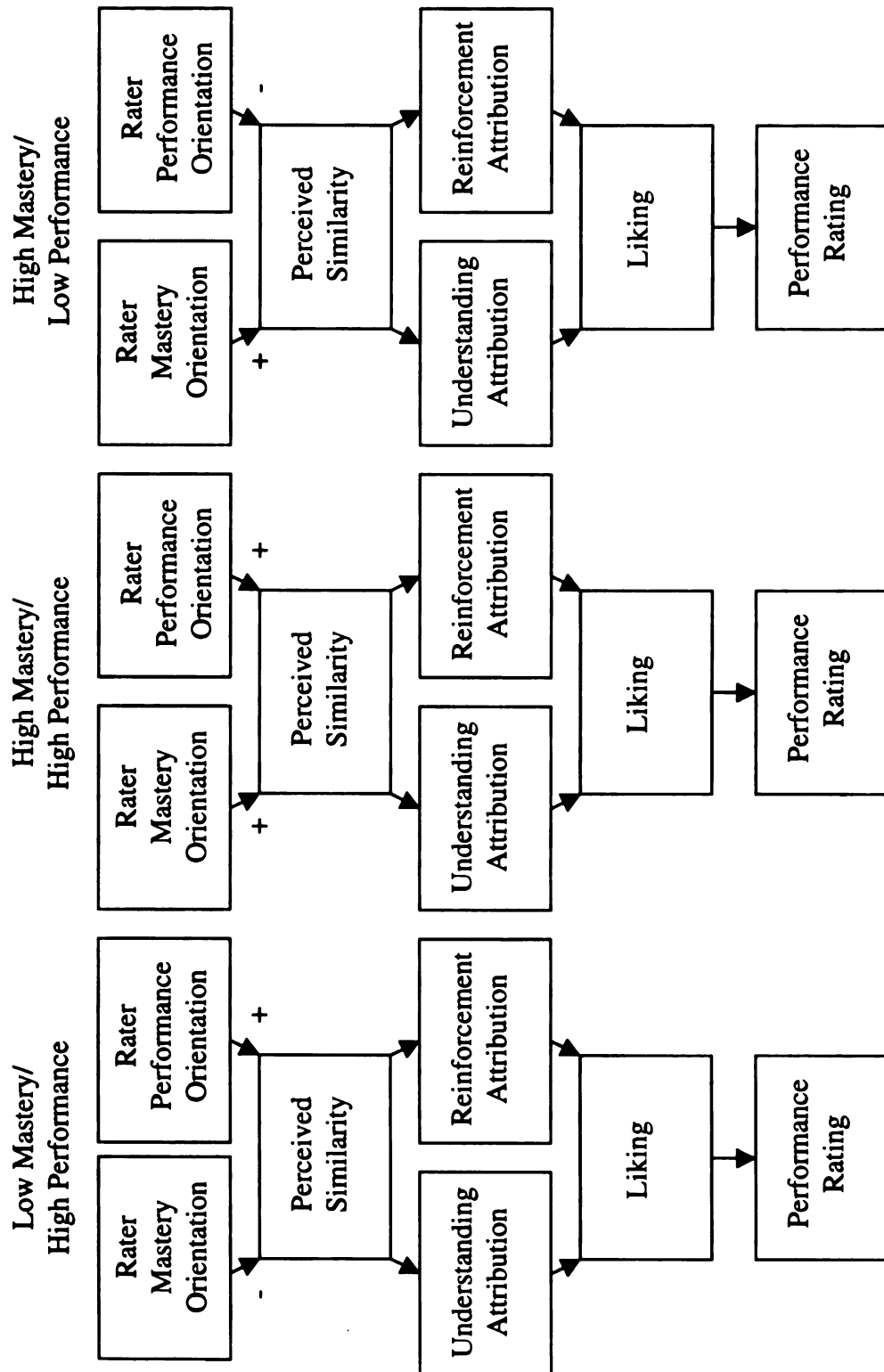
The overall model was originally constrained such that each path between the variables was equal across all three ratees with the exception of the two paths from mastery orientation and performance orientation to perceived similarity. These paths were allowed to vary across models due to the fact that the expected direction of these effects was different for each model. The overall model, then, tested the extent to which the data fit the theoretical model across all three ratees.

The links between the hypothesized variables were all significant with the exception of the link from performance orientation to perceived similarity for the high mastery-low performance ratee. In that case, the expected negative relationship was not found. Thus, the relationship between actual and perceived similarity held in five out of the six possible cases.

The overall model was tested for each of the different performance measures. In each case, the fit indices indicate that that the fit was reasonable. Table 19 illustrates the various fit indices examined for each overall model, the root mean square error of approximation (RMSEA), the goodness of fit index, (GFI), and the comparative fit index (CFI). The fit indices suggest that while the model is not perfect, it does a reasonable job of describing the data. The RMSEA, GFI, and CFI values are all within reasonable range. The chi-square values are significant in each case; however, this may be due, in part, to the large sample size used.

