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ABSTRACT

ADAPTIVE PERFORMANCE IN A MULTI-TASKING ENVIRONMENT

By

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This study examined the role of self-monitoring, process feedback, and motivation in adaptive, multi-task performance. Research in these areas is reviewed and integrated to develop a model of adaptive performance. This study examined the effects of self-monitoring, motivation, and process feedback on multi-task performance. Hypothesis 1 that high-self monitors would outperform low self monitors was not supported, Hypothesis 2 that highly motivated individuals would outperform the less motivated was not supported, Hypothesis 3 that motivation would moderate the effects of self-monitoring could not be tested due to the failure of self-monitoring to affect multi-task performance, Hypothesis 4 that process feedback would improve multi-task performance was supported, and Hypothesis 5 that self-monitoring, motivation, and process feedback would interact to effect multi-task performance was not supported. The implications of process feedback for adaptive performance are discussed.

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INTRODUCTION

In recent years it has become increasingly apparent that the nature of work is changing. Technological change as well as a shift towards a predominately service economy (Davis, 1995; Reeves & Bednar, 1994; Thach & Woodman, 1994) have created a dynamic work environment in which the expectations on personnel are diversified and the need for an adaptive workforce has become increasingly important (Edwards & Morrison, 1994; Hollenbeck, LePine, & Ilgen, 1996; Smith, Ford, & Kozlowski, in press).

Adaptive Performance

Previous research on the construct of adaptability has examined a broad range of topics in which adaptability is defined and operationalized in a variety of different ways. Adaptation has been discussed in relation to adapting to an organization (Ashford, 1986), adaptation following re-location (Ammons, Nelson, & Wodarski, 1982; Black, 1990; Fisher & Shaw; 1994), adapting to a team (Hollenbeck, LePine, & Ilgen, 1996; Kozlowski, Gully, McHugh, Salas, Cannon-Bowers, 1996; Kozlowski, Gully, Salas, & Cannon-Bowers, 1996), the ability to adapt to changing job requirements and demands (Dix & Savickas, 1995; Weiss, 1984; Murphy, 1989; Edwards & Morrison, 1994; Goodman, 1994; Hall & Mirvis, 1995; Kossek, Roberts, Fisher, & Demarr, 1996), interpersonal adaptability (Aronoff, Stollak, & Woike, 1994; Paulhus & Martin, 1988; Spiro & Weitz, 1990), adapting to noise (Fiedler & Fiedler, 1975; Weinstein, 1978), solving novel or ill-defined problems (Holyoak, 1991; Hatano & Inagaki, 1986; Mumford, Baughman, Threlfall, Uhlman, & Costanza, 1993; Mumford, Connelly, Baughman, Marks, 1994), and adapting to shift work (Benjamin, 1984). The wide range

of articles and diversity of topics dealing with adaptation have resulted in numerous definitions of the construct.

Defining Adaptation

Adaptation has been defined as tailoring behaviors to fit the demands of a particular environment within an organization (Ashford, 1986), adjusting to relocation and the resulting stress (Ammons et al., 1982), rapidly and effectively assimilating into teams (Hollenbeck et al., 1996), coordinating interactions within a team to meet shifting external contingencies (Kozlowski, Guly, Salas, & Cannon-Bowers, 1996), adjusting to changing roles throughout the course of one's career (Goodman, 1994), adjusting one's interpersonal style to meet the demands of the situation (Paulhus & Martin, 1988), and applying expertise to a novel task or in a new situation (Holyoak, 1991). Initially, this diversity of definitions makes it difficult to determine what it means to be adaptable. A closer examination of the literature however, reveals two common themes.

Adaptation first requires new or unanticipated environmental demands. Whether the environment is created in a laboratory, exists within an organization, or emerges on a battlefield, all of the articles on adaptation discuss the demands of the environment. The second component of adaptation focuses on the individual and his/her ability to perform effectively within the new environment. To be adaptive, the individual must match his/her behavior to the demands of the new environment. Adaptive performance thus requires two factors, a novel environment and an appropriate matching of behavior. The environmental demands can vary greatly and the adjustment may require cognitive ability, interpersonal skills, or physical abilities. Nevertheless, it is these two factors that

constitute adaptive performance. In this paper, adaptive behavior will be defined as adjusting one's behavior to perform effectively in a new or novel environment.

The purpose of this paper is to propose and test a model of adaptive performance. The research on performance and adaptation suggest that characteristics of the individual and environment play a critical role in effective performance. Specifically, there is reason to believe that individual differences in self-monitoring and motivation, and the availability of process feedback will have a significant effect on performance. While adaptive performance can include a wide range of behaviors, this study will limit its focus to multi-task performance, in which several tasks are performed concurrently.

Adaptability & Selection

As stated in the introductory paragraphs, the nature of work is changing. The challenge facing employers is that of hiring individuals who are not only qualified to perform a specific job but also capable of continuously learning new skills to accommodate future change (Edwards & Morrison, 1994). Identifying these individuals however, requires an understanding of the characteristics that distinguish them from other applicants. Unfortunately, a listing of such characteristics does not exist. While many authors have stressed the great need for adaptability and suggested avenues for future research (Edwards & Morrison, 1994; Goodman, 1994; Hall & Mirvis, 1995; Hollenbeck et al., 1996; Kozlowski, Gully, McHugh, Salas, Cannon-Bowers, 1996; Kozlowski, Gully, Salas, & Cannon-Bowers, 1996), few articles have examined adaptation empirically to identify the qualities leading to effective performance. Until the characteristics associated with adaptive performance can be identified and measured,

selecting adaptive individuals will be very difficult. It is for this reason that researchers should be investigating the individual differences unique to adaptive performers.

Research on Adaptation

The empirical work that does exist on adaptation has focused primarily on adapting one's interpersonal style. Spiro and Barton (1990) for example, developed a scale designed to assess the ability of sales personnel to adapt their sales technique to better meet the needs and expectations of the customer. The 16-item adaptive selling scale (ADAPTS) was designed to measure the degree to which sales personnel alter their sales presentation both across and during customer interactions in response to the perceived nature of the sales situation. ADAPTS is a self-report index assessing five aspects of adaptive sales performance: recognizing that different sales approaches are needed for different customers, confidence in ability to use a variety of approaches, confidence in ability to alter approach during an interaction, collection of information to facilitate adaptation, and actual use of different approaches.

Results indicated that ADAPTS correlated significantly with self-reported measures of performance, ability to modify self-presentation, sensitivity to others, androgyny, perspective taking, empathetic concern, social self-confidence, ability to obtain personal information from others, and intrinsic motivation. In other words, subjects who are sensitive to others, high in perspective taking and empathetic concern, and who are able to modify their behavior report higher performance in a sales environment. This study is mentioned because it provides insight into the characteristics that distinguish adaptive individuals. It is apparent that adaptation in a sales environment

requires sensitivity to the customer and an ability to modify behavior to meet the customer's needs.

In a similar study, Paulhus and Martin (1988) developed the functional flexibility index (FFI), a scale measuring interpersonal flexibility or one's capacity to adjust behavior to meet the demands of the environment. Interpersonal flexibility has traditionally been viewed as consisting of two components: having a wide repertoire of interpersonal responses, and having the ability to apply the responses appropriately. Paulhus and Martin (1988) took a unique perspective on interpersonal flexibility by examining capabilities rather than traits. The underlying assumption is that traits are merely summaries of past behavior where capabilities represent potential for future performance.

Results indicated that the 16-item flexibility scale is distinct from other flexibility measures, correlates significantly with peer ratings of interpersonal flexibility, and outperforms other flexibility measures in predicting self-report and peer ratings of adjustment. These findings reiterate the importance of having not only the flexibility to perform in a variety of ways, but also the ability to know when it is appropriate to demonstrate certain behaviors. In addition, the study has identified a measurable indicator of one's ability to adapt to interpersonal interactions.

The two preceding studies are mentioned because they are useful examples of the type of work that is needed to better understand adaptive performance and assess the skills associated with it. By identifying the characteristics that enable certain individuals to effectively adapt, it is possible to begin selecting and training for these skills. These studies are also useful in that they demonstrate the dual components of adaptive

performance --awareness of the situation and ability to behave appropriately. What is lacking in the literature however, is a thorough examination of the work environments requiring adaptation, and the individual differences that enable certain people to function effectively within them. While a complete study of all environments is far beyond the scope of this project, this study will contribute by examining one work environment requiring adaptation and the characteristics necessary to perform effectively within it.

Multiple Task Demands

Studies have shown that multi-tasking is a crucial component of managerial performance (Mintzberg 1973). While empirical research has looked at adaptation in terms of interpersonal abilities, no studies have examined the individual differences that enable certain people to effectively adapt to environments containing multiple task demands. The majority of work on multi-tasking has taken an information processing or cognitive perspective with the goal of explaining the processes involved in multi-task performance. Although understanding the underlying processes is important, the utility of this information for the selection of employees is unclear. This point is mentioned because of the critical role multi-tasking plays in today's work environment. The dynamic nature of today's work environment combined with a lack of predictability, creates an environment in which personnel must continuously switch from task to task. The following paragraphs will examine the demands faced by managerial personnel and review the literature on multi-task performance.

Managerial Job Requirements

Many jobs require employees to perform effectively while faced with numerous task demands. Studying the task demands placed on managers and chief executives,

Mintzberg (1973) found that individuals in these positions encounter hundreds of incidents in quick succession with little or no breaks. In a study of supervisors, Guest (1956, cited in Mintzberg, 1973) observed that they had little idle time and had to handle many urgent problems in quick succession while enduring numerous interruptions. Furthermore, Guest noticed that supervisors' jobs are characterized by interruptions, variety, and discontinuity. The results of these continuous interruptions and constant demands require managers to shift quickly and frequently from task to task with little continuity or similarity (Mintzberg, 1973).

These demands are further compounded by changing technology. The increased speed of communication has created an environment in which employees are bombarded with considerably more information than ever before (Thach & Woodman, 1994). The individuals who can effectively allocate resources to meet the multitude of work demands and endure numerous interruptions and discontinuity in tasks are expected to perform most effectively. It is for this reason that adaptability is believed to play a critical role in multi-task performance. To function effectively, managers must be able to endure numerous interruptions, switch attention from one task domain to another, and continually adjust performance to effectively meet situational demands.

Multi-task Performance Research

As stated previously, much of the research on multi-task performance has focused on theory development. Theories include the single channel hypothesis, the unitary resource hypothesis, and the multiple resource theory (Meyers & Kieras, 1997). The single channel hypothesis, as the name would imply, proposes a single channel of processing. After one reaction, there is a psychological refractory period before another

reaction can occur. The theory contends that despite multiple environmental demands, individuals are limited in the number of times they can respond in a given interval due to single-channel limitations (Meyers & Kieras, 1997).

The unitary-resource theory which was designed to overcome the limitations of the single channel approach, views multi-tasking performance in terms of quantifiable sets of cognitive resources required to perform certain tasks. A person's ability to multi-task is limited by the cognitive resources needed for each task and the total resources at the individual's disposal (Meyers & Kieras, 1997). The third theory is the multiple-resource theory. The multiple-resource theory views multi-tasking as a function of various disjointed sets of processing resources, which are used in concert to perform a task. The nature of the task will determine the speed of processing and performance. If the tasks are so related they require similar resources, performance time will suffer accordingly. However, if the tasks are unrelated, performance can proceed simultaneously with little or no decrement (Meyers & Kieras, 1997; Shallice, McLeod, & Lewis, 1985). While each of the theories described above explain performance under certain conditions, there is little agreement on the processes associated with multi-tasking. The research has however, discovered some useful information in understanding multi-task performance.

Performance Strategies

Studies examining the difference between multi-task and single task performance have found that different skills are required for multiple versus single task performance. Research has shown that despite single-task training and practice, performance drops to near novice level when subjects attempt to perform tasks simultaneously (Schneider &

Fisk, 1984; Schneider & Detweiler, 1988). One reason for this finding is that resource allocation and the processing strategies needed to perform well on one task appear to be different from those required to perform both tasks simultaneously (Schneider & Detweiler, 1988). Schneider and Detweiler (1988) noted that the optimal strategy for performing multiple tasks is dependent on the context and demands of the situation. The performer needs to determine the most effective way of allocating resources to perform the *combined* tasks. Strategies include grouping or ordering the tasks to maximize efficiency (scheduling strategies), as well as utilizing executive level processing strategies to minimize the time necessary to observe and process stimuli (Schneider & Detweiler, 1988). Each of these strategies and their implications for adaptive, multi-task performance will be discussed.

Executive processing. Executive level processing aids performance by maximizing the utilization of processing resources. It refers to the coordination of concurrent activities through the selection of goals, prioritization of tasks, use of decision rules, or coordination of resources (Meyer & Kieras, 1997; Schneider & Detweiler, 1988). Essentially, executive level processing encompasses the processes guiding behavior. An individual who recognizes the bigger picture and can structure his/her activities to achieve a desired goal is likely to perform more efficiently and effectively than one who lacks a clear focus and direction.

Scheduling Strategy. Scheduling strategies can also have a significant impact on multi-task performance (Schneider & Detweiler, 1988). One study of multi-task performance found that subjects employing a simultaneous response strategy (responding to two stimuli in very quick succession) or an alternating strategy (alternating responses

between two stimuli) performed significantly better than subjects using a massed strategy (giving more than two responses on one task before switching to another). Damos and Smist's (1982) study is mentioned because it identifies an observable individual difference affecting multi-task performance (i.e., scheduling strategy); it also demonstrates the critical role that scheduling strategies play in effective performance. The manner in which subjects approach multi-task demands significantly affects the efficiency and effectiveness of their overall performance.

Managers & Multi-Task Performance

Mintzberg's work (1973) shows that managers have to frequently shift from handling crisis situations, to administrative responsibilities, to phone calls, to interruptions by co-workers/subordinates etc. Moreover, Mintzberg (1973) could find no pattern in the type or timing of the tasks encountered within a given day or week. Due to these constant demands as well as their frequency, unpredictability, and discontinuity, it is believed that unique skills and abilities will be required to be an effective manager. Those who can effectively prioritize tasks or develop ways of performing more efficiently are likely to be the most successful.

Based on Schneider and Detweiler's (1988) findings on single versus multi-task performance, it is believed that being able to draft a report, meet with a client, or answer questions from subordinates is different from being able to begin writing a report, stop to take a call from a client, return to the report while periodically answering questions from employees. The research on multi-task performance shows that effective performance is determined by individuals' ability to allocate resources to effectively perform *all* of the tasks successfully. To cope with limitations of processing ability and satisfy performance

goals, individuals utilize executive level processing and devise flexible scheduling strategies to perform effectively (Meyer & Kieras, 1997). Applying these findings to the work of managers would imply that executive processing and flexible scheduling strategies are critical to their performance as well.

In a study of managing directors, Carlson (1951, cited in Mintzberg, 1973) noted that managers could easily delegate portions of their work to administrative staff thus freeing time to attend to other responsibilities. However, many of the managers specifically chose not to eliminate interruptions or phone calls due to the critical and current information obtained during these encounters. While on the surface it would seem advantageous for managers to delegate work responsibilities, this approach would result in limited access to critical information and a potential decrement in overall performance. Recognizing the greater goal of maximizing performance, effective managers place high priority on informal meetings and conversations as a means of obtaining critical information. This type of executive level processing has been shown to have a positive impact on performance (De Jong, 1995; Meyer & Kieras, 1997; Mintzberg, 1973; Schneider & Detweiler, 1988). In addition, scheduling strategies that allow for interruptions while still allocating the necessary resources to complete work responsibilities are expected to be another important skill for effective managerial performance (Damos & Smist, 1982; Schneider & Detweiler's, 1988).

The literature on multi-tasking and managerial performance indicates that executive level processing and scheduling strategies will play a crucial role in adaptive, multi-task performance. The purpose of this project however, is not to examine these two factors directly. The strategies are mentioned because they relate to the processes that are

likely occurring during multi-task performance. Moreover, by recognizing the effects of executive and scheduling strategies, it may be possible to manipulate the types of strategies utilized and thus improve multi-task performance. If executive level processing and scheduling strategies have a significant effect on multi-task performance as the literature indicates, providing subjects with information (i.e., process feedback) that shapes their goals, prioritization of tasks, or allocation of resources could significantly affect performance. This point will be discussed in greater detail in subsequent sections of the paper.