Table 19

Fit Indices for Supplementary Model

Model	RMSEA	GFI	CFI	Chi-square
BES	.05	.90	.94	361.35**
General	.05	.91	.95	320.37**
Global	.05	.91	.95	334.79**

Note: ** = $p<.01$, degrees of freedom for Chi-square = 144

In order to check the assumption that the links between variables were appropriately constrained, a revised model was tested in which none of these paths were constrained. In other words, the path coefficients were allowed to vary across ratee. A Chi-squared test was run to determine whether the models were significantly different. When the BES scores were used as the performance measure, the original and revised model were not significantly different, indicating that the relationship among constructs did not change over ratee. However, when the global performance rating and the general performance rating were used, the unconstrained model fit the data significantly better than the constrained model, suggesting that at least one relationship was different across ratee.

By constraining each path individually in turn, it was determined that the path that differed was the path between liking and performance rating. In other words, for all other paths, constraining the path to be the same across ratee did not lead to a significantly different Chi-square value. A model in which the liking to performance path was constrained functioned the same as the original model. That is, it was significantly different from the revised model, but not significantly different from the original model.

Closer inspection revealed that for both the global performance rating and the general performance measure, the liking to performance path was weaker when the ratee was highly performance oriented. This is consistent with the point made in reference to Table 15, in which relationships related to performance orientation were generally weaker than those related to mastery orientation.

In sum, the supplementary analyses indicate that the links between the underlying processes remain intact. That is, when one includes perceived similarity and liking in the model, the connections between actual similarity and performance ratings can be determined. Actual similarity leads to perceived similarity. Perceived similarity leads to attributions of understanding and reinforcement. These attributions lead to liking, which leads to increased performance ratings. This process holds for all three ratees.

Discussion

On the whole, the data support some of the stated hypotheses. Hypothesis 1, predicting a relationship between actual similarity and performance ratings was not supported by the data. Thus, the match between rater and ratee on mastery and performance orientation did not have a significant effect on the rater's evaluation of the ratee's performance. This failure will be discussed further with respect to the supplementary analyses incorporating perceived similarity and liking.

Similarly, hypothesis 2, predicting a perceived match between ratee and job was not supported. Raters were not influenced by the appropriateness of mastery and performance strategies for the two jobs examined. One possible explanation for this is that the raters did not utilize any sort of matching judgment between job and employee. In other words, they were using a *general* model rather than taking the particular job into account. Another possibility is that there was a disagreement over the appropriate strategies for the particular jobs in question. In other words, the raters may not have

believed that the mastery oriented behaviors were more appropriate for the research job and that the performance oriented behaviors were more appropriate for the assembly line job. While the pilot subjects indicated that the jobs were better suited for their respective approaches (i.e. a mastery approach for the research job and a performance approach for the assembly job), it is important to note that the pilot subjects had received training on mastery and performance orientation while the actual subjects had not. This training may have cued them towards that type of judgment.

The interaction proposed in hypothesis 5 between actual similarity and self-esteem also failed. Ratees were not differentially susceptible to the effect of actual similarity on performance rating. One possibility for this failure is that competing forces were at work. Subjects with low self-esteem may have been more motivated to see similar ratees positively, but high self-esteem subjects may also have had a reason to give high ratings. High self-esteem subjects, by definition, like themselves. If a ratee is similar to the high self-esteem rater, the rater may also find them likable. Another possibility is that this effect is contingent upon the rater's making the connection between actual and perceived similarity. The latter possibility is addressed in the supplementary analyses and will also be discussed further.

As reported in previous literature, a correlation was found between mastery orientation and self-esteem, but the counterpart relationship between performance orientation and self-esteem was not found. Highly mastery oriented subjects had higher self-esteem than those low on mastery orientation. The theoretical explanation for this effect presupposes that mastery orientation causes an increase in self-esteem, but it is

important to bear in mind that this study did not examine causal order. Thus, it may be the case that having high self-esteem allows a person to focus on self-worth and therefore want to increase their abilities (i.e. learn).

The effect of actual similarity on the attributions was mixed. Byrne's hypothesis that similarity leads to liking because rating a similar person highly is reinforcing to the rater is not well supported by this particular data set when actual similarity is used. While a significant relationship was found between this attribution and the performance rating given (H9), the corresponding relationship between actual similarity and the attribution was not found (H7). Thus, while subjects who reported that rating a ratee highly would be reinforcing did, in fact, rate that ratee higher, this reinforcement was not affected by how objectively similar the ratee was to the rater. As will be discussed below, this failure disappears when perceived similarity is included.

A similar problem was found when examining the additional explanation hypothesized here that it is an increased understanding of the ratee by the rater that mediates the similarity-attraction relationship. This attribution was found to be related to the performance rating (H8), but only partial support was found for the hypothesis that this attribution was influenced by the actual similarity between rater and ratee (H6). When raters reported that they understood the ratee, they gave the ratee a higher performance rating, but understanding was only partially related to how objectively similar the ratee and rater were.

The supplementary analyses, incorporating perceived similarity, may provide clues as to why many of these hypotheses failed. By exploring the processes in terms of

perceived similarity, a better understanding may be obtained for their failure. The re-examination of hypothesis 5, substituting perceived similarity for actual similarity did not clearly account for the original failure of the self-esteem by actual similarity interaction. Although there appeared to be a tendency in the hypothesized direction, this effect did not reach significance in two of the three analyses and therefore cannot be used to completely explain the failure. The fact that these two analyses indicate that the effect bordered on significant and that the third one did, in fact, reach significance, suggests that the effect was simply too small to reach significance. The effect sizes for this interaction were, in fact, small ($\eta^2 = .01$).

The additional variables proved more helpful, though, when exploring the failure of hypotheses 1a and b. The analyses incorporating perceived similarity and liking indicated that these variables were related to the performance ratings given. Further, each of the variables examined (See Figure 3) was significantly related to the theoretically adjoining variables on either side. There was partial support that the subjects were sensitive to the actual similarity manipulation, as indicated by the link between actual and perceived similarity and the ANOVA analyses detailed in Table 8 and by the significance of these links in the structural equation model. Perceived similarity was significantly linked to the understanding and reinforcement attributions, and these attributions were linked to liking. Liking was significantly related to performance ratings.

It is likely, then, that the lack of a relationship between actual similarity and performance rating can be attributed to two sources. First, there was a less than perfect relationship between actual and perceived similarity. Subjects appeared to be mostly

sensitive to the mastery orientation and performance orientation manipulations made, but in two of the six cases, were not. Second, the relationships between the variables appear not to have been strong enough to carry from the beginning of the model to the end significantly, as indicated by the failed interaction for hypothesis 1.

Some implications of this study are clear. First, including perceived similarity and liking in the model allows a better understanding of the connection between actual similarity and performance ratings. Actual similarity leads to perceived similarity, which leads to the understanding and reinforcement attributions. The attributions lead to increased liking of the ratee which leads to increased performance ratings. Thus the processes remain intact, regardless of how easily they can be detected.

There are many implications stemming from the inclusion of attributional processes in the model. First, perceived similarity was directly related to the attributions made. Raters who perceived the ratees to be similar to themselves reported that they understood those ratee and that rating them would be reinforcing. These attributions, in turn, were directly related to liking. When the raters understood the ratees and felt that rating them highly would be reinforcing, they liked them better. Also, liking was directly related to performance ratings. Raters gave higher ratings to those ratees who were liked. These were not, however, the only influences on the performance rating. One can safely presume that performance ratings are affected by other, more obviously relevant factors such as the quality of work produced.

It is unfortunate that the actual similarity manipulation used in this study, while mostly successful in affecting perceived similarity, did not prove to be strong enough to

have a practical impact on performance ratings. According to these analyses, manipulating the actual similarity between rater and ratee would not have a perceivable effect on the performance rating given. It is possible that this is due, in part, to the fact that the raters were presented with ratees who were fictional and with whom the ratees had no previous or future contact. The raters in this case were given very limited information and that may have proved to not be enough in terms of forming lasting impressions.

Whatever the reason, the implications of actual similarity in this study will have to be confined to its theoretical effects on the other variables studied rather than on immediate, practical results. The raters in this study *were* sensitive to the manipulation of goal orientation. In general, they were able to examine the work related behaviors of the ratees and determine the similarity of these behaviors to their own work style, as indicated by the rater by ratee interaction on perceived similarity. Thus, subjects were willing to use goal orientation as the basis for these judgments when given the opportunity to do so.

The attributions made by the rater provide more information about the underlying processes of the similarity-attraction phenomenon. Raters made specific attributions about ratees when they felt the ratees were similar to themselves. The data support both the reinforcement theory and the fact that perceived similarity led to increased understanding of the ratee. These attributions, then, were significantly related to performance ratings.

Underlying processes have been mostly ignored in recent literature on the similarity-attraction phenomenon. Most researchers have been content to accept the phenomenon as a whole and examine its practical implications without exploring the processes involved (e.g. Golightly, Huffman and Byrne, 1972; Good and Good, 1974; Griffitt and Jackson, 1970). The exception to this is Byrne and his colleagues' explanation that the similarity-attraction phenomenon stems from reinforcement (Byrne & Clore, 1967; Byrne & Griffitt, 1969; Byrne & Nelson, 1965).