This paper has examined the research on multi-task performance and its relevance to managerial and supervisory positions. The following sections will examine the role of individual differences (i.e., self-monitoring and motivation) and environmental characteristics (i.e., process feedback) in understanding and explaining adaptive, multi-task performance. The literature on self-monitoring, motivation, and process feedback will be reviewed in an attempt to establish theoretical links between these constructs and adaptive, multi-task performance.

Multi-Tasking & Individual Differences

The studies of managers indicate that multi-tasking is a critical component of effective performance (Mintzberg, 1973). Moreover, the executive processing and scheduling strategies required for multi-task performance have been shown to be qualitatively different from those required in single-task performance (Schneider & Detweiler's, 1988). This finding seems to indicate that adaptability will be of great importance for effective multi-task performance. Barring previous experience, subjects facing multiple task demands will have to quickly adjust their behavior to meet the

unique demands of the environment. What is lacking in the literature however, is a study that identifies measurable, individual differences that distinguish effective performers in a multi-task environment. The present study has examined this issue, investigating the role of self-monitoring in adaptive performance.

Self-Monitoring

As stated previously, adaptive performance requires the ability to modify behavior to meet the demands of a new or unanticipated environment. In considering this description of performance, it is apparent that self-monitoring theory could play a significant role in explaining and predicting adaptive performance. Self-monitoring theory suggests that people differ in the extent to which they rely on their environment to shape or determine their behavior (Snyder, 1974). High self-monitors are very aware of their surroundings and are cautious to adapt their behavior to the setting. Low self-monitors are less guided by their environment and rely on their internal affective state to shape their behavior (Snyder, 1974). Effective performers in interpersonal situations are those who are aware of the environment and can adjust their behavior appropriately (Lennox & Wolfe, 1984). Although research on self-monitoring has been limited to situations involving interpersonal interaction, it incorporates both being aware of one's environment and acting on environmental cues. These characteristics are expected to be very important for adaptive performance.

Self-Monitoring & Job Performance

Studies of self-monitoring have found that it correlates positively with job performance. Kilduff and Day (1994) studied MBA graduates and found that high self-monitors showed greater career mobility, cross-company promotions, and more internal

promotions than low self-monitors. The authors attributed these differences to high self-monitors' willingness to accept change and ability to modify their presentation to match the situation. In a study of individuals' willingness to change or try new things, Goldsmith (1987) found a significant main effect for self-monitoring. High self-monitors scored significantly better on a 20-item willingness to change inventory than low self-monitors. Based on these findings, it is believed that one's awareness and ability to modify behavior will correlate significantly with adaptive performance.

Studies looking specifically at adaptive performance have found that it correlates positively with self-monitoring. In a study on boundary spanning positions, Caldwell and O'Reilly (1982) found that self-monitoring was significantly correlated with job performance. Boundary spanners are individuals who work with diverse groups of people and must adjust their interpersonal style to perform effectively. Subjects who could recognize the demands of the environment and modify their behavior appropriately, received higher performance evaluation ratings than those who could not. Furthermore, self-monitoring correlated most strongly with performance during employees' first few months on the job. Thus self-monitoring had its strongest relationship to performance during the initial adjustment period in which employees were adapting to the demands of their new job.

Recognizing the key components of being sensitive to one's environment and being able to modify one's behavior, Lennox and Wolfe (1984) developed a self-monitoring scale that measures two factors, being sensitive to the expressive behavior of others and being able to modify self-presentation. Using this scale, Lassk, Kennedy, Powell, and Legace (1992) found that one component of self-monitoring, having the

ability to modify one's behavior, correlates positively with sales performance. It is therefore only ability and not awareness that correlates with actual performance. The authors believe that awareness of environmental demands is a crucial factor in effective performance, but when considered alone, is not a sufficient criterion. Goolsby, Lagace, and Boorom (1992) conducted a similar study and in fact, reported similar findings. They found that *sensitivity* to the expressive behaviors of others correlates with self-reports of sales interactions with customers, but it is having the ability to *modify* behavior that correlates with self-reports of ability to meet sales objectives. The authors concluded that being sensitive to others will facilitate a salesperson's interactions with customers, while having the ability to modify behavior is what determines actual sales performance.

These studies show that self-monitoring relates to effective performance in two ways. The first component is being sensitive to the situation and aware of environmental cues. The second component is having the ability to modify one's behavior to adapt to those cues. It is the combination of these two factors that leads to effective performance. This point is emphasized because of the similarity between the self-monitoring factors of awareness and ability and the executive level processes and scheduling strategies associated with multi-tasking performance. Executive processing would encompass awareness of the environment, knowledge of the goal, prioritization of tasks, and monitoring of progress. Scheduling strategies would encompass actual performance and having the ability to behave appropriately and effectively given the environmental demands. Due to the relevance of awareness and ability for adaptive performance, this study investigated the effects of self-monitoring on adaptive, multi-task performance. It was hypothesized that all else being equal, subjects who are aware of their environment

and capable of modifying their behavior would perform more effectively than subjects who are not aware of environmental cues or who lack the ability to behave appropriately.

Hypothesis 1: Self-monitoring will correlate positively with performance in a multi-tasking environment requiring adaptation.

Motivation

Motivation was expected to play a crucial role in adaptive performance as well. Numerous publications have linked motivation to performance (Campbell, 1990; Campbell, McCloy, Oppler, & Sager, 1993; Kanfer, 1992). Campbell's work on job performance (1990; Campbell et al., 1993) views motivation as a critical component that interacts with declarative and procedural knowledge to determine performance. Barrick and Mount's (1991) meta analysis of the "Big Five" personality constructs found that conscientiousness, defined as one's will to achieve or what could be thought of as motivation, was the one personality dimension that showed a consistent relationship with job performance for all occupational groups (correlations ranged from .20 to .23). Other studies examining motivation have found significant positive relationships between need for achievement and cognitive task performance (Piedmonst, 1988), college academic performance (Ali, 1988), work performance (Tatum & Nebeker, 1995), and performance in a learning environment (Nishida & Inomata, 1985).

Based on the large body of research linking motivation to performance, it was expected that motivation would affect adaptive performance as well. For the purposes of this study, motivation was defined as one's intention to act. Intention to act is taken from work on reasoned action theory. According to the theory, the immediate antecedent of any behavior is the intention to perform the behavior in question. The stronger an

individual's intention, the more effort s/he is likely to expend, and the more likely s/he is to actually perform the behavior (Ajzen and Madden, 1985).

Ajzen and Madden (1985) have examined this relationship and have found that intentions do lead to performance. Individuals who indicated having a high intention to perform do in fact perform more effectively. Based on this finding, it was expected that individuals who wanted to perform well, or had a high intention to perform, would perform more effectively than individuals who did not intend to perform well. Thus motivation, defined as one's intention to act, would correlate positively with multi-tasking, adaptive performance.

Hypothesis 2: Motivation will correlate positively with performance.

Self-Monitoring & Motivation

Motivation was also expected to moderate the relationship between self-monitoring and performance. The literature on self-monitoring defines high self-monitors as individuals who are aware of environmental cues and able to adjust their behavior appropriately (Lennox & Wolfe, 1984). The expectation was that motivation would have a greater effect on performance for high self-monitors than low self-monitors. Because high self-monitors have a greater capacity to perform, they should demonstrate better performance when highly motivated than low self-monitors who may be lower in ability. Furthermore, high self-monitors by definition are aware of environmental cues, able to assess the demands of their environment, and able to determine what behavior is appropriate in a given situation. High self-monitors should therefore be better able to determine what behavior will lead to effective performance than low self-monitors. Thus

when highly motivated, high self-monitors should outperform low self-monitors due to a more accurate evaluation of environmental demands (see figure 1).

Hypothesis 3: Motivation will moderate the relationship between self-monitoring and adaptive performance.

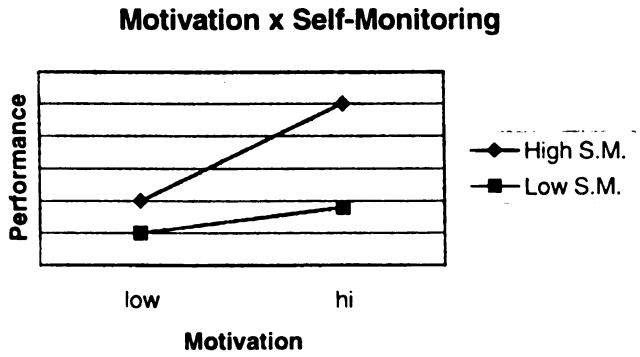


Figure 1. *Hypothesis 2: The interaction between motivation and self-monitoring*

Feedback

Feedback was also expected to play a significant role in adaptive, multi-task performance. The research on feedback commonly focuses on two types, outcome and process. Outcome feedback is information related to goal attainment; process feedback is information related to the manner in which a person is performing (Earley, Northcraft, Lee, & Lituchy, 1990; Korsgaard & Diddams, 1996). Research results on the utility of feedback for improving performance are mixed. It is clear that the effects of feedback on performance are contingent on the type of feedback, nature of the task, and conditions of

the performance environment (Earley et al., 1990; Kluger & DeNisi, 1996; Korsgaard & Diddams, 1996). In a meta-analysis of feedback intervention, Kluger and DeNisi (1996) concluded that feedback's primary effect on performance is through changing the performer's locus of attention. In addition, the nature of the task was found to moderate the effects of feedback. These conclusions are consistent with research linking task complexity to richness of feedback (Korsgaard & Diddams, 1996).

In a study of feedback, Korsgaard and Diddams (1996) examined the joint effects of feedback and task complexity on performance improvement. They found that the richness of feedback should match the complexity of the task. Specifically, Korsgaard and Diddams (1996) found that when the task was simple, feedback had no effect on performance improvement. However, in the complex condition, performance improved only when both process and outcome feedback were made available. This study was fueled by contradictory findings regarding outcome feedback. Some researchers have speculated that outcome feedback is harmful because it does not provide guidance on how to redirect behavior (Earley et al., 1990).

Earley et al. (1990) conducted a laboratory study assessing the effects of outcome and process feedback on the relation of goal setting to task performance. Subjects were told that they had $100,000 to participate in a stock investment simulation. Goal setting, outcome feedback, and process feedback were then manipulated. The goal was either general, "do your best" or specific "make $10,000 in profit." Outcome feedback was either general, telling subjects whether they gained or lost money, or specific, telling them exactly how much their portfolio was worth and the value of each block of shares. Process feedback consisted of information on how useful certain portions of information

were for evaluating the investment advice of a particular brokerage house. The feedback was either general, "the information you requested is irrelevant," or specific "the information you requested is irrelevant because when averaged across brokerage firms, no differences exist."

Earley et al., (1990) found that subjects receiving specific process feedback and a specific goal implemented better investment strategies than the other subjects. Process feedback interacted with goal setting to strongly affect the quality of people's task strategies and information search. This finding indicates that process feedback can benefit performance by directing individuals' attention to relevant job behaviors and away from irrelevant or inappropriate ones (Earley et al., 1990). The study also found that the effects of outcome feedback on goal setting and performance is much smaller than for process feedback. This finding indicates that outcome feedback is a less efficient way of shaping performance strategies when compared to the effects of process feedback. Finally, Earley et al. (1990) found that process feedback is especially important for performing complex or unstructured tasks in which the relation of behaviors to performance outcomes may be uncertain. Due to the nature of the task to be examined in the present study, Earley's (1990) findings were expected to be extremely relevant.

The task subjects were asked to perform in this study was relatively complex, demanding, and novel. If executive processing and scheduling strategies are as significant to multi-task performance, as previous research has indicated (Damos & Smist, 1982; Meyer & Kieras, 1997), process feedback that shapes behaviors and indicates ways of performing effectively should have a positive effect on multi-task performance. The demands of having to perform multiple tasks combined with the

ambiguity of not knowing how best to approach the tasks was expected to create an environment in which subjects were eager to receive information on how to perform and adapt their behavior. In a study examining feedback seeking in organizations, Ashford (1986) found that individuals reported seeking feedback when faced with uncertain situations and when they feared that they were not meeting their goals. By seeking and obtaining feedback, individuals can use the information to improve performance and more effectively attain the desired goal. A study of new accountants found that after six months on the job, information seeking had a significant positive correlation with supervisor ratings of performance (Morrison, 1993). This study was consistent with the findings that individuals desire feedback as they adjust to a new environment (Ashford, 1986), and that feedback can have a positive effect on performance (Earley et al., 1990).

Process Feedback & Multi-Task Performance

Kluger and DeNisi's (1996) meta-analysis concluded that feedback primarily affects performance by altering the locus of attention --a finding which has been stated previously. It is quite possible then that bombarding subjects with outcome results which contain no developmental information, may actually divert attention from performing effectively and thus hinder performance. Kluger and DeNisi's (1996) review of the feedback literature concluded that when the task is cognitively complex, feedback should be specific and task focused to increase task involvement and performance. Furthermore, the literature suggests that one potential explanation for performance improvement is that feedback helps eliminate erroneous performance strategies (Earley et al., 1990; Kluger & DeNisi, 1996). When combined with Korsgaard and Diddams' (1996) findings linking richness of feedback to complexity of the task, these results point to the beneficial effects

of process feedback for performance on a complex task. Providing subjects with clear performance guidelines or information on ways of improving performance will eliminate ineffective approaches and will focus attention on how to perform the task effectively.

Process feedback & adaptive performance. Due to the novelty or complexity of the task, it was expected that subjects will seek feedback (Ashford, 1986). Because subjects have no baseline to compare outcome feedback, providing performance scores was expected to have little positive effect. However, giving process feedback that instructs subjects how best to approach the adaptive tasks was expected to positively affect performance. Specifically, providing process feedback that focuses attention on effective performance strategies and influences executive level processes or scheduling strategies should improve performance (Earley et al., 1990; Kluger & DeNisi's, 1996; Korsgaard & Diddams, 1996). It was therefore hypothesized that all else being equal, subjects receiving process feedback on how to approach the tasks, would outperform those who did not receive such information.

Hypothesis 4: Process feedback will improve multi-task performance

Process Feedback, Self-Monitoring & Motivation

In addition to their main effects, process feedback, self-monitoring, and motivation were expected to interact to affect performance. According to self-monitoring theory, high self-monitors are sensitive to environmental cues and have the ability to modify their performance appropriately (Snyder, 1974). It was therefore expected that when given performance guidelines, high self-monitors would pay closer attention to the information provided. Furthermore, because high self-monitors have a greater ability to modify their performance, they should be able to utilize process feedback more

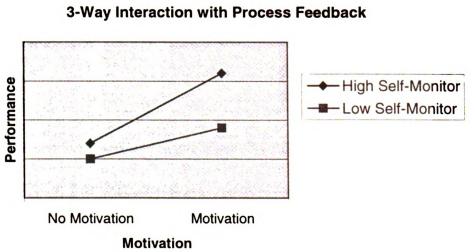
effectively and therefore demonstrate a higher level of performance than low self-monitors. This relationship however, was hypothesized to be contingent on subjects' level of motivation.

According to Ashford's (1986) findings on feedback seeking, individuals seek feedback on important issues or in new and uncertain situations. The underlying assumption is that people seek feedback because they are *motivated* to perform well at their job. Applying Ashford's (1986) findings to this study would indicate that motivation should affect the extent to which subjects seek and implement feedback. The hypothesis was that low self-monitoring subjects would show little change in performance as a result of motivation and process feedback. Conversely, high self-monitors who received feedback were expected to perform significantly better across levels of motivation than high self-monitors who did not receive process feedback (see figure 2).

Hypothesis 5: Self-monitoring, motivation, and process feedback will interact to affect multi-task performance as shown in figure 2.