The current study indicates that the underlying processes may be more complex than originally thought. While the reinforcement hypothesis supported by Byrne and his colleagues accounts for part of the link between perceived similarity and liking, additional variance is accounted for by the rater's increased understanding of the ratee. Thus, this study is consistent with Byrne's previous research supporting reinforcement, but adds to by providing an additional mechanism through which similarity affects liking and performance.

One implication of this is that ratees who are perceived as dissimilar to the ratee may be at a disadvantage because the rater does not understand the ratee's actions. This suggests that the link between perceived similarity and liking may be reduced if the ratee can provide the rater with some sort of explanation or rationale for his behavior.

There are several limitations of this study. First, the subjects were not actual managers rating actual employees in a business setting. While they were asked to play that role, they may or may not have been successful in emulating real managers. Thus, while the general tendency towards these processes may be present, managers may have

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characteristics that allow them to overcome them. Second, the model explored in the supplementary analyses indicates that there is some room for improvement. Other processes, besides those explored here, may further explain the relationships between these variables.

Future research in this area should be extended to a business setting, where real supervisors and subordinates can be used. It is possible that in a real setting, where rater and ratee have more prolonged interaction, the rater may know the ratee's working style better, and this style may be a more critical component of the evaluation process. Conversely, other factors may serve to suppress these processes.

Also, future research may attempt to examine the attributions made in a less direct manner. For example, if perceived similarity causes increased understanding, subjects might indicate more confidence in predicting future actions of the ratee.

Finally, some attention may also be paid to the appropriateness of the attributions made. It is reasonable that a supervisor's understanding and agreement with a subordinate's choice of work behaviors may in some cases be rightfully linked to good performance. A supervisor should, hopefully, recognize productive behaviors when he sees them. It should also be recognized, though, that these attributions might be subject to influence by irrelevant factors. If this is the case, then these attributions should not be seen as undue influence, but may perhaps be used to improve and refine performance measures.

APPENDICES

APPENDIX A

Job Performance Descriptions

<u>High performance, low mastery</u>:

Terry picked this job because he thought he could do well at it.

On the job,

He does everything possible to make sure finished products contain no flaws.
He asks how well others have done at tasks.
He cares too much about how well he does things when other people are watching.
He always wants to know how well other people are performing on the same job.
He approaches the job in the manner in which he thinks he will perform it the best.
He is pleased when he performs well.
He believes that his failures are a result of low ability.
He does not ask very many questions.
He enjoys finding out that he is performing better than other people.
He worries about what other people will think.
He tries to avoid mistakes at all costs.
He tries to gain favorable judgments of his work.
He seeks out alternative tasks on which to work when the current task is not going well.
He is not interested in learning about other aspects of the company.
He gets frustrated when he performs badly.

When given the opportunity to choose a project, he chooses one on which he is confident he can perform well.

<u>High mastery, low performance</u>:

John picked this job because it would give him the opportunity to learn a lot.

On the job,

He enjoys taking on new/different tasks.
He concentrates on improving.
He wastes time trying to understand things when they are not necessary to complete the job.
He approaches the job in the manner he thinks will make him learn the most.
He asks a lot of questions centered around understanding the job.

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(APPENDIX A Cont'd)

He is pleased when he works hard and learns a lot.

He changes strategies when he is failing.

He wants to understand the jobs of the people around him (even if he doesn't need to in order to do his job.)

He seeks challenges.

He is not bothered when his performance is less than perfect.

He tries to understand the job in detail.

He picks projects based on how much can be learned from them rather than how useful they would be or how important they would be.

He is persistent.

He is satisfied if a goal is partially attained if it means that he has increased his skill level.

He does not compare his performance with anyone else's.

He frequently interrupts his coworkers to ask them questions.

When given the opportunity to choose a project, he chooses one on which he can learn.

High mastery, high performance:

Frank picked this job because he thought he could do well at it, and it would give him the opportunity to learn a lot.

On the job,

He works hard to ensure that finished products contain no flaws.

He enjoys taking on new and/or different tasks.

He asks how well others have done at tasks.

He concentrates on improving.

He cares too much about how well he does things when other people are watching.

He wastes time trying to understand things when they are not necessary to complete the job.

He wants to know how well other people are performing on the same job.

He asks a lot of questions centered around understanding the job and tries to understand the job in detail.

He approaches the job in the manner in which he thinks he will perform very well while learning a lot.

He is pleased when he works hard, learns a lot and performs well.

He believes that any of his failures are partially a result of low ability, but combats this by changing the strategies he is using.

He enjoys finding out that he is performing better than other people.

He wants to understand the jobs of the people around him (even if he doesn't need to to do his job.)

He worries about what other people will think.

He seeks challenges.

He tries to gain favorable judgments of his work and to avoid mistakes.

When given an opportunity to choose a project or task, choose one from which he can both learn and perform well.
Sometimes when the current task is not going well, he seeks out alternative tasks, and sometimes he persists in the one he's working on.

Distractor 1:

Bill picked this job because it paid well.

On the job,

He concentrates on living up to his responsibilities.
He does everything possible to make sure projects are completed on time.
He believes that his failures indicate that he didn't try hard enough.
He asks the advice of his co-workers when things are not going well.
He is pleased when he finishes quickly.
He approaches the job in a tested and proven manner.
He looks for promotion opportunities.
He plans out each project carefully.
He approaches tasks carefully.
He attempts to complete tasks quickly.
He tries to be consistent.
He is occasionally unfriendly.

When given an opportunity to choose a project or task, chooses the one that seems the most important.

Distractor 2:

Chris picked this job because it interested him.

On the job,

He changes strategies periodically.
He enjoys finding out that his work makes a difference.
He wastes time talking to co-workers.
He gets worried when things are not going well.
He is pleased when he completes a task without any help.
He approaches the job in the way most other people do.
He is helpful to his co-workers.
He uses many different resources when gathering information.

(APPENDIX A Cont'd)

He approaches tasks confidently.

He attempts to make the best use of his resources.

He tries to balance his various responsibilities.

He takes a long time to make decisions.

When given an opportunity to choose a project or task, he chooses the one that interests him.

APPENDIX B

Job Descriptions

Manufacturing Job

This employee works in an automobile manufacturing plant. Various workers work on an assembly line. Each person on the assembly line has a different job that he or she repeats over and over. This person's job is to assemble the brakes to be installed in cars. He is responsible for making sure that there are no defects in the braking systems. There are several people who also do this job, but they work on other shifts. Thus, they do not check or duplicate his work.

Research Job

This employee works for a chemical company. One division of the company designs and manufactures different types of plastics. For example, some products require plastics that need to be more durable than others. Some require very hard plastics while others require a more malleable plastic. This person's job is to create and develop new types of plastics to be used for a variety of products. This means that he must discover ways in which plastics can be created that combine all the desired characteristics required by particular products. There are several people who also do this job, but each of these people works independently of the others. Thus, they do not check or duplicate his work.

APPENDIX C

Goal Orientation Measures

I prefer to do things that I can do well rather than things that I do poorly.
I'm happiest at work when I perform tasks on which I know that I won't make any errors.
The things I enjoy the most are the things I do the best.
The opinions others have about how well I can do certain things are important to me.
I feel smart when I do something without making any mistakes.
I like to be fairly confident that I can successfully perform a task before I attempt it.
I like to work on tasks that I have done well on in the past.
I feel smart when I can do something better than most other people.

The opportunity to do challenging work is important to me.
When I fail to complete a difficult task, I plan to try harder the next time I work on it.
I prefer to work on tasks that force me to learn new things.
The opportunity to learn new things is important to me.
I do my best when I'm working on a fairly difficult task.
I try hard to improve on my past performance.
The opportunity to extend the range of my abilities is important to me.
When I have difficulty solving a problem, I enjoy trying different approaches to see which one will work.

APPENDIX D

Self-Esteem Measure

I feel that I'm a person of worth, at least on an equal plane with others.
I feel that I have a number of good qualities.
I am able to do things as well as most other people.
I feel I do not have much to be proud of.
I take a positive attitude toward myself.
At times I think I am no good at all.
All in all, I am inclined to feel that I am a failure.
On the whole, I am satisfied with myself.
I wish I could have more respect for myself.
I certainly feel useless at times.

APPENDIX E

Performance Measure for Brake Manufacturing Job

Inspection and Maintenance

Inspects machines on a regular basis and performs routine maintenance (i.e., oiling, sharpening, changing molds, replacing old or worn parts) using various tools and measuring devices to ensure safety and optimum operation.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Makes sure a failed part gets reordered and records all maintenance done including all relevant information. Does work in an area without leaving any kind of a mess or slowing down the work of others. Does work thoroughly so that it lasts for a long time.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Sometimes gets distracted from work, but usually does good work. Follows maintenance schedule but doesn't go beyond.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Fails to notify others of dangerous situations. Fails to notify next shift of what remains to be done. Fails to record work done, thus causing the work to be done twice.	1

(APPENDIX E Cont'd)

Diagnosis

Inspects product for errors in meeting specifications such as width, smoothness, and functionality using both observation and measuring devices and machine gauges to ensure machine is operating in a way that produces quality product.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Assesses quality of machine functioning quickly and accurately. Tries to improve quality even though specifications are being met. Careful to take accurate readings of machine calibration and functioning. Feels personally responsible for error detection.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Does product inspections, but occasionally fails to gauge or measure product. Usually attends to detail, but sometimes misses problems.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Doesn't check after completion to be sure machine is working properly, just installs a part and leaves. Relies on others to catch errors. Doesn't use all sources of information.	1