Summary of Hypotheses

The preceding paragraphs have outlined the present study in which the effects of self-monitoring, motivation, and process feedback on multi-task performance were examined. According to research on managers' performance, multi-tasking is a critical component of effective managerial performance. Managers and supervisors are frequently required to switch between multiple tasks in quick succession throughout the course of their day. Further, research on multi-tasking shows that it is qualitatively different from single-task performance. These findings imply that to perform effectively,



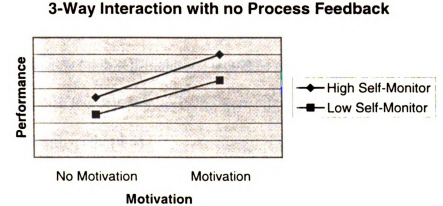


Figure 2. *Hypothesis 5: Three-way Interaction between Self-Monitoring, Motivation, and Process feedback*

managers must have the ability to adapt their behavior to meet the multiple task demands in their work environment. Thus adaptation appears to be a crucial component in multi-task performance. It is for this reason that multi-task performance was selected as a way of examining adaptation.

Using a managerial in-basket simulation, this study investigated the effects of individual differences (self-monitoring and motivation) and environmental characteristics (process feedback) on adaptive, multi-task performance. Research on self-monitoring, the extent to which individuals attend and adjust to social cues in their environment, has found that it is positively related to work performance. It was therefore hypothesized that individuals who were both aware of environmental cues and who could adjust their behavior appropriately (high self-monitors) would be more adaptive and thus perform more effectively than low self-monitors who were either unaware of environmental cues or unable to adjust (hypothesis 1).

Research on motivation provides strong support for a link between motivation and adaptive performance as well. All else being equal, individuals who have the intention to perform well should dedicate more effort to the task and thus outperform less motivated individuals (hypothesis 2). Motivation was also hypothesized to interact with self-monitoring, moderating its effects on adaptive performance (hypothesis 3).

The characteristics of the environment were expected to be important for adaptive performance as well. Studies of process feedback on complex tasks have found that it has a positive effect on performance by focusing attention on critical components of the task and by providing effective performance strategies. Thus process feedback in which individuals are given information related to the way in which they should perform a task,

was hypothesized to have a positive effect on performance (hypothesis 4). In addition a three way interaction was expected between process feedback, motivation, and self-monitoring (hypothesis 5).

The goal of this study was to identify individual differences and environmental characteristics related to adaptive performance. By identifying measurable, individual differences, it will be possible to select for specific traits that will lead to adaptation. The adaptive process can be further enhanced with a better understanding of the effects of one's environment on adaptive performance. An awareness of the environmental conditions that facilitate the adaptive process will make it possible to encourage and enhance performance. This study examined these issues as they relate to one component of adaptive performance, multi-tasking (see figure 3 for a model of adaptive performance).

Methods

Participants

The sample consisted of 216 undergraduates from a large, mid-western university. The majority of students participated in the study as part of an introductory psychology course. Additional participants were recruited from a 200 and 300-level psychology course in which extra-credit was awarded for participation. The sample consisted of 61 (28%) males and 155 (72%) females. There were 19 (9%) African Americans, 5 (2%) Asians, 5 (2%) Hispanics, 2 (1%) Native Americans, 184 (85%) Whites, and 1 (.5%) person indicated other. The average age of participants was 19.97 years with a range from 18 to 58. Ninety-four (44%) participants were freshman, 57 (26%) sophomores,

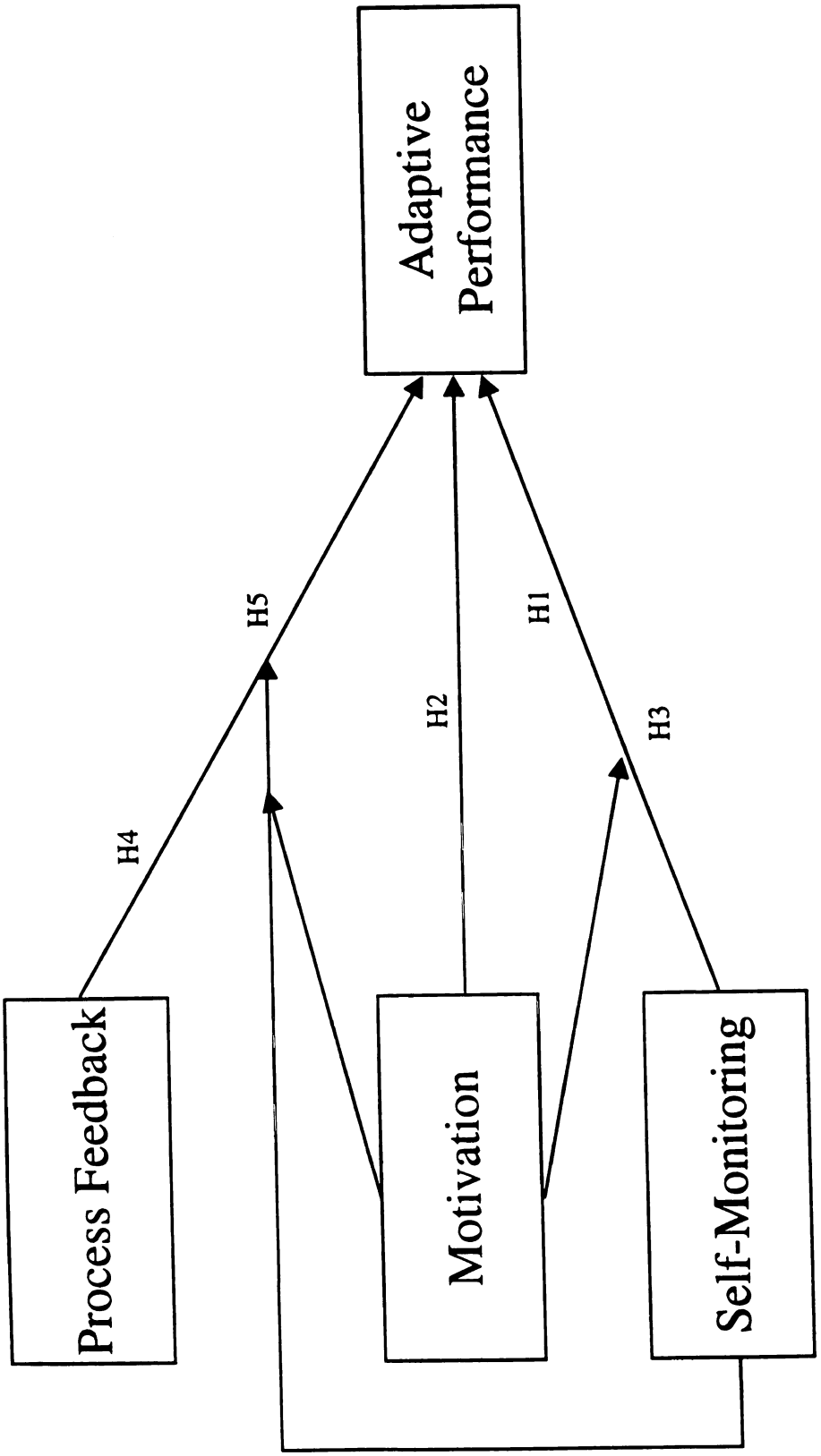


Figure 3. *Multi-Tasking Adaptive Performance Model*

31 (14%) juniors, 32 (15%) seniors, and 2 (1%) indicated other. Mean GPA was 2.88 with a range from 1.2 to 4.0.

Independent Variables

Motivation

Motivation was manipulated in this study. As part of the instructions provided prior to completion of Part II of the simulation, half of the participants (n = 104) were told that they would receive $10.00 if they scored in the top 50% of the sample. The remaining participants did not receive this information. To check the effects of the manipulation, participants were asked to complete a four item questionnaire at the end of the study.

The questionnaire asked participants to indicate the extent to which they wanted to perform well on the task and if they were interested in scoring in the top 50% of the sample (Appendix B).

Self-Monitoring

Self-Monitoring was measured using Lennox and Wolfe's (1984) self-monitoring scale (see Appendix B). The scale consists of two parts, awareness of one's environment and ability to modify behavior. Lennox and Wolfe's (1984) awareness scale consists of thirteen items with a five point Likert type scale ranging from strongly disagree to strongly agree. The scale includes the following items: At parties I usually try to behave in a manner that makes me fit in; My behavior often depends on how I feel others wish me to behave; If I am the least bit uncertain as to how to act in a social situation, I look to the behavior of others for cues; etc.

Lennox and Wolfe's (1984) ability scale consists of seven items with a five point

Likert type scale ranging from strongly disagree to strongly agree. Example items include: I tend to show different sides of myself to different people; Different situations can make me behave like very different people; In different situations and with different people, I often act like very different persons; etc.

In addition to Lennox and Wolfe's (1984) scale, a supplemental measure was developed that assessed awareness and ability related to the specific tasks measured in the study. The scale will be referred to as the performance oriented self-monitoring scale (Appendix B). Example items for the awareness index are: I like to know how well I am performing (in class, at work, etc.); When the television or radio is on, I have a hard time concentrating on anything else; When performing a task, I periodically assess my performance to make sure that I am doing well; etc. Samples from the ability index include: I am able to argue for either side of an issue depending on what is expected of me; I am able to develop creative solutions to problems; I am able to listen to information while writing or performing other tasks; etc. These two scales are in the developmental stage and were included for exploratory purposes.

Process Feedback

The process feedback was designed specifically for the simulation and provided information on how best to complete the tasks. To minimize the differences between the non-feedback and feedback conditions, participants in the feedback condition received the exact same instructions as the non-feedback condition. However, the instructions were supplemented with process feedback (Appendix H). Participants were told the best order in which to complete the simulated tasks (e.g., begin with the written tasks, switch to the situational judgment items when presented, and finish with the scheduling task after

receiving all of the relevant audio messages). They also received sample problems and answers that demonstrated the types of responses that were expected on each task.

Part II of the simulation was designed such that the scheduling task could not be completed accurately until after all audio messages had been received. To perform effectively participants had to take notes on the audio messages, waiting until the very last scheduling message was received (24 minutes into the simulation) before completing the employee schedule. If participants attempted to complete the schedule earlier, they would be unable to complete it accurately. Thus telling participants to postpone completion of the scheduling task until the end provided a more efficient approach. To complicate matters further, participants were also receiving situational judgment problems in audio. Unlike the scheduling messages, the situational judgment items had to be completed immediately. Thus participants had to react in two very different ways depending on the type of audio message received.

As stated previously, the scheduling items should be postponed until the end. The situational judgment items however, should be completed immediately. Providing participants with process feedback that shaped their strategy and provided information on how to respond to the audio messages was expected to have a significant, positive effect on performance.

In addition to strategy information, participants in the experimental condition also received sample items for each of the three tasks (e.g., report writing task, scheduling task, and situational judgment task) as well as the correct responses for each sample. The samples were designed to closely resemble the types of tasks in Part I and II of the simulation. In giving sample items and responses, the intention was to cue individuals to

the appropriate response that was expected for each of the tasks. Because all of the questions were open ended responses, the sample items would give participants an idea of how long their responses should be. Key instructions for each of the tasks were also emphasized. For example, on the scheduling task, employees must work either 4 or 8 hour shifts. Failure to attend to this information adds significant complexity to the scheduling task and is likely to result in a schedule that is incorrect. This aspect of the process feedback was expected to not only shape strategy choice, but also focus participants' attention on critical components of the simulation.

The final component of feedback occurred during the simulation. Participants in the experimental condition received a prompt via the audio tape 5 minutes before the end of the simulation. The message informed participants that they had 5 minutes remaining and should use the time to complete the scheduling task if they had not done so already. This piece of information was intended to remind participants of the time limits and to encourage them to complete the scheduling task (worth 28 points) before time had expired.

The purpose of the feedback was to provide participants with strategies on how best to approach the tasks as well as examples of what information was expected in the reports, scheduling task, and situational judgment responses. The feedback followed Part I of the simulation. This point is mentioned because it is consistent with the notion of process feedback. Participants first completed a series of tasks. After they had familiarized themselves with the simulation, they received information on how to approach each section of the simulation as well as specific information related to each task. If utilized, the process feedback should enable participants in the experimental

condition to perform more effectively than those in the control condition. This operationalization of process feedback is consistent with existing research.

Studies of process feedback have found that its beneficial effects come from the fact that it shifts the locus of attention to critical components of performance and provides effective performance strategies (Earley et al., 1990; Kluger & DeNisi, 1996). The process feedback provided in this study was designed to achieve these same objectives. By providing examples of correct responses, participants were shown exactly what was expected for each of the three tasks. In addition, participants received strategy information on how best to approach the tasks and organize their time. Based on previous research, this information should shape behavior and improve performance.

Dependent Variables

Multi-tasking performance was assessed using a paper and pencil in-basket simulation (Appendix C). The simulation was designed specifically for this study and consists of three sections, a report writing task, a scheduling task, and a situational judgment task. Participants were asked to complete written tasks similar to those encountered by managerial personnel. While completing the written portions of the in-basket, participants received audio information necessary to complete the scheduling task and the situational judgment problems. Each of these tasks will be described in more detail in the following sections.

Report Writing Tasks

The report writing task involved interpreting charts and graphs, completing mathematical computations, and writing reports. Participants received a packet of materials with a series of reports on various aspects of a simulated company (i.e., CLR

Shipping Inc.). Each report contains a table of figures or a chart containing information relevant to ordering new office furniture, selecting a new internet carrier, or other company related topics. Participants were asked to review the report and answer several questions. The questions asked participants to compute various figures and enter the results in a table (which is provided on the answer sheet). Participants were then asked to interpret the table and make a recommendation based on the values they computed. The reports were designed to have one correct response and could therefore be objectively scored. One point was given for each correct response with a total of 73 points possible on Part I and 51 points on Part II. While completing the reports, participants were also receiving audio information. The audio information related to the two other simulation tasks, the scheduling task and the situational judgment task.

Scheduling Tasks

The scheduling task required participants to schedule appointments (Part I) or complete an employee work schedule (Part II). To complete the schedules, participants needed to listen to the audio information to determine when they would be meeting with individuals (for Part I) or when employees were available to work (for Part II). The audio messages for the scheduling tasks were played over an audio tape. The messages were organized such that it was necessary to listen to all of the messages before an accurate schedule could be developed. If a participant attempted to complete the schedule without listening to all of the messages, s/he would be unable to complete the scheduling tasks correctly. The scheduling tasks were also designed to have only one right answer and could therefore be objectively scored. Participants were asked to schedule 9 appointments in Part I and 14 in Part II of the simulations. Two points were given for

each correct response (e.g., 1 point for knowing *who* the appointment is with, and 1 point for assigning the correct time of the appointment). There was a total of 18 points possible on Part I and 28 points on Part II of the scheduling tasks.

Situational Judgment Tasks

The situational judgment tasks were also presented via audio tape. While completing the report writing tasks, participants received "phone calls" from employees. The employees asked for advice on a particular problem they had been facing. The problems were adapted from a situational judgment test designed for an auto-parts manufacturing firm; the test was part of a managerial selection system. During the simulation, participants were presented with situations and were asked to develop a solution based on how *they* would respond to the problem. Participants completed two situational judgment items in Part I and five in Part II of the simulation. Responses were scored on a five point, Likert type scale ranging from highly ineffective to highly effective. The scores were based on the scoring key developed for the original, multiple choice situational judgment test.

Simulation Overview

The simulation described above was designed to require multi-tasking capabilities. Participants were asked to complete the three tasks (i.e., the report writing task, scheduling task, and situational judgment task) concurrently. While completing the written reports, participants received periodic interruptions from an audio tape. The message contained information related to the scheduling task or situational judgment task. To perform effectively, participants needed to work on the report writing tasks while periodically attending to the audio information and completing the corresponding items.