(APPENDIX E Cont'd)

Calibration

Reads production orders to determine quantity and type of product needed and then sets up/calibrates machines to make different products (i.e. different in size, or shape) using various hand tools, knowledge of specifications, and operator's manuals.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Checks schedules of maintenance at beginning of shift, then plans schedule to get important things completed. Knows the particular problems to be addressed and makes sure appropriate parts and tools are available before beginning.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Verifies part availability before beginning work on a machine. Neglects repair on a machine because he/she doesn't think it will be needed on that shift.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Jumps in and starts with little or no planning or attention to when the machine is needed for production. Fails to make sure all needed parts are in stock before beginning.	1

(APPENDIX E Cont'd)

Communication

Records maintenance done on equipment using standard forms to ensure that a record of problems and maintenance performed is available when later inspections are done or problems develop. Records defective product and routes to scrap as appropriate.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior In addition to putting date and operation on the legend, also puts any other information that might be useful. Detailed and precise in filling out records. Communicates problems to the next shift both verbally and in written form when necessary.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Doesn't pay attention to the entire work process. Focuses only on present task. Records only the major work that is done or only the date at which the equipment was inspected.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Wastes the time of others by keeping records on their own tool cart or in other inconvenient places. Fails to record the work that is done. Fails to put parts back where they belong.	1

(APPENDIX E Cont'd)

Preventative Maintenance

Monitors equipment and performs necessary maintenance on and makes adjustments to equipment using knowledge of the equipment and its malfunctions, necessary tools and diagnostics, and operator's manuals.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Knows and is aware of entire systems instead of focussing only on the specific part that is being worked on. Does things that aren't necessarily his/her job. Prioritizes work in terms of criticality.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Only uses operator's manual when in trouble instead of using it to learn about the equipment. Uses diagnostics only when needed. Pays some attention to detail, but doesn't go out of way to see that a machine is running maximally.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Puts more pride in tools than in machine being worked on. Does not ask question when he/she doesn't know something.	1

(APPENDIX E Cont'd)

Housekeeping

Cleans equipment or tools using solvents and scrubbing materials as part of regular maintenance. Cleans work area and/or parts according to guidelines to maintain a safe and orderly work area and clean parts.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Leaves an area just as clean as it was before work if not cleaner. Removes all useless materials from area. Knows proper materials for cleaning.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Doesn't always communicate problems or dangers to others. Uses appropriate cleaning equipment and materials. Doesn't pay that much attention to prioritizing work in terms of importance.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Does no more than is explicitly state. Ignores cleaning problems. Leaves grease and oil on vehicles.	1

(APPENDIX E Cont'd)

Maintaining a Safe Work Environment

Works in potentially dangerous situations using established safety procedures to ensure safety.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Always uses fire and safety procedures regardless of time constraints. Sees potential dangers and informs supervisor. Tests systems and looks for problems that might produce dangerous situations.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Sometimes overreacts to dangers. Usually communicates safety problems to supervisor.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Fails to read safety instructions, thus creating dangerous situations. Uses safety procedures as an excuse to avoid work. Uses much more detergent than is necessary to get the job done.	1

(APPENDIX E Cont'd)

Maintains A Good Work Relationship

Discusses work-related issues with supervisor and other work group members using knowledge gained from work experience to improve work unit efficiency or quality, or to solve work-related problems.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Exercises tact in bringing up problems when group members are affected. Takes initiative to see that suggestions get carried out. Uses all available evidence to convince people that he/she has a better way to do things.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Develops new work procedures, but doesn't share them. Takes initiative only if it is beneficial to himself/herself. Sometimes fails to address problem directly, but makes some effort to communicate problems and solutions.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Disrupts meetings by changing topics or by horseplay. Doesn't ask questions even if unsure of procedures. Upsets people instead of trying to help. Complains about work but doesn't do anything to change it. Leaves area in a mess so that accidents are more likely to happen.	1

(APPENDIX E Cont'd)

Performing Mechanical Work

Uses hands and various tools to perform many basic mechanical operations (e.g. hammering, tightening/loosening nuts, drilling, soldering, etc.). Displays mechanical ability in performing these operations. Displays an understanding of how various machines work.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Tightens/loosens nuts, screws, etc. faster than most people. Knows proper single-ended wrench size just by looking at nut. Uses hands and tools skillfully and effortlessly. Understands how various machines and tools work with minimum or no explanation or by reading available manuals.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Tightens/loosens nuts, screws, etc. with average speed. Displays slight awkwardness in using hands and tools. Can be taught how to repair new machines or use new tools and procedures.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Tightens/loosens nuts, screws, etc. relatively slowly. Has difficulty learning how to repair new machines even with instruction. Occasionally has accidents or makes a mistake in repairing a machine.	1