The simulation was pilot tested on six individuals who completed the tasks, evaluated the clarity of the instructions, and provided time estimates. When given an unlimited amount of time, participants were able to complete Part I of the simulation in approximately 35 minutes and Part II in approximately 45 minutes. To enhance the multi-tasking component of the task, the time was limited to 25 minutes in Part I and 35 minutes in Part II. In Part I, participants received 2 minutes for each of the scheduling messages and 3 minutes for each situational judgment item. In Part II, participants received 1.5 minutes per scheduling message and 3 minutes per situational judgment item. The time limits were longer in Part I to give participants the opportunity to familiarize themselves with the tasks. Participants were expected to complete the written tasks between audio messages. The audio messages and their time of presentation are presented in Appendix D.

Given the time limits for the simulations, spacing between audio messages, and number of interruptions, it is believed that the simulation requires multi-task performance. Participants had at most three minutes of uninterrupted time, and that time was needed to write a response to the situational judgment items. To perform the tasks effectively, participants needed to have the ability to continuously switch from task to task. Because two of the three tasks were presented in audio, participants had to stop what they were doing, attend to the audio message, and respond appropriately (making a note for the scheduling task or writing a response to a situational judgment item). Thus to perform effectively, participants had to multi-task. Between messages, participants reviewed reports, made mathematical computations, interpreted charts and graphs, and wrote responses. Based on the initial time estimates obtained from the pilot sample, 25

and 35 minutes per section with 1.5 to 3 minutes between messages was expected to be sufficiently complex to qualify as multi-tasking performance, requiring adaptive capabilities.

Simulation Scoring

As stated previously, the simulation consists of three sections. Scoring for each section varied depending on the task; the following section will describe the scoring procedures for the report writing task, scheduling task, and situational judgment task.

Report writing task.. The report writing task was designed to be objectively scored. Participants were asked to complete mathematical computations and interpret charts, tables, and graphs. For each of the 124 items in the report writing task, there is only one correct answer (see Appendix E for the scoring key). Participants received one point for each correct response (73 points for Part I; 51 points for Part II). In addition, participants received "partial credit" for correct computations.

Because many of the problems are mathematical and require participants to interpret the results, many of the answers are contingent on one another. For example, to compute the rent on a building, participants must find the total floor space available in the building and then multiply the value by the cost per square foot. Using the wrong values to compute the rent would result in errors for all subsequent computations and conclusions. For this reason, participants received credit for completing the correct computations even if the original values used were in error. Likewise, participants received credit for reaching appropriate conclusions given the values they computed. In this manner, participants were only penalized one point for each error rather than loosing multiple points for a single error.

Scheduling task.. The scheduling task was also designed to be objectively scored. Based on the appointments (in Part I) or employee availability (Part II), there is only one correct schedule that can be developed (see Appendix E for the scoring key). Participants received one point for scheduling the correct activity or person, and one point for scheduling the activity/person at the appropriate time (18 points in Part I; 28 points in Part II).

Situational judgment task. The situational judgment task required trained scorers to evaluate. The situational judgment scenarios were adapted from an existing multiple-choice test designed for an auto-parts manufacturing firm. The scoring key from the original test was used to develop behavioral anchored rating scales with scores ranging from 1 (highly ineffective) to 5 (highly effective) (Appendix E). Due to the subjective nature of the rating task, two raters reviewed a sub-set of situational judgment item responses. The raters independently reviewed the responses from 30 participants (for a total of 210 responses); the results are presented in Table 1.

Table 1. Inter-rater reliability results for situational judgment task

	Kappa	r between raters
Item 1	.44*	.90*
Item 2	--[a]	.87*
Item 3	.57*	.89*
Item 4	.62*	.78*
Item 5	.69*	.95*
Item 6	.61*	.93*
Item 7	.53*	.87
Part A (items 1&2)	--	.93*
Part B (items 3-7)	--	.92*
Total Score	--	.92*

*p<.05. [a] kappa could not be computed due to a lack of symmetry in the data.

Ratings for each item were correlated to examine the inter-rater reliability for the situational judgment task. The results were above .78 for all seven items indicating high reliability. Reliability was also examined at the scale level. Because items were aggregated to form scale scores, ratings for Part I (items 1 and 2) and Part II (items 3-7) of the situational judgment task were compared. The correlation between the two raters was .93 for Part I and .92 for Part II. Based on these data, I felt there was sufficient inter-rater reliability to justify the inclusion of all seven items and the use of one rater for scoring the remaining situational judgment responses.

Control Variables

Previous performance and cognitive ability were used as control variables in the analyses. Previous performance was assessed in Part I of the simulation. By controlling for the effects of previous task performance, the effects of process feedback and motivation could be assessed more clearly. Likewise, the analyses also controlled for the effects of cognitive ability (i.e., ACT or SAT score obtained from the registrar). Due to the differences in scales between the ACT and SAT, means and standard deviations were obtained from the test publishers and used to compute z-scores. For the ACT the mean was 21 with a standard deviation of 4.7; the SAT had a mean of 1016 and a standard deviation of 157.68. Of the 216 participants, 189 individuals provided ACT scores, 8 SAT scores, and 19 did not have scores. Controlling for cognitive ability allowed for an examination of the incremental effects of individual differences (e.g., motivation and self-monitoring) and environmental characteristics (e.g., process feedback) on adaptive performance above those attributable to cognitive ability.

Design and Procedures

Part I

This study was a 2 X 2 laboratory experiment (see Appendix F for a data collection agenda). The variables that were manipulated are process feedback (present or absent) and motivation (incentive or no incentive). Upon beginning the study, participants received a brief description of the simulation and were asked to complete an informed consent form (Appendix G). Participants then received a packet of materials to be used for Part I of the simulation (Appendix C). The experimenter read a standard set of instructions to all participants that provided a background for the simulation and a description of the tasks they would be completing (Appendix H). Participants were then given an opportunity to ask questions. After all questions had been answered, participants were told to begin Part I of the simulation, and the experimenter started the audio tape.

After 25 minutes, participants were told to stop with Part I. They were asked to complete the self-monitoring scales and demographic data form (Appendix B), and were then given a 10 minute break.

Part II

Following the break, participants were given a packet of materials for Part II of the simulation (Appendix C). The experimenter read a standard set of instructions to all participants that provided a description of the tasks they would be completing (Appendix H). It is at this stage of the study that the experimental manipulations occurred. The instructions for Part II were modified, depending on the condition, to included process feedback and the motivation manipulation. There were four conditions resulting from

these manipulations. The control group received no process feedback and no incentive. One group received process feedback but no incentive. Another group received an incentive but no process feedback. The final group received both process feedback and an incentive.

Process feedback.. In the non-feedback conditions, participants received basic instructions that focused on Part II of the simulation and the tasks they would be completing (Appendix H). For participants in the feedback conditions however, the basic instructions were supplemented with the process feedback described previously.

Motivation. The non-incentive conditions provided participants with the instructions with no mention of the $10.00 prize that was offered as an incentive. Alternatively, participants in the incentive condition were told that they could receive a prize for effective performance. As part of the instructions given for Part II of the study, participants in the incentive conditions were told that they would receive a $10.00 bonus if their score fell within the top 50% of the sample (See Appendix H and Appendix I for instructions).

After participants received the appropriate instruction for Part II of the study, they were given an opportunity to ask questions. After all questions had been answered, participants were told to begin Part II of the simulation, and the experimenter started the audio tape for Part II of the simulation. After 35 minutes participants were told to stop Part II of the simulation. Participants then completed the motivation measure (Appendix B). The materials from the simulation were collected and participants were thoroughly debriefed (Appendix I).

Results

Participants were tested in groups and each group was randomly assigned to condition. To affirm that there were no systematic demographic or ability differences across conditions, a one-way analysis of variance was conducted. Results indicated no significant differences ($p>.05$) in age, sex, GPA, race, or ACT score. There was a significant difference ($p<.05$) in year in school across conditions with more juniors and seniors participating in the control condition (no incentive, no process feedback) and more freshmen participating in the process feedback only condition. There was no reason however, to expect this difference to have a significant effect on the data, and no unusual results were found that could be attributed to this difference.

Scales

The study utilized three scales. Lennox & Wolfe's (1984) self-monitoring scale, a self-monitoring scale developed specifically for this study (e.g., performance oriented self-monitoring), and a motivation measure designed as a manipulation check. Both of the self-monitoring scales have two sub-scales, an awareness scale and an ability scale. Scale inter-correlations, internal consistencies, and descriptive statistics are presented in Table 2. The table includes inter-correlations corrected for unreliability shown above the diagonal, internal consistency measures on the diagonal, and observed inter-correlations below the diagonal. Means and standard deviations for the scales are listed in the last two rows of the table. The only modification to the scales was the deletion of item 10 (I eavesdrop on other people's conversations) from the awareness sub-scale of the performance oriented self-monitoring measure. The item was dropped because of its low

item-total correlation. Alpha increased from 0.61 to 0.63 when this item was excluded from the scale.

A review of Table 2 indicates moderate to high internal consistency ('ϒ = .63 to .85) for all of the measures. There is a moderately high corrected correlation (' = .49) between the two sub-scales of the self-monitoring measure, which is consistent with their intended purpose (i.e., sub-scales of one self-monitoring measure). In addition, there is considerable overlap between the awareness sub-scale in the self-monitoring measure and the awareness sub-scale of the performance self-monitoring measure (r = .42). This overlap is expected considering the fact that the scales were designed to measure a similar construct (i.e., awareness). The results obtained using the ability sub-scale of the performance measure however, were unexpected. The performance oriented ability scale had a negative relationship with the self-monitoring ability scale (r = -.16) and no relationship to the performance oriented awareness scale. Based on the intended design of the scale, a moderately positive relationship between the performance oriented ability scale and the self-monitoring ability scale as well as a positive relationship between the ability and awareness scales of the performance oriented measure were expected. The contradictory findings made it difficult to determine what the ability scale was actually measuring. The fact that no significant relationships were found when using the performance oriented measure would seem to indicate that the measure failed to assess the constructs of interest or did so in a way that was inconsistent with its intended design.

Table 2. Scale corrected inter-correlations, inter-correlations, reliabilities, means, and standard deviations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Individual Difference Measures																	
1 Self-Monitoring (s.m.) aware	**.77**	.49	1.1	.59	-.20	.19	-.01	.09	.06	.01	.08	-.12	.13	.13	-.05	.02	.12	.09
2 S.M. ability	.40*	**.85**	.95	.31	-.11	.10	-.14	.04	-.10	.08	-.17	-.15	.03	.01	-.17	-.06	-.03	-.09
3 S.M. (sum 1&2)	.87*	.80*	**.84**	.54	-.18	.17	-.09	.08	-.02	.05	-.04	-.16	.10	.08	-.12	-.02	.06	.01
4 Performance Self-Mon. (p.s.m.) aware	.42*	.23*	.39*	**.63**	.08	.99	.15	-.14	-.07	-.01	-.12	.02	-.10	-.11	-.16	.13	-.12	-.14
5 P.S.M. ability	-.16*	-.09	-.15*	.05	**.79**	1.1	.32	.02	-.06	-.09	-.08	.03	.08	.08	.07	.02	.12	.12
6 P.S.M. (sum 4&5)	.14*	.07	.13	.65*	.79*	**.69**	.38	-.06	-.08	-.06	-.14	.09	.02	.01	-.04	.08	.04	.03
7 Motivation	-.01	-.12	-.07	.11	.25*	.28*	**.77**	.13	.06	.11	.08	.28	.09	.12	.18	.08	.26	.29
8 ACT (z-score)	.08	.04	.07	-.12	.02	-.05	.11	--	.01	.01	.05	.02	.42	.43	.29	.31	.48	.54
	Experimental Manipulation																	
9 Feedback	.05	-.09	-.02	-.06	-.05	-.07	.05	.01	--	.04	.10	-.01	.05	.05	.12	.13	.32	.33
10 Incentive	.00	.07	.05	-.01	-.08	-.05	.10	.01	.04	--	.06	-.05	-.06	-.06	-.08	.03	-.04	-.05

*Note *p<.05 Corrected inter-correlations above the diagonal, alpha coefficients on the diagonal, observed inter-correlations below the diagonal. 1 = Self-Monitoring Awareness sub-scale 2 = Self-Monitoring Ability sub-scale 3 = Total Self-Monitoring scale 4 = Performance Oriented Self-Monitoring Awareness sub-scale 5 = Performance Oriented Self-Monitoring Ability sub-scale 6 = Performance Oriented Self-Monitoring Total scale*

Table 2 (con't).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
								Simulation Performance										
11 Schedule A	.07	-.14*	-.04	-.09	-.06	-.10	.07	.04	.10	.06	**.80**	-.01	.04	.13	.18	.13	.11	.17
12 Situation Jud A	-.05	-.07	-.07	.01	.01	.04	.12	.01	-.01	-.05	-.01	**.24**	-.06	.07	.05	.12	.00	.04
13 Report A	.11	.03	.09	-.08	.07	.02	.08	.42*	.05	-.06	.04	-.06	**.98**	.99	.25	-.03	.50	.50
14 Part A (sum 11,12,&13)	.11	.01	.08	-.09	.07	.01	.10	.42*	.05	-.06	.13	.07	.99*	**.96**	.27	-.01	.51	.51
15 Schedule B	-.04	-.15*	-.11	-.12	.06	-.03	.15*	.28*	.12	-.08	.18*	.05	.25*	.27*	**.89**	.12	.22	.55
16 Situation Jud B	.01	-.04	-.01	.07	.02	.05	.05*	.22*	.13	.03	.13	.12	-.03	.00	.12	**.51**	.01	.24
17 Report B	.11	-.03	.05	-.10	.10	.03	.22*	.48*	.32*	-.04	.11	.00	.50*	.51*	.22*	.01	**.97**	.91
18 Part B (sum 15,16,&17)	.08	-.08	.01	-.11	.11	.03	.25*	.52*	.33*	-.05	.17*	.04	.50*	.51*	.55*	.24*	.91*	**.93**
Mean	37	21	59	32	41	73	15	.40	.50	.49	17	7.0	50	74	22	17	29	67
S.D.	6.4	5.4	9.9	4.2	5.1	6.8	2.9	.95	.50	.50	1.7	2.4	20	20	6.3	3.6	15	18

*Note *p<.05 Corrected inter-correlations above the diagonal, alpha coefficients on the diagonal, observed inter-correlations below the diagonal.*

Manipulation Check

To assess the effectiveness of the motivation manipulation a four item, motivation measure was administered at the conclusion of Part II of the simulation. Participants were asked to indicate the extent to which they wanted to perform well on the simulation (Appendix B). Based on the intended design of the study, the motivation level of participants in the incentive condition should be significantly higher than those in the no-incentive condition. A one-way ANOVA indicated that there was no significant difference in the motivation measure across the two conditions. Motivation, as assessed by the 4-item measure, was approximately the same whether or not an incentive was offered. This finding was unanticipated and certainly affected the tests of the main and moderating effects of motivation (hypotheses 2 and 3). Possible explanations for these findings will be presented in the discussion section.

Adaptive Performance

The original intent of the study was to utilize the score obtained on Part II of the simulation as an indicator of adaptive performance. The score would be an aggregate of the three components of the simulation (i.e., scheduling task, situational judgment task, and report writing task). This value could then be used as the dependent variable for the regression analyses. After examining the scales however, it was clear that scores on the three tasks were not highly inter-correlated and were therefore measuring different aspects of performance. Furthermore, the situational judgment items used in the simulation were not highly reliable. While this low reliability is consistent with previous research using situational judgment tests (Motowidlo, Dunnette, and Carter, 1990) it makes it more difficult to determine what the test was in fact measuring and whether it

was doing so effectively. For this reason, each of the three tasks was examined individually.

Analyses

The data were analyzed using hierarchical regression. There were three dependent variables used consistently throughout all analyses, performance on the scheduling task, situational judgment task, or report writing task from Part II of the simulation. Cognitive ability (i.e., ACT/SAT score) and performance on the scheduling task, situational judgment task, or report writing task from Part I (depending on the dependent variable of interest) were entered in step 1 of the regression equation. In this manner, the variance due to cognitive ability and previous task performance was removed prior to assessing the effects of self-monitoring, process feedback, and the incentive. In step two of the equation the main effects of process feedback, motivation, and self-monitoring (using Lennox & Wolfe's scale) were examined. Step three assessed the interaction effects of the incentive and process feedback, the incentive and self-monitoring, and process feedback and self-monitoring. Step four assessed the effects of the three way interaction of process feedback, the incentive, and self-monitoring on simulation performance. The results are shown in Table 3.

The study proposed five hypotheses. Hypothesis 1 was that high self-monitors would outperform low self-monitors. As can be seen from the regression results, this hypothesis was not supported; there was no significant main effect of self-monitoring on performance for any of the three tasks. Hypothesis 2 was that highly motivated individuals would outperform less motivated individuals. This hypothesis was not

supported. Offering participants an incentive to perform effectively had no significant effect on simulation performance.

Hypothesis 3 proposed an interaction between offering an incentive and self-monitoring; specifically, hypothesis 3 stated that motivation would moderate the effects of self-monitoring on multi-task performance. Results indicate that the interaction between self-monitoring and the incentive had no significant effect on performance for any of the tasks. Hypothesis 3 was not supported. Hypothesis 4 stated that process feedback would improve multi-task performance. This hypothesis was supported. The regression analysis showed that process feedback had a significant effect on performance for the situational judgment task and report writing task. When participants were given clues on how best to approach the tasks, they performed more effectively than individuals who did not receive this information.

Finally, hypothesis 5 examined the three-way interaction between self-monitoring, the incentive, and process feedback. The hypothesis stated that self-monitoring, motivation, and process feedback would interact to effect multi-task performance. Hypothesis 5 was not supported. The proposed three-way interaction did not have a significant effect on simulation performance for any of the three tasks.

Table 3. Test of hypothesized model

	Schedule B			Judgment test B			Report B		
Step 1									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A	.18*	.12	.21*	.12	.07	.14	.50*	.33	.35*
ACT	.28*		.27*	.22*		.22*	.48*		.33*
Change R^2		.12*			.07*			.33*	
Step 2									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A		.15	.20*		.09	.15		.42	.35*
ACT			.27*			.22*			.33*
Self Monitoring	-.11		-.07	-.01		-.04	.05		-.01
Process Feedback	.11		.11	.13		.15*	.32*		.30*
Incentive	-.08		-.09	.03		.04	-.04		-.03
Change R^2		.03			.03			.09*	
Step 3									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A		.16	.22*		.10	.16*		.42	.34*
ACT			.27*			.22*			.33*
Self Monitoring			.04			.01			-.02
Process Feedback			.82			-.03			.25
Incentive			-.16			.29			.06
Feedback x Self-monitoring			-.77			.12			.11
Incentive x Self-monitoring			.03			-.34			-.02
Feedback x Incentive			.06			.13			-.10
Change R^2		.02			.01			.004	
Step 4									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A		.16	.22*		.12	.15*		.43	.34*
ACT			.27*			.22*			.33*
Self Monitoring			.03			.08			.02
Process Feedback			.70			.58			.62
Incentive			-.22			.58			.24
Feedback x Self-monitoring			-.65			-.51			-.27
Incentive x Self-monitoring			.09			-.66			-.22
Feedback x Incentive			.24			-.81			-.67
Feedback x Incentive x S.M.			-.18			.96			.58
Change R^2		.00			.01			.004	

*p<.05

Supplemental Analyses

After testing the initial hypotheses, several supplemental analyses were conducted. First, the sub-scales of self-monitoring were examined. Previous studies using the scale have found that the awareness and ability sub-scales relate to different aspects of performance (Lassk et al., 1992; Goolsby et al., 1992). In addition, the inter-correlations between these subscales indicate that they represent different constructs (r = .40). For these reasons, the individual effects of Lennox & Wolfe's (1984) self-monitoring sub scales were examined. No main effects were found for either of the scales (Table 4).

When examining the scheduling task however, there was a marginally significant ($p<.10$) three-way interaction between process feedback, the incentive, and the awareness scale of the self-monitoring measure. While a three-way interaction was hypothesized, the data were opposite to the relationship expected (see figure 4).

In the absence of feedback, it was expected that motivation would have a positive effect on performance for both high and low self-monitors. The data did not support this expectation. The incentive appeared to have no effect on high self-monitors and a negative effect for low self-monitors. High self-monitors performed consistently well whether or not an incentive was offered. Low self-monitors on the other hand actually showed a decline in performance as a result of being offered an incentive.

Table 4. Supplemental analyses using awareness and ability sub-scales of Lennox and Wolfe's measure

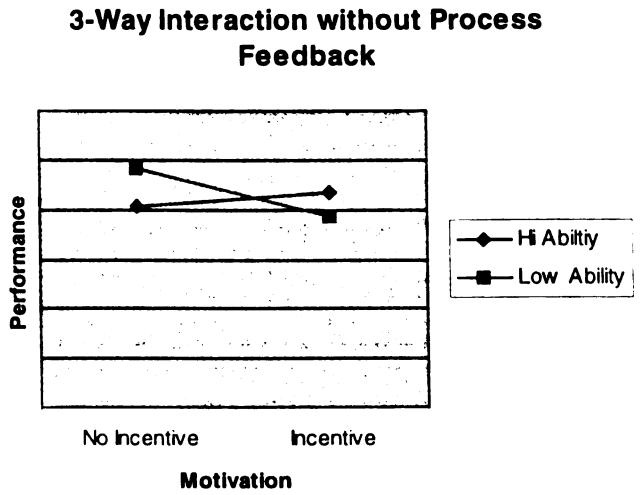
	Schedule B			Judgment test B			Report B		
Step 1									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A	.18*	.12	.21*	.12	.07	.14	.50*	.33	.36*
ACT	.28*		.27*	.22*		.22*	.48*		.33*
Change R^2		.12*			.07*			.33*	
Step 2									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A		.15	.18*		.10	.14		.43	.34*
ACT			.27*			.21*			.33*
Process Feedback	.11		.10	.13		.15	.32*		.30*
Self Monitoring Aware	-.04		.04	.01		.04	.11		.04
Self Monitoring Ability	-.15*		-.13	-.04		-.09	-.03		-.05
Incentive	-.08		-.08	.03		.04	-.04		-.02
Change R^2		.04			.03			.10*	
Step 3									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A		.18	.19*		.11	.16*		.43	.34*
ACT			.27*			.22*			.33*
Process Feedback			.71			.01			.18
Self Monitoring Aware			.21			.09			.01
Self Monitoring Ability			-.19			-.07			-.04
Incentive			-.06			.29			.10
Feedback x S.M. Aware			-.46			.00			.25
Feedback x S.M. Ability			-.24			.06			-.08
Feedback x Incentive			.10			.14			-.08
Incentive x S.M. Aware			-.55			-.13			-.15
Incentive x S.M. Ability			-.49			-.22			.08
Change R^2		.03			.01			.004	
Step 4									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A		.20	.18*		.13	.15*		.44	.34*
ACT			.27*			.22*			.33*
Process Feedback			.64			.54			.61
Self Monitoring Aware			.27			.09			.07
Self Monitoring Ability			-.31*			.02			-.06
Incentive			-.11			.53			.28
Feedback x S.M. Aware			-.86			-.21			-.29
Feedback x S.M. Ability			.25			-.29			.02
Feedback x Incentive			.27			-.66			-.67
Incentive x S.M. Aware			-1.1+			-.03			-.50
Incentive x S.M. Ability			1.07*			-.59			.25
Feed x Incentive x Aware			.73			.16			.78
Feed x Incentive x Ability			-.94+			.68			-.19
Change R^2		.02			.01			.006	

*p<.05 +p<.10

In the presence of process feedback, motivation seemed to have a non-significant, negative effect on performance for both high and low self-monitors such that performance declined in the presence of an incentive. What is unusual is the effect of process feedback on high and low self-monitors. Performance for low self-monitors is significantly higher than for high self-monitors, which is completely contrary to what was expected. The expectation was that process feedback would have the most positive effect on high self-monitors and the effect would only increase in the presence of an incentive. The data however, indicate that process feedback had a detrimental effect on the performance of high self-monitors.

Having described the three way interaction between process feedback, the incentive, and the ability scale of the self-monitoring measure, it is important to mention that the beta weight and change in R^2 for the interaction was non-significant ($p>.05$). Given the lack of interpretability of this interaction as well as its marginal impact on performance it is perhaps best to conclude that it is spurious. The effects of the performance oriented self-monitoring scales were also examined. No significant effects were found.

A final set of analyses was conducted in which the self-report, motivation measure was used in place of the dichotomous incentive variable. The motivation measure was designed as a manipulation check and was administered to participants at the end of the simulation. Results indicated a main effect of the self-report motivation measure for the scheduling task and report writing task (Table 5). Participants who were highly motivated, performed better on both tasks than those who were not motivated. This finding is consistent with hypothesis 2 that proposed a main effect from motivation.



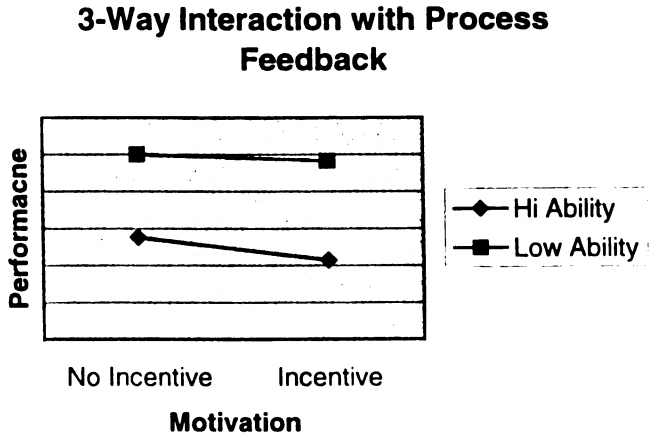


Figure 4. *Three way interaction between self-monitoring, motivation, and process feedback*

Table 5. Supplemental analyses using the self-report, motivation measure in place of the incentive condition

	Schedule B			Judgment test B			Report B		
Step 1									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A	.18*	.12	.21*	.12	.07	.14	.50*	.33	.36*
ACT	.28*		.27*	.22*		.22*	.48*		.33*
Change R^2		.12*			.07*			.33*	
Step 2									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A		.17	.19*		.09	.14		.45	.34*
ACT			.25*			.22*			.31*
Process Feedback	.11		.10	.13		.15*	.32*		.30*
Self Monitoring	-.11		-.05	-.01		-.04	.05		.02
Motivation	.15*		.17*	.05		-.02	.22*		.15*
Change R^2		.05*			.02			.12*	
Step 3									
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A		.21	.20*		.10	.14		.45	.34*
ACT			.26*			.22*			.32*
Process Feedback			1.72*			.01			.62
Self Monitoring			-.58			.39			-.25
Motivation			-.41			.49			-.04
Feedback x Self-monitoring			-.74			.11			.13
Feedback x Motivation			-.93*			.02			-.47
Motivation x Self-monitoring			.90			-.64			.33
Change R^2		.05*			.01			.01	
Step 4	Change R^2 = .00			Change R^2 = .00			Change R^2 = .00		
Variable	r	R^2	Beta	r	R^2	Beta	r	R^2	Beta
Schedule/Judgment/Report A		.22	.21*		.10	.14		.46	.34*
ACT			.26*			.22*			.32*
Process Feedback			4.0			-.89			-1.07
Self Monitoring			-.34			.30			-.42
Motivation			-.14			.38			-.23
Feedback x Self-monitoring			-2.9			1.0			1.8
Feedback x Motivation			-3.3			.96			1.3
Motivation x Self-monitoring			.56			-.50			.58
Feed x Motivation x S.M.			2.3			-.91			-1.7
Change R^2		.00			.00			.00	

*p<.05

In addition, there was an interaction between motivation and process feedback for the scheduling task. While this interaction was not hypothesized it was significant and produced a significant change in R^2. As can be seen from the graph (figure 5), when participants are highly motivated, performance is high and process feedback has little additional effect. When the participant indicated low motivation however, process feedback played a significant role in improving performance. When no feedback was given, low motivated individuals performed poorly. However, when process feedback was provided, the performance of low motivated individuals increased to a level similar to the highly motivated individuals who received process feedback.

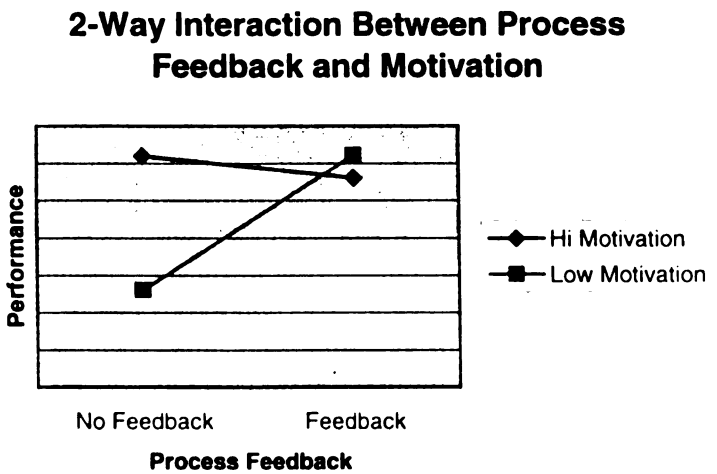


Figure 5. *Interaction between process feedback and motivation measure*

Discussion

Test of the Hypotheses

A key component of this study was the relationship of self-monitoring to adaptive performance. The reason for including self-monitoring was the assumption that being aware of one's surroundings and having the ability to perform effectively would

contribute to effective performance (hypothesis 1). Furthermore, it was hypothesized that motivation would interact with self-monitoring to affect performance (hypothesis 3), and finally that self-monitoring would interact with motivation and process feedback (hypothesis 5). The expectation was that high self-monitors would consistently perform better than low self-monitors due to high self-monitors' increased environmental awareness and ability to perform. The effect of this difference was expected to be much greater in the presence of motivation and process feedback. The actual results however, were quite different.

Self-monitoring

Hypothesis 1 in which high self-monitors were expected to outperform low self-monitors was not supported. Self-monitoring had no relationship to performance for any of the three simulation tasks. One explanation for this finding is that self-monitoring as conceptualized and measured by Lennox and Wolfe's (1984) instrument is not appropriate for multi-tasking, adaptive performance. Studies that have found significant relationships between work performance and self-monitoring have consistently examined jobs that involve interpersonal interaction (Caldwell and O'Reilly, 1982; Goolsby et al., 1992; Lassk et al., 1992). Furthermore, the construct was originally developed to explain the ability of individuals to match their interpersonal style to the demands of the situation (Snyder, 1974). Perhaps awareness of one's environment and ability to modify behavior are concepts that are relevant to adaptive performance, but not in the way that Lennox and Wolfe's (1984) instrument was able to measure. This study attempted to assess the concepts embedded in self-monitoring as they might relate to task performance, but the results were inconsistent with the hypothesized relationships. Given the lack of validity

information on the performance oriented self-monitoring scale and the fact that the ability sub-scale had a negative correlation with the self-monitoring ability scale, it is difficult to draw any definitive conclusions from the results obtained with the new scales.

The two-way interaction between motivation and self-monitoring proposed in hypotheses 3 was not supported. Given the problems associated with the motivation manipulation and failure to find a relationship between self-monitoring and performance, it is not surprising that no interaction was found. It is not clear what effect the incentive had on participants and it is apparent that self-monitoring as defined by Lennox and Wolfe (1984) was not relevant to the adaptive performance examined in this study. The failure to find a significant interaction may be a result of flaws in the design of the study (i.e., the manipulation of motivation and the operationalization/measurement of self-monitoring). Alternatively, self-monitoring may be a construct that is not relevant to multi-task performance. In either case, no interaction was found.

A three-way interaction between self-monitoring, motivation, and process feedback was also hypothesized (hypothesis 5) but not supported. The problems associated with hypothesis 1 and 3 are relevant here as well. The failure to find a three way interaction could very well be a result of flaws in the manipulation of motivation or a lack of a relationship between self-monitoring and task performance.

Motivation

The hypothesized main effect for motivation (hypothesis 2) was technically not supported. The data were consistent with hypothesis 2 however, when the self-report, motivation measure was used in place of the dichotomous, incentive variable in the

analyses. Individuals who indicated being highly motivated did in fact perform more effectively on the scheduling and report writing tasks.