APPENDIX F

Performance Measure for Research Engineering Job

Technical Communication

Transmits written and oral information related to technical projects and assignments.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Can sell, orally and in writing, a technical improvement to management which is initially opposed to change. Is able to instruct other engineers in new technology. Tailors written and oral technical presentations to fit the audience. Documents difficult technical material effectively.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Reports only the core information pertinent to the problem at hand. Communicates well only with engineers within his or her specific technical discipline.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Writes technical reports which are too wordy. Rarely contributes information to engineering staff discussions of technical problems. Frequently has a proposed project rejected by a manager because of a poor presentation. Has difficulty explaining technical results.	1

(APPENDIX F Cont'd)

Gathering Technical Information from Others

Seeks appropriate others in the business for guidance, advice and reaction to one's own approach to dealing with technical problems.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Asks questions of technical experts to obtain the appropriate and needed information. Willingly asks others for help, but only on significant or difficult problems. Appropriately expands network of people who can be contacted for advice. Knows the appropriate sources of technical information.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Occasionally doesn't know where to go for help or what to request. Occasionally has to be encouraged to seek advice of others. Seeks advice of others but sometimes ignores their good suggestions. Limits efforts for obtaining advice to immediate supervisor and close co-workers.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Seldom asks others for advice; often has to be told to do so. Often assumes that the help of others cannot be obtained or that they can be of little help even if asked. Almost always asks for help on all technical problems.	1

(APPENDIX F Cont'd)

Scientific and Technical Knowledge

Possesses fundamental scientific, mathematical and engineering knowledge necessary for adequate completion of a project or assignment.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Is considered the technical expert in the department or component of the organization. Uses the latest technical principles, rather than cookbook formulas, to perform tasks. Performs assignments with minimal technical assistance.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Has a good working knowledge of the applicable technology. Has fundamental grasp of engineering principles. Is aware of relevant technology advances.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Is unfamiliar with the precise definitions of many technical terms. Often needs technical help from colleagues in order to complete an assignment. Has difficulty understanding basic engineering designs.	1

(APPENDIX F Cont'd)

Organization and Planning

Manages projects and assignments including establishing priorities, meeting deadlines, and attending to details.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Is able to establish or appropriately change project priorities without the specific guidance of the supervisor. Prepares schedules identifying project milestones as well as contingency plans. Offers ideas developed from current projects as proposals for possible future projects.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Usually can reorganize a project due to schedule or technical specification changes. Is able to use systematic scheduling procedures. Sometimes spends too much time on details.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Frequently misses project deadlines. Does not follow up through implementation after the major components of a project are completed. Drags out each assignment to the maximum. Uses excessive manpower and equipment resources due to poor project management.	1

(APPENDIX F Cont'd)

Problem Recognition and Definition

Understand the cause(s) of a problem.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Is able to recognize quickly the existence of a technical problem before all the negative symptoms are apparent. Is able to distinguish between symptoms and causes of a problem. Is able to identify a specific problem as being an example of a general class of problems which has certain possible solutions. Goes to the location of a problem to get direct information about it.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Usually determines the cause of a problem as the project progresses. Considers other people's opinions about the cause of a problem. Is often unwilling to offer a tentative diagnosis of a problem based on observable symptoms.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Often attacks the first symptoms of a problem, rather than looking for its real causes. Often misses one or two important factors in a problem. Usually is not able to see which problem symptoms are related to each other and treats each symptom as if it were a separate problem.	1

(APPENDIX F Cont'd)

Development of Alternative Solutions

Creates several technically feasible solutions to a problem.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Appropriately looks for better ways to do a job. Presents to management several alternate solutions to a technical problem and justifies the recommended alternative. Creates imaginative solutions to long-term problems.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Sometimes offers several solutions to a technical problem for management to choose from. Develops another approach to a problem only when the current approach fails. Occasionally requires prompting by the supervisor to look for more than one possible solution to a problem.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Doesn't consider challenging the "status quo" of a traditional approach to an engineering problem. Will propose and defend the first solution to come to mind.	1

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(APPENDIX F Cont'd)

Evaluation of Alternative Solutions

Uses theoretical, analytical, and empirical methods to determine the likely consequences of alternative solutions.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	**Typical High Behavior** Selects a solution based upon well-documented and thorough analysis. Quantifies all known pro's and con's associated with the possible consequences of proposed solutions. Quickly finds the strong and weak points of alternatives.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	**Typical Average Behavior** Does not prejudge any possible solution before the evaluation data are complete. Evaluation of alternatives is limited to obvious or conventional considerations.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	**Typical Low Behavior** Sometimes cannot point out the comparative advantages and disadvantages of two alternatives. Occasionally ignores or fails to consider some significant data when evaluating alternative solutions.	1