The significant findings from the self-report, motivation measure, however, are not without qualifiers. The "main effect" of motivation may be a reflection of simulation performance rather than true motivation. Chan, Schmitt, DeShon, Clause, and Delbridge (1997) found that self-reported, test taking motivation was significantly affected by previous task performance. Because the motivation measure in this study was given at the conclusion of the simulation, it is quite possible that it measured perceptions of performance rather than self-reported motivation. In other words, the individuals who felt that they performed well indicated high motivation after the simulation, and did in fact perform well, while individuals who felt that they performed poorly indicated low motivation, and did in fact perform poorly. This explanation could account for the significant main effect of the motivation measure as well as the significant interaction between the motivation measure and process feedback, as will be discussed later.

The fact that no significant main effect was found for the incentive could be attributed to several factors. One possibility is that participants were simply not motivated by the incentive. Perhaps offering a $10 prize for effective performance was not a sufficient motivator to encourage additional effort. Alternatively, it could be that the incentive was perceived as a goal by some of the participants (i.e., perform in the top 50%). Research on goal setting has found that for complex tasks, difficult specific goals can have a detrimental effect on performance (Wood, Mento, and Locke, 1987). Thus the incentive may have had a detrimental effect on performance for some individuals. Taken as a whole it is possible that some participants were effectively motivated by the incentive

while others were either not motivated or negatively affected by the incentive. Any combination of these potential outcomes could explain the lack of a significant main effect due to the incentive.

The motivation measure also interacted with process feedback. The process feedback appeared to have a compensatory effect on motivation. When highly motivated, participants performed well on the scheduling task regardless of receiving process feedback. This finding is consistent with research on motivation (Ajzen and Madden, 1986). Individuals who are highly motivated can achieve effective levels of performance by dedicating additional effort or attention to the task.

It is when motivation was low that process feedback became important. Participants who were low in motivation performed very poorly when no process feedback was given. However, when given process feedback, low motivated individuals were able to achieve the same level of performance as the highly motivated participants. These findings are consistent with feedback research (Earley et al., 1990; Korsgaard and Diddams, 1996). The process feedback was designed to improve performance. When motivation was low, providing individuals with strategies on how to perform did in fact improve performance.

Another plausible explanation is that the motivation measure was actually measuring simulation performance as discussed earlier. When "motivation" or perceived performance was high, process feedback had little effect. However, when participants indicated low "motivation" or poor perceived performance, process feedback compensated by providing participants with effective strategies that improved performance.

Process feedback.

The one hypothesis that was supported was hypothesis 4 which proposed a main effect of process feedback. Providing participants with process feedback had a significant positive effect on situational judgment task performance and report writing performance. The effects of feedback on performance are not new however. Previous studies have demonstrated that process feedback can enhance performance (Earley et al., 1990; Korsgaard and Diddams, 1996). What this study contributes is that it demonstrates the beneficial effects of process feedback for performance in a multi-tasking environment.

Studies have shown that individuals seek feedback in a novel situation (Ashford, 1986) and that seeking information relates to performance (Morrison, 1993). This study added to these findings by showing that process feedback which provides individuals with cues on how best to approach a task, will in fact improve performance in a multi-tasking environment. Moreover, this study demonstrates the potential benefits of process feedback for individuals who are adapting to a new job or performing in a novel environment. While some situations requiring adaptation do not lend themselves to offering process feedback or guidance (e.g., crisis situations, new situations in which there is no established guidelines to follow), other situations do have the potential for performance enhancement.

Potential Applications of Research

Situations in which the individual is required to adapt to a new situation such as an overseas assignment could be a perfect opportunity to utilize process feedback. Individuals who have had experience in the adaptation process could mentor inexperienced individuals and aid in their adjustment. Similarly, new managers who may

lack experience could benefit greatly from the advice and guidance of a senior manager who has experience in the position and can share helpful information. Perhaps focusing the exchange of information on providing task relevant information with the use of process feedback could greatly enhance the adaptation and adjustment process of new managers.

Limitations of the Study

Student sample

The most obvious limitation of this study is that is a laboratory experiment, using college students. While the setting allowed for greater control and a more precise assessment of the effects of various environmental and individual difference characteristics, it limits the generalizability of the findings. Future research should examine the effects of process feedback, motivation, and self-monitoring in an applied setting to see if the hypothesized relationships can be found. Specifically, the role of process feedback, self-monitoring, and motivation could be examined to see if they relate to the adaptation process of new managers.

Measuring adaptive performance

Another potential concern is the low or non-significant correlations between the tasks used in the simulation. Performance in this study was measured with a multi-tasking, managerial simulation. The simulation involved three distinct tasks designed to replicate those commonly encountered by managerial personnel. It was designed to be one assessment of adaptive performance that consisted of three sub-sections. Ideally, performance on one task would have been positively related to performance on the other tasks, due to the fact that performance was a function of one's capacity to adapt. The

results however, indicated that performance on the various tasks was not correlated; aggregating scores on the three tasks to form a composite measure did not result in a meaningful assessment of adaptive performance. Therefore, the three performance measures were treated as alternate aspects of adaptive performance and analyzed separately.

Failure to find relationships between the three measures could be attributable to obvious content differences between tasks. The non-cognitive skills needed for the situational judgment task, are quite different from the analytical skills needed for the scheduling task, or the math and verbal skills needed for the report writing task. However, it could also be a flaw in the design of the simulation. Perhaps certain tasks were more reactive than others to participants' ability to adapt. As a result, the effects of process feedback were more pronounced for the scheduling task, for example, than the situational judgment task.

In examining the individual results obtained for each of the three tasks, it appeared that the scheduling task was most consistently affected by the experimental manipulations and individual difference characteristics. The nature of the three simulation tasks however are consistent with this finding. The scheduling task was the task that changed most significantly from Part I to Part II of the simulation and was the task that offered the most opportunity to adapt. Specifically, in Part I of the simulation, participants had to listen to the audio messages and copy the appointments in the appropriate time slots. In Part II of the simulation, the task was significantly more complex. Participants had to listen to the audio messages that involved employee availability across 5 days. Using this information from eight individuals, the participants

had to construct a work schedule that accommodated all eight employees while also adhering to the scheduling guidelines (i.e., 4 or 8 hours shifts and 2 employees in the office at all times). Following the same strategy for the second schedule that was used on the first schedule would be highly ineffective. In fact, the data were consistent with this notion. Performance on the first scheduling task correlated .16 with performance on the second scheduling task. This is in contrast to the report writing task that had a correlation of .50 between Part I and Part II. Thus performance on the first scheduling task is virtually unrelated to performance on the second scheduling task. Given the other results of the study, it would appear that the lack of a relationship is attributable to participant adaptation, in which strategies were modified in response to process feedback.

Motivation manipulation

Another concern is the differences between the incentive condition and the self-report manipulation check. Presumably, offering an incentive should have had a positive effect on motivation resulting in a positive correlation between the incentive condition and the manipulation measure. The data did not support this assumption. Motivation was unrelated to the incentive condition and the incentive and manipulation check were related to different constructs.

Motivation in this study was defined as intention to act. According to Ajzen and Madden (1986) intention to act is related to performance. In addition, attitudes, subjective norms, and perceived behavioral control are related to intentions. Perhaps the incentive affected intentions in the sense that it established a subjective norm or environmental demand that stressed effective performance. The manipulation check however, may have assessed performance or ability. The four-item, motivation measure,

which was designed to assess intention, was administered after the simulation and asked participants to indicate whether they tried to perform well.

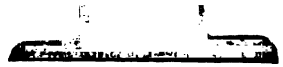
It is quite possible that after completing Part II of the simulation, participants knew how they performed on the simulation and answered the motivation questionnaire based on their perceived performance rather than their actual effort or intention to act. This explanation is consistent with Chan et al.,'s (1997) findings and explains the significant relationship between performance and the self-report motivation measure for the scheduling and report writing tasks. Perhaps if the self-report motivation measure had been administered prior to Part II of the simulation and after offering the incentive, there would have been greater consistency between the incentive condition and motivation measure. Nevertheless, this inconsistency does not appear to be a significant problem for the study. The self-report, motivation measure was included merely as a manipulation check. What the data indicate is that it may not have been an appropriate measure given the purpose of the scale and design of the study. This finding does however complicate the interpretation of the effects attributable to the incentive. The intention of the incentive was to influence motivation as seen by differences in performance. However, this effect was not found and further, the self-report motivation measure designed to assess the effectiveness of the manipulation did not relate to the incentive. Thus, it is difficult to determine what impact the incentive actually had on motivation and performance. These findings also highlight the potential for moderating variables that were not considered. Participants' perceptions of the test and level of self-efficacy may have interacted with the incentive to produce unanticipated effects on motivation and

performance. Furthermore, the incentive may have functioned as a difficult, specific goal for some participants and therefore hindered their performance.

Conclusion

Despite some limitations however, this study contributes to our knowledge of adaptive performance. The data in this study identify ways of encouraging and even enhancing adaptive performance. Providing individuals with information that guides performance, whether it eliminates erroneous strategies or simply presents more effective ones, can improve adaptive performance. This finding indicates the beneficial effects of providing individuals with process feedback as they adapt to a new task.

The purpose of this study was to examine environmental conditions and individual difference characteristics that relate to adaptive performance. The data seem to indicate that process feedback plays an important role in adaptive performance. Future research could build upon these findings by examining alternative environments or task demands to see if feedback continues to improve adaptive performance. Future studies could also examine other individual differences to identify characteristics that distinguish adaptive from non-adaptive individuals. Perhaps self-efficacy or goal orientation (e.g., mastery versus performance) could be examined. Finally, future studies should examine aspects of the environment or individual that could be shaped or trained. Embedding feedback within the task itself or within the environment in which the task is occurring may enhance adaptation. Likewise, training individuals in effective task strategies or providing them with a mentor or model of performance, may also lead to more effective adaptation and performance.



In conclusion, this study demonstrates the need for additional research in the area of adaptive performance. The diversity of definitions and operationalizations of adaptive performance, combined with the small quantity of empirical research in the area highlight the need for further investigation. As job requirements continue to change, adaptability will become increasingly important. Selecting and training individuals for these types of positions will require additional research and a better understanding of adaptability and the factors contributing to successful adaptive performance.

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APPENDICES

APPENDIX A

Power Analyses

The power analysis involved a test for a three-way interaction in which the main effects for feedback, motivation, and self monitoring, their interactions (feedback x motivation, feedback x self-monitoring, and self-monitoring x motivation), and the three way interaction (feedback x self-monitoring x self-monitoring) were tested. A power analysis was conducted for each of the main effects, the combined main effects, and the interactions.

Main Effects

The power of the main effects were tested using Cohen's (1992) power analysis for product moment correlations. Estimates for the three independent variables were obtained from existing research. Based on Mento, Steel, and Karren (1987) meta-analysis on the moderating effects of feedback on goal directed performance, a correlation of .36 was obtained. Barrick and Mount's (1991) correlation of .23 for conscientiousness was used as an estimate for the effects of motivation, and self-monitoring estimates were obtained from Goolsby et al. (1992) r = .28.

When compared to Cohen's (1992) table of effect sizes these correlations ranked in the medium (.30) range for feedback, motivation, and for self-monitoring. To obtain .80 power at $\alpha = .05$ would require a sample size of 85 participants for the feedback and self-monitoring variables and slightly more for the motivation variable (approximately 150 participants).

Combined Main Effects

The next step of the power analysis was to test the combined effects of these three variables using Cohen's (1992) f^2 test for multiple R [$f^2 = R^2 / (1 - R^2)$]. At the conceptual level, there was no reason to expect a relationship between the variables being studied.

Feedback was expected to have no relationship to motivation or self-monitoring. Further, motivation was not expected to relate to self-monitoring. For this reason, the correlations mentioned above were squared and summed resulting in an estimated R^2 of .26. Using the equation shown above, f^2 was computed to be .35. According to Cohen's (1992) table of effect size $f^2 = .35$ is a large effect. To obtain .80 power at $\alpha = .05$ with a large effect size and three independent variables would require a sample size of 34 participants.

Interactions

The interactions were tested using Cohen's (1988) f^2 equation for change in R^2 [$f^2 = (R^2_{Y.A,B} - R^2_{Y.A})/ (1- R^2_{Y.A,B})$; where Y is the accounted variance, A represents the initial equation, B represents the equation with the addition of the interaction term]. Due to the small expected change in R^2 resulting from the interactions, they were tested as a group. There are a total of four interactions (feedback x motivation, feedback x self-monitoring, motivation x self-monitoring, and feedback x motivation x self-monitoring). The expected change in R^2 for the combined interaction effects was estimated to be .06. Using the equation shown above, an f^2 of .08 was computed; this value falls between Cohen's (1992) small (.02) and medium (.15) effect size. To obtain .80 power at $\alpha = .05$ with seven variables (three main effects and four interaction terms) would require a sample size between 726 (small effect size) and 102 (medium effect size). Given the size of the expected change, approximately 200 participants will be needed to achieve significance for the interaction terms.

Conclusion

Based on these power analyses, 85 participants will be needed to achieve significant main effects, 34 for the combined main effects, and 200 for the interactions.

For this reason a minimum sample size of 200 participants is recommended to achieve .80 power at α=.05 for all of the main effects and interactions hypothesized.

APPENDIX B

Measures

Motivation Index

Please indicate the extent to which you agree with each of the following statements using this 5-point scale:

① **Strongly Disagree**
② **Disagree**
③ **Neither Agree nor Disagree**
④ **Agree**
⑤ **Strongly Agree**

1.	I tried to perform well on this task	① ② ③ ④ ⑤
2.	I tried to perform in the top 50% of scorers on this task	① ② ③ ④ ⑤
3.	I am not concerned with how well I performed on this task (R)	① ② ③ ④ ⑤
4.	Performing well on this task is not important to me (R)	① ② ③ ④ ⑤

Lennox & Wolfe's (1984) Self Monitoring Scale

Please indicate the extent to which you agree with each of the following statements using this 5-point scale:

① **Strongly Disagree**
② **Disagree**
③ **Neither Agree nor Disagree**
④ **Agree**
⑤ **Strongly Agree**

Attention to Social Comparison Information

1.	It is my feeling that if everyone else in a group is behaving in a certain manner, this must be the proper way to behave.	① ② ③ ④ ⑤
2.	I actively avoid wearing clothes that are not in style.	① ② ③ ④ ⑤
3.	At parties I usually try to behave in a manner that makes me fit in.	① ② ③ ④ ⑤
4.	When I am uncertain how to act in a social situation, I look to the behavior of others or cues.	① ② ③ ④ ⑤
5.	I try to pay attention to the reactions of others to my behavior in order to avoid being out of place.	① ② ③ ④ ⑤
6.	I find that I tend to pick up slang expressions from others and use them as part of my own vocabulary.	① ② ③ ④ ⑤
7.	I tend to pay attention to what others are wearing.	① ② ③ ④ ⑤
8.	The slightest look of disapproval in the eyes of a person with whom I am interacting is enough to make me change my approach.	① ② ③ ④ ⑤
9.	When with a group of people, it is important to me that I fit in.	① ② ③ ④ ⑤
10.	My behavior often depends on how I feel others wish me to behave.	① ② ③ ④ ⑤
11.	If I am the least bit uncertain as to how to act in a social situation, I look to the behavior of others for cues.	① ② ③ ④ ⑤
12.	I usually keep up with clothing style changes by watching what others wear.	① ② ③ ④ ⑤
13.	When in a social situation, I tend not to follow the crowd, but instead behave in a manner that suits my particular mood at the time. (R)	① ② ③ ④ ⑤

alpha = .83

Lennox & Wolfe's (1984) Self Monitoring Scale

Please indicate the extent to which you agree with each of the following statements using this 5-point scale:

① **Strongly Disagree**
② **Disagree**
③ **Neither Agree nor Disagree**
④ **Agree**
⑤ **Strongly Agree**

Cross-Situational Variables (Ability to modify behavior)

1. I tend to show different sides of myself to different people.	① ② ③ ④ ⑤
2. In different situations and with different people, I often act like very different persons.	① ② ③ ④ ⑤
3. Although I know myself, I find that others do not know me.	① ② ③ ④ ⑤
4. Different situations can make me behave like very different people.	① ② ③ ④ ⑤
5. Different people tend to have different impression about the type of person I am.	① ② ③ ④ ⑤
6. I am not always the person I appear to be.	① ② ③ ④ ⑤
7. I sometimes have the feeling that people don't know who I really am.	① ② ③ ④ ⑤

alpha = .82
total alpha = .86

Supplemental Self-Monitoring Scale

Please indicate the extent to which you agree with each of the following statements using this 5-point scale:

① **Strongly Disagree**
② **Disagree**
③ **Neither Agree nor Disagree**
④ **Agree**
⑤ **Strongly Agree**

Self-Monitoring Measure (Awareness of one's environment)

1. I like to know how well I am performing (in class, at work, etc.).	① ② ③ ④ ⑤
2. When placed in a new situation, I watch other people to learn how to act.	① ② ③ ④ ⑤
3. Before taking a test, I like to review the professor's old exams to know what and how to study.	① ② ③ ④ ⑤
4. When the television or radio is on, I have a hard time concentrating on anything else.	① ② ③ ④ ⑤
5. The environment I am in influences how I behave.	① ② ③ ④ ⑤
6. Before writing a report, I try to determine exactly what the professor is looking for.	① ② ③ ④ ⑤
7. I act very differently depending on the situation I am in.	① ② ③ ④ ⑤
8. When forced to work under time constraints, I keep track of how much time I have to complete the tasks.	① ② ③ ④ ⑤
9. When performing a task, I periodically assess my performance to make sure that I am doing well.	① ② ③ ④ ⑤
10. I eavesdrop on other people's conversations.	① ② ③ ④ ⑤

Supplemental Self-Monitoring Scale

Please indicate the extent to which you agree with each of the following statements using this 5-point scale:

① **Strongly Disagree**
② **Disagree**
③ **Neither Agree nor Disagree**
④ **Agree**
⑤ **Strongly Agree**

Self-Monitoring Measure (Ability to modify one's behavior to the environment)

1. When placed in a new setting (new class, new school, new job, etc.) I am able to quickly adapt my behavior to the situation. ① ② ③ ④ ⑤
2. I am able to argue for either side of an issue depending on what is expected of me. ① ② ③ ④ ⑤
3. I am able to perform a task well even when the task is not something I feel like doing. ① ② ③ ④ ⑤
4. I am able to learn new tasks quickly. ① ② ③ ④ ⑤
5. I am able to adjust my behavior to perform well on most tasks. ① ② ③ ④ ⑤
6. I am able to develop creative solutions to problems. ① ② ③ ④ ⑤
7. I am able to do well in a class even if I am not interested in the topic. ① ② ③ ④ ⑤
8. When forced to work under time constraints, I am able to pace myself and complete the necessary tasks. ① ② ③ ④ ⑤
9. I am able to listen to information while writing or performing other tasks. ① ② ③ ④ ⑤
10. When faced with a difficult task, I am able to find better, more efficient ways of performing the task. ① ② ③ ④ ⑤
11. I am able to perform multiple tasks simultaneously. ① ② ③ ④ ⑤

Demographic Data Form

Please complete the following information:

PID_____
(all information will be kept confidential)

Year:
① **Freshman**
② **Sophomore**
③ **Junior**
④ **Senior**
⑤ **Other**

Major Field of Study:_____

Age:_____

Sex:
① **Male**
② **Female**

GPA:_____

Race:
① **African American**
② **Asian**
③ **Hispanic**
④ **Native American**
⑤ **White**
⑥ **Other**

ACT/SAT Score:_____

APPENDIX C

Simulation Materials

Today you will be participating in a managerial simulation. The simulation was designed to include the types of tasks commonly associated with the job of supervisor. You will be working for CLR Shipping Inc. CLR is a shipping firm based in Detroit, MI. The company contracts with large manufacturers (e.g., General Motors, Ford, Nabisco, Proctor & Gambill, IBM, etc.,) to transport their products to various locations through out the United States.

You have been hired to work as **Supervisor of the Quality Control Department.** The main purpose of the quality control department is to improve CLR's performance. Your job responsibilities include the following:

- **Scheduling appointments/employees**
- **Advising CLR staff on situational judgment problems**
- **Writing reports**

Today's simulation will include each of these tasks. The packet of information that you've been given contains all of the necessary materials for the simulation. In addition, portions of the scheduling and situational judgment tasks will be presented in audio. While performing the written tasks, you will be interrupted with audio messages. It is important that you pay close attention to the audio information as it will be needed to complete the simulation.

The simulation has two parts. You will begin with Part I. Part I consists of the following tasks:

1. **Scheduling personal appointments**
2. **Advising CLR staff on situational judgment problems**
3. **Writing summary reports**

You will have 25 minutes to complete Part I

Part II of the simulation will consist of the following tasks:

1. **Creating an employee work schedule**
2. **Advising CLR staff on situational judgment problems**
3. **Writing summary reports**

You will have 35 minutes to complete Part II

The instruction to Part I are on the following pages. You will receive instructions to Part II following the break.

Managerial Simulation
Part I

1. Scheduling personal appointments

As a supervisor you are continually scheduling appointments and attending meetings. While attending to your paper work, you will receive audio messages concerning your schedule for next week.

The packet of materials labeled **Personal Appointment Book** contains the needed materials and additional instructions for the appointment scheduling task.

2. Advising CLR staff on situational judgment problems

As supervisor of the quality control department, CLR employees look to you for guidance. Periodically throughout your day, employees will call you for advice on how to address situations with other employees or customers. When confronted with a problem it is imperative that you consider the problem carefully, and give a response that will address the problem in the most effective manner possible. Your responses should reflect how **you** would behave in the situations.

The packet of materials labeled **Situational Judgment Items** contains answer sheets on which to write your responses.

3. Writing summary reports

The main focus of the quality control department is continuous improvement. One of your key job responsibilities is to identify and implement new policies and procedures. For Part I of the simulation you will be working on the following two tasks:

1. **Ordering new office furniture**
2. **Evaluate Employee Overtime Expenses**

You have asked members of your staff to research information on these topics. The result of their work has been summarized for you. Your task is to review the information and use it to make recommendations to top management concerning each of these topics.

The packet of materials labeled **Summary Reports** contains the needed materials and additional instructions.

You will have 25 minutes to complete Part I
If you finish early please remain quiet and seated until everyone has finished

Personal Appointment Book

The following materials are to be used to schedule your appointments for next week. Every week you have to attend a staff meeting, team meeting, and project meeting. The days and times for each are listed below.

Meeting	Day/Time
Staff Meeting	Tuesday 8:00-10:00
Team Meeting	Wednesday 10:00-11:00
Project Planning	Friday 12:00-2:00

You have also been trying to schedule meetings with several individuals whose names are listed below:

- Ken
- Linda
- Mike
- Nicole
- Oscar
- Patricia

You have left messages with each of them and are waiting for them to call you back. While attending to your other responsibilities, you will receive messages from them confirming their appointments with you. Use the information from the phone calls and meeting requirements (listed above) to schedule your appointments for next week. Record your appointments on **Answer Sheet #1**.

For each appointment write the name of the meeting (staff, team, project) or person (Ken, Linda, etc.) and draw an arrow through the times you will be meeting. For example, if you have a meeting with Dan on Monday from 8:00 to 10:00 you would mark your appointment book as follows:

Example:

	Monday
8	Dan
9	↓
10	
11	

Record all of your meetings & appointments on Answer Sheet #1.

Answer Sheet # 1

Personal Appointment Book

Monday	Tuesday	Wednesday
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
Thursday	**Friday**	**Notes:**
8	8	
9	9	
10	10	
11	11	
12	12	
1	1	
2	2	
3	3	
4	4	
5	5	

Situational Judgment Items

Throughout the day, employees will call for advice on how to address situations with other employees or customers. When confronted with a problem it is imperative that you consider the situation carefully, and give a response that will address the problem in the most effective manner possible. Your responses should reflect how **you** would behave in the situations.

Answer Sheet #2

Situational Judgment Items 1 & 2

Please write your response to situational judgment item #1 in the following space:

Please write your response to situational judgment item #2 in the following space:

Summary Reports

Two reports were compiled by your employees on the following topics:

1. **Ordering new office furniture**
2. **Evaluating Employee Overtime Expenses**

Your task is to review each of the reports and make recommendations using the answer sheets provided. You will be asked to provide specific information from the reports and make recommendations based on that information. The recommendations will be used by CLR's Board of Directors to make crucial decisions concerning CLR. Your recommendation will have a significant impact on management's decisions, so it is important that you consider all of the information when making your recommendations.

The summary reports are provided on the next pages. After each report there are tables for you to complete and questions for you to answer. Use **Answer Sheet #3-4** to record your responses. Calculators are not permitted.

Office Furniture

You have been asked to order new office furniture. There are 20 offices that need to be furnished. Each office will need 1 desk, 1 hutch, 1 chair, 1 book shelf, and 1 file cabinet.

Table 1 contains the prices charged by Companies A, B, & C for each item. Use this information to complete the tables and answer the questions on **Answer Sheet #3.**

Table 1

	Company A	Company B	Company C
Desk	$500	$550	$600
Hutch	$250	$350	$300
Chair	$150	$125	$100
Book Shelf	$200	$175	$150
File Cabinet	$100	$150	$200

Additional Notes:

- The desk, hutch, book shelf, and file cabinet are all made of dark mahogany.
- The chair has been ergonomically designed and can be adjusted to fit a wide range of body types.
- All three furniture companies will deliver and assemble furniture within five working days of order.

Use this information to complete Answer Sheets #3

Answer Sheet #3

Office Furniture Summary Report

Directions: *Use the information from* ***Table 1*** *to complete the following chart.*
Cost to furnish 1 office: add the cost of each item (desk, hutch, chair, etc.)
Cost to furnish 20 offices: multiply the cost of furnishing 1 office by 20.

	Cost to furnish 1 office	Cost to furnish 20 offices	
Company A	1.	**x 20**	4.
Company B	2.	**x 20**	5.
Company C	3.	**x 20**	6.

Directions: *Use the information from* ***Table 1*** *to complete the following chart.*
Lowest Priced Company: write the letter of the company (A, B, or C) offering the **lowest price** on the piece of furniture.
Cost per item: write the price of the item.
Cost for 20: write the price of purchasing 20 items.
Total: Add the total cost of furnishing 20 offices.

	Lowest Priced Company	Cost per item	Cost for 20	
Desk	7.	12.	**x 20**	17.
Hutch	8.	13.	**x 20**	18.
Chair	9.	14.	**x 20**	19.
Book Shelf	10.	15.	**x 20**	20.
File Cabinet	11.	16.	**x 20**	21.
			Total:	22.

Continue to the next page

Answer Sheet #3 continued

Office Furniture Summary Report

23. Where should the office furniture be purchased (company A, B, C, or a combination) if the goal is to furnish the offices for the least amount of money? Explain the reason for your answer.

Evaluate Employee Overtime Expenses

CLR's business has been improving rapidly. As a result, employees are being asked to work overtime to compensate for the extra workload. You have been asked to review the overtime statistics and decide whether CLR should hire additional personnel.

Chart 1 contains information on the number of overtime hours worked per department.
Chart 2 contains the cost of training one new employee (categorized by department).
Table 2 contains the hourly pay rate per department.

Chart 1 Weekly Overtime Hours by Department

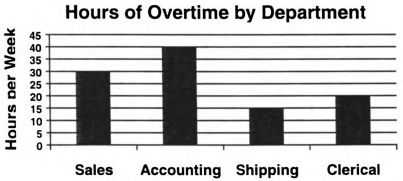


Chart 2 Training Cost by Department

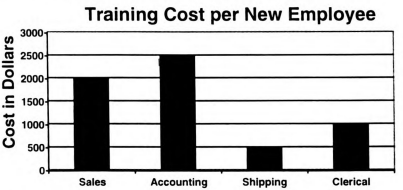


Table 2 Hourly Pay Rate

	Sales		Accounting		Shipping		Clerical	
	Over-time	New Hire	Over-time	New Hire	Over-time	New Hire	Over-time	New Hire
Hourly Wage	$15.00	$10.00	$12.00	$8.00	$10.00	$7.00	$9.00	$6.00

Use this information to complete **Answer Sheet #4**.

Answer Sheet #4

Employee Overtime Summary Report

Directions: *Use the information from Chart 1 and Table 2 to complete the following table.*

Overtime Hours: Number of overtime hours as indicated on Chart 1.
Overtime Pay Rate: Overtime hourly pay rate as indicate in Table 2.
Overtime Wages: Multiply overtime hours by overtime pay rate.
New Hire Pay Rate: New hire hourly pay rate as indicated in Table 2.
New Hire Wages: Multiply overtime hours by new hire pay rate.

Department	Overtime Hours	Overtime Pay Rate	Overtime Wages	Overtime Hours	New Hire Pay Rate	New Hire Wages
Sales	24.	28.	32.	36.	40.	44.
Accounting	25.	29.	33.	37.	41.	45.
Shipping	26.	30.	34.	38.	42.	46.
Clerical	27.	31.	35.	39.	43.	47.

Directions: *Use the information from the table above and Chart 2 to complete the following table.*

Overtime Wages: Enter values computed in the above table under **Overtime Wage** column.
New Hire Wages: Enter values computed in the above table under **New Hire Wages** column.
Weekly Savings: Subtract **New Hire Wages** from **Overtime Wages**.
4 Week Savings: Multiply **Weekly Savings** by 4.
24 Week savings: Multiply **Weekly Savings** by 24.
Training Costs: Enter the values from Chart 2.

Department	Overtime Wages	New Hire Wages	Weekly Savings	4 Week Savings	24 Week Savings	Training Costs
Sales	48.	52.	56.	60.	64.	68.
Accounting	49.	53.	57.	61.	65.	69.
Shipping	50.	54.	58.	62.	66.	70.
Clerical	51.	55.	59.	63.	67.	71.

Continue to the next page

Answer Sheet #4

Employee Overtime Summary Report Continued

72. Assuming the need for overtime persists for four (4) weeks, what would be the most cost effective strategy to compensate for the workload (i.e., continue paying overtime or hire new people).

73. If overtime persists for six (6) months (24 weeks), what would be the most cost effective strategy to compensate for the workload (i.e., continue paying overtime or hire new employees)?

Managerial Simulation
Part II

Consistent with Part I of the simulation, you are the supervisor of the quality control department for CLR Shipping Inc. For Part II of the simulation you will be completing the following tasks:

1. **Creating an employee work schedule**
2. **Advising CLR staff on situational judgment problems**
3. **Writing summary reports**

The packet of information that you've been given contains all of the necessary materials for the simulation. In addition, portions of the scheduling and situational judgment tasks will be presented in audio. While performing the written tasks, you will be interrupted with audio messages. It is important that you pay close attention to the audio information as it will be needed to complete the simulation.

Instructions

1. Creating an Employee Work Schedule

Because CLR is dedicated to serving its customers, the quality control department has instituted a toll-free support line to answer questions and address customer concerns. You have eight employees who answer phone calls. One of your supervisory responsibilities is to create the weekly work schedule for these employees.

The packet of materials labeled **Employee Work Schedule** contains the needed materials and additional instructions for the scheduling task.

2. Advising CLR Staff on Situational Judgment Problems

As supervisor of the quality control department, CLR employees look to you for guidance. Periodically throughout your day, employees will call you for advice on how to address situations with other employees or customers. When confronted with a problem it is imperative that you consider the problem carefully, and give a response that will address the problem in the most effective manner possible. Your responses should reflect how **you** would behave in the situations.

The packet of materials labeled **Situational Judgment Items** contains answer sheets on which to write your responses.