(APPENDIX F Cont'd)

Implementation of Chosen Alternative

Is able to make an alternative operational by fitting the solution to the particular situation.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	**Typical High Behavior** Anticipates implementation problems and plans for their solution. Accepts minor changes in a problem solution in order to gain its implementation without compromising the design or business objectives. Usually overcomes small obstacles to the implementation of a solution	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	**Typical Average Behavior** Makes an idea operational although it may not function at rated capacity. Forces the chosen alternative solution into operation, compromising some of the desired goals of the project.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	**Typical Low Behavior** Expects every solution to work as smoothly as possible upon implementation. Tries to implement a new procedure before being sure that operating management fully understands it. Sticks with the original solution longer than its performance justifies. Rigidly adheres to textbook solutions without considering the specific situation.	1

Responding to Change

Accepts and actively participates in changes in the way work is performed.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	**Typical High Behavior** Actively seeks available information to understand the change. Anticipates and works to minimize the disruptive aspects of the change. Advocates the benefits of the change to others. One of the first to participate in or use the changed approach/method.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	**Typical Average Behavior** Accepts given explanation of reason for change. Tolerates and occasionally tries to overcome disruptive effects of change. Is uninterested in discussing the pro's and con's of the change. Participates in the changes as it becomes necessary.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	**Typical Low Behavior** Does not accept the given explanation for the change. Disrupts implementation of change by trying to cling to old approach/method. Complains to others about the disadvantages of the change. Participates in the change only if told to do so.	1

(APPENDIX F Cont'd)

Professional Activities

Participates in professional activities.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Seeks leadership roles in professional societies. Teaches a technical refresher course for the local professional society chapter. Frequently presents a paper at regional or national technical society meeting.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Attends most chapter meetings of the technical society. Has never submitted a paper for presentation at a technical society meeting.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Joins professional societies only if encouraged to do so. Does not attend professional society functions.	1

(APPENDIX F Cont'd)

Continuing Education Activities

Uses learning procedures to maintain or obtain up-to-date technical skills.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Has made definite plans for self-development in technical areas. Devotes a substantial portion of spare time to reading technical publications and taking technical courses. Completes university courses on advanced technical topics. Completes as many relevant company-sponsored technical seminars and short courses as possible.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Completes most technical courses or seminars held outside the company. Completes relevant technical courses only if encouraged by others to do so.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Expects the organization and its management to initiate continuing education efforts. Frequently content to rely upon co-workers for learning about new techniques. Never attends an in-house technical seminar. Reads technical literature only when told to by the supervisor.	1

(APPENDIX F Cont'd)

Work Assignments Sought

Desires and pursues job activities.

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Prefers assignments which involve several technical disciplines. Is willing to accept an assignment which has an uncertain chance of success. Tries to get assignments which focus on different applications of a specific technical interest.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Rarely expresses reluctance to accept an assignment. Tends to remain with assignments in which he feels comfortable.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Desires assignments which are more administrative than technical. Is content to perform in current assignment for an indefinite amount of time. Tries to avoid assignments in unfamiliar technical areas. Prefers to work on rather routine and mundane assignments.	1

(APPENDIX F Cont'd)

Technical Interest and Curiosity

Shows interest and curiosity regarding recent developments in science and technology

The statements to the right are examples of behavior that one would expect of individuals usually rated "high" on this dimension.	Typical High Behavior Seeks information about all technical areas. Seeks involvement in relevant technical developments. Works extra hours on own initiative to learn about new developments.	5
		4
The statements to the right are examples of behavior that one would expect of individuals usually rated "average" on this dimension.	Typical Average Behavior Occasionally reads journals in related technical areas. Interest in new technology is usually limited to own area only. Sometimes displays a negative attitude toward new ideas.	3
		2
The statements to the right are examples of behavior that one would expect of individuals usually rated "low" on this dimension.	Typical Low Behavior Is pessimistic and cynical about new technical developments. Has little curiosity about technologies related to own specific area. Adopts an attitude of "if it's important, someone will tell me about it" toward developments.	1

APPENDIX G

General Performance Items

On the job, this person is trustworthy.
On the job, this person is responsible.
On the job, this person is honest.
On the job, this person is hardworking.
On the job, this person is safe.

APPENDIX H

Perceived Similarity and Attraction Measures

Perceived Similarity:

This person is similar to me.
This person probably shares my attitudes, values and beliefs.
This person thinks about his work the way I do.

Attraction:

I would like this person.
I would enjoy working with this person.
I would enjoy being around this person.

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