Continue to the next page

Managerial Simulation
Part II continued

3. Writing Summary Reports

The main focus of the quality control department is continuous improvement. After numerous discussions with CLR board of directors, the decision was made to introduce four improvements:

1.) Implement team based work units
2.) Move to a different office facility
3.) Connect CLR to the Internet
4.) Improve the training system

You have asked members of your staff to research information on these four topics. The result of their work is contained in four reports. Your task is to review the information and use it to make recommendations to top management concerning each of the four topics.

The packet of materials labeled **Summary Reports** contains the needed materials and additional instructions.

You will have 35 minutes to complete Part II
If you finish early please remain quiet and seated until everyone has finished

Employee Work Schedule

The following materials are to plan next weeks work schedule. You are responsible for writing the schedule for eight employees whose names are listed below. Next to each person's name is a list of the days and times for which they are ***normally*** available. Because the employees all work part-time, CLR has established a policy in which employees can call you by the end of the day to make special scheduling requests.

While attending to your other responsibilities, you will be receiving calls from your employees letting you know when they are available to work. Use the information to construct a work schedule for next week. Record the schedule on Answer Sheet #6.

Scheduling Guidelines

- Shifts are from 8am to 4pm Monday through Friday
- Two employees must be scheduled at all times
- Shifts can be either 4 or 8 hours long

A form for making notes and tracking employee's availability has been provided.

Employees:	**Availability**
Amanda	Available Monday, Tuesday, & Thursday
Bill	Available Monday, Wednesday, & Friday
Cathy	Available Monday, Tuesday, Wednesday, Thursday, & Friday
Dan	Available Monday, Wednesday, & Friday
Elaine	Available Monday, Tuesday, Wednesday, Thursday, & Friday
Frank	Available Monday, Wednesday, & Thursday
Georgia	Available Tuesday, Wednesday, & Friday
Henry	Available Wednesday & Friday

Use **Answer Sheet #6** to record the employee work schedule.

Answer Sheet #6

Employee Schedule

Scheduling Guidelines

- Shifts are from 8am to 4pm Monday through Friday
- Two employees must be scheduled at all times
- Shifts can be either 4 or 8 hours long

Please write the schedule on the following table:

Monday	Tuesday	Wednesday
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
1	1	1
2	2	2
3	3	3
4	4	4

Thursday	Friday	Notes:
8	8	
9	9	
10	10	
11	11	
12	12	
1	1	
2	2	
3	3	
4	4	

Employee Work Schedule

Scheduling Notes

Scheduling Guidelines

- Shifts are from 8am to 4pm Monday through Friday
- Two employees must be scheduled at all times
- Shifts can be either 4 or 8 hours long

The following is a chart to help you keep track of next weeks schedule. The chart is **provided for your convenience**. The chart is not a required part of the scheduling task. You are **not required** to use or complete this chart, and you **will not loose points** if you choose not to use it.

Amanda	M	T	W	Th	F
Bill	M	T	W	Th	F
Cathy	M	T	W	Th	F
Dan	M	T	W	Th	F
Elaine	M	T	W	Th	F
Frank	M	T	W	Th	F
Georgia	M	T	W	Th	F
Henry	M	T	W	Th	F

Situational Judgment Items

Throughout the day, employees will call for advice on how to address situations with other employees or customers. When confronted with a problem it is imperative that you consider the situation carefully, and give a response that will address the problem in the most effective manner possible. Your responses should reflect how **you** would behave in the situations.

Write your responses on the following answer sheets (Answer Sheets #7-9).

Answer Sheet #7

Situational Judgment Items 3 & 4

Please write your response to situational judgment item #3 in the following space:

Please write your response to situational judgment item #4 in the following space:

Answer Sheet #8

Situational Judgment Items 5 & 6

Please write your response to situational judgment item #5 in the following space:

Please write your response to situational judgment item #6 in the following space:

Answer Sheet #9

Situational Judgment Item 7

Please write your response to situational judgment item #7 in the following space:

Summary Reports

The following packet contains information on CLR policies and procedures. The reports were compiled by your employees on the following four topics:

1.) Team based work units
2.) Office facilities
3.) Internet carriers
4.) Training systems

Your task is to review each of the reports and make recommendations using the answer sheets provided. The answer sheets ask you to provide specific information from the reports and make recommendations based on that information. The recommendations will be used by CLR's Board of Directors to make crucial decisions concerning CLR. Your recommendation will have a significant impact on management's decisions; be sure to consider all of the information when making your recommendations.

There are four reports that follow. After each report is an answer sheet with tables for you to complete and questions for you to answer. **Write your responses directly on the answer sheets (Answer Sheets #11-14).**

Team Based Work Unit Report

In 1997 the quality control department tested a team based approach to office operations. Of the 50 office employees at CLR, six individuals were chosen to form the first team.

The team was given the responsibility for a 4 million dollar contract with a very prestigious and valued customer. Table 3 contains an itemized list of CLR's 1997 budget as well as the budget report from the team.

Table 3 1997 Financial Summary Report

Financial Summary Report		
	CLR's 1997 Results	**Team's 1997 Results**
Sales	$20,000,000	$4,000,000
Expenses		
Truck Maintenance	$2,000,000	$400,000
Transportation Costs	$5,000,000	$1,000,000
Transportation Overhead	$2,000,000	$200,000
Wages	$4,000,000	$800,000
Office/Warehouse Rent	$2,000,000	$400,000
Office Supplies/Equipment	$1,000,000	$200,000

Contents of Table 3

Sales: the total amount of money received from all shipping contracts in 1997.
Truck Maintenance: cost of any truck repairs or maintenance.
Transportation Costs: cost of shipping freight (i.e., gas, tolls, loading fees).
Transportation Overhead: cost of driving an empty truck between jobs.
Wages: costs of CLR employee salaries.
Office/Warehouse Rent: costs of renting office and warehouse space.
Office Supplies & Equipment: costs of paper, pens, computer equipment, etc.

Use this information to complete **Answer Sheet #10**

Answer Sheet #10

Team Based Work Unit Summary Report

Directions: *Use the information in Table 3 to compute the following values.*
Total expenses: add the amount of money spent on each item under **Expenses** in Table 3 (e.g., truck maintenance, transportation cost, etc.).
Profit: subtract **Total Expenses** from **Sales**.
Profit %: divide **Profit** by **Sales** and multiply the value by 100 to compute a percentage.

Summary results		
	CLR's 1997 Results	**Team's 1997 Results**
Sales	$20,000,000	$4,000,000
Total Expenses ($)	74. $	77. $
Profit ($)	75. $	78. $
% Profit		
Profit (%)	76. %	79. %

Directions: *Using the sales and expenditure figures in Table 3, compute the % of money spent on each item.*

Example: Truck Maintenance
CLR's 1997 Sales were $20 million. $2 million were spent on truck maintenance. Divide truck maintenance by sales.($2 million/$20 million = 0.1). Multiply value by 100 (0.1 x 100 = 10%). Therefore, 10% of sales went to truck maintenance. 10% is entered in the table.

Financial Summary Report		
	CLR's 1997 Results	**Team's 1997 Results**
Sales	$20,000,000	$4,000,000
% of Sales spent on Expenses		
Truck Maintenance	10%	85. %
Transportation Costs	80. %	86. %
Transportation Overhead	81. %	87. %
Wages	82. %	88. %
Office/Warehouse Rent	83. %	89. %
Office Supplies/Equipment	84. %	90. %

Continue to the next page

Answer Sheet #10 Continued

Team Based Work Unit Summary Report

91. What differences, if any, are there between CLR's financial results and the team's financial results?

92. Based on the results computed above, what recommendation would you make concerning the move to team based work units (accept or reject). Explain your answer.

Office Facilities Report

As CLR continues to grow, it has become increasingly apparent that additional office space will be needed. A decision was made to move CLR's headquarters to a new building that will accommodate a larger staff. The new office space will need to have:

- A minimum of 6500 square feet
- 40 computer network connections

Table 4 contains a list of potential locations and the costs associated with each.

Table 4 Office Facilities

Building	Year Built	Square Feet (sqft)*	Cost: sqft/year	Computer connections available	Cost per additional computer connection
Wilson Building	1957	8500*	$600	0	$2000
Yardley Building	1968	7000*	$700	10	$2500
Johnson Building	1973	6500*	$1000	30	$3500
Montgomery Building	1985	7500*	$800	25	$1500
Northrop Building	1994	6500*	$1000	20	$4000

*CLR **must** rent **all** of the available square feet listed for a building

Additional Information

Wilson Building: A converted warehouse that was remodeled in the early 1980's; was previously used by an architecture firm.

Yardley Building: A five story brick building on the east side of Detroit approximately 5 miles from CLR's present building. The fourth floor is available for rent.

Johnson Building: A 25 floor skyscraper owned an operated by Vanguard Enterprises.

Montgomery Building: An 18 floor skyscraper that leases its first ten floors for business offices and the remaining floors for apartments and condominiums.

Northrop Building: The newest building being considered. It is a multi-million dollar building constructed by two large manufacturing firms with headquarters in Detroit.

Use this information to complete **Answer Sheet #11**

Answer Sheet #11

Office Facilities Summary Report

Directions: *Use the information from Table 4 to complete the following chart.*
Total cost of rent: indicate how much each building will cost in rent. To calculate this figure, multiply the **Square Feet** of the building (Table 4) by **Cost per square foot.**
# of computer connections needed: subtract the number of **Computer connections available** (Table 4) from 40 (the number needed).
Cost of computer connection: multiply the **Cost per additional computer connection** (Table 4) by the **# of computer connections needed** for each building.
Total cost after year 1: add the **Total cost of rent** and **Cost of computer connections** for each building.

Building	Total cost of rent	# of computer connections needed	Cost of computer connections		Total cost after year 1
Wilson	93.	98.	x 2000	103.	108.
Yardley	94.	99.	x 2500	104.	109.
Johnson	95.	100.	x 3500	105.	110.
Montgomery	96.	101.	x 1500	106.	111.
Northrop	97.	102.	x 4000	107.	112.

113. Based on these results computed above, indicate which building will be the most cost effective after the first year. Explain the reasoning for your recommendation.

Internet Carrier Report

Due to the increasing reliance on electronic communication, the suggestion was made to connect CLR to the Internet. Three companies have submitted proposals to handle Internet services for CLR; Companies A, B, & C. Table 5 contains the billing rates for each company. Rates are charged per minute of use. For Companies A and B, the rates fluctuate depending on the time of day, as indicated by the table 3. Company C charges a flat rate per minute.

Table 5 Internet Carrier Billing Rates

	Company A Billing Rate	**Company B Billing Rate**	**Company C Billing Rate**
Morning (7:00am-11:59am)	.30 per minute	.20 per minute	.20 per minute
Afternoon (12:00pm-6:59pm)	.20 per minute	.30 per minute	.20 per minute
Evening (7:00pm-6:59am)	.10 per minute	.10 per minute	.20 per minute

The Federal Bureau of Labor Statistics computed the average amount of time spent using Internet resources. Table 6 contains an estimate of the number of minutes spent on the Internet per year for a company equivalent to CLR.

Table 6 Internet Usage 1997

Morning	**Afternoon**	**Evening**
1500 minutes	2500 minutes	2000 minutes

Use this information to complete **Answer Sheet #12**

Answer Sheet #12

Internet Carrier Summary Report

Directions: *Use the information from Tables 5 & 6 to complete the following chart.*
Annual cost (per plan): multiple the total number of minutes by the charge per minute and enter the number in the space provided. If for example 1000 minutes were used in the morning at a cost of $0.30 per minute the annual cost would be $300.
Total annual cost: compute by adding the annual cost for each time period for each company.

	Total # of minutes	Company A Annual Cost		Company B Annual Cost		Company C Annual Cost	
Morning	1500	.30	114.	.20	117.	.20	120.
Afternoon	2500	.20	115.	.30	118.	.20	121.
Evening	2000	.10	116.	.10	119.	.20	122.
Total Annual Cost							

123. Based on these results, which Internet carrier would be the best value? Explain your answer.

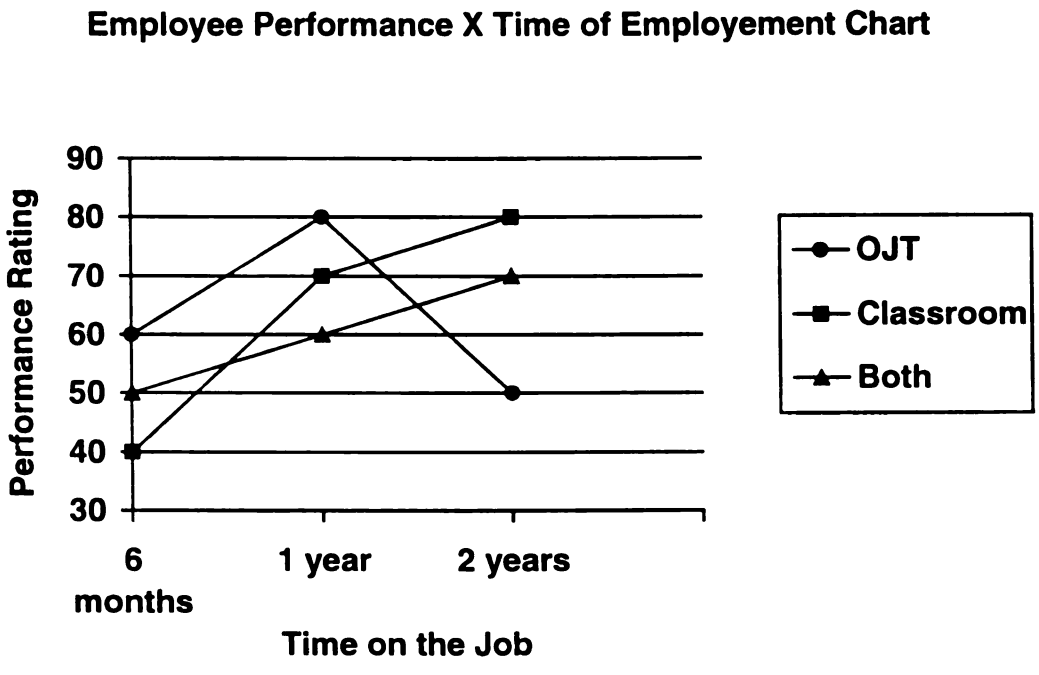
Training System Report

CLR has been working to standardize its training system. There are three training strategies that would be appropriate for CLR:

1. **On the Job Training (OJT)**
2. **Classroom training**
3. **A combination of both OJT and classroom training**

Studies of these three approaches have yielded varying effects on job performance. Chart 3 contains the results of these studies. Employee performance was determined by supervisor ratings on a 100 point scale and was measured at 6 months, 1 year, and 2 years after training.

Chart 3 Effects of Training



OJT = On the job training Classroom = Classroom training
Both = OJT & Classroom

Use this information to complete **Answer Sheet #13**

Answer Sheet #13

Training System Summary Report

124. If CLR expects to keep employees for a minimum of two (2) years, which training program should CLR implement? Explain your answer.

APPENDIX D

Audio Messages

Simulation Part I

Time	Message
2:00	"Excuse me, this is your secretary. Ken returned your call. He said Lunch would be great. He can meet 11 to 12 on Friday."
4:00	"I was able to contact Oscar. I scheduled your dinner reservations with him for Wednesday from 5 to 7pm."
6:00	"Nicole called. She would like to meet with you before Friday's Project Planning Meeting. I scheduled her for Thursday morning from 8-10."
8:00	"Hi this is Bob, I'm a manager in the Sales & Marketing department. I'm having a problem. Employees from other departments have started to congregate in my work area, which is disrupting the staff's activities. How should I handle the situation?"
12:00	"Linda called. She will see you on Tuesday from 11-12."
14:00	"Ken called again. He got his days confused and won't be able to have lunch Friday. He rescheduled for Tuesday from 1-2."
16:00	"Patricia just called. She can meet you 5 to 7 pm on Friday to discuss the project planning meeting."
18:00	"Mike returned your call. He would like to meet Wednesday. I scheduled him from 2 to 4."
20:00	"Hi this is Sandy, I'm a manager in accounting. I need your advice. I've noticed that some of the accounting staff have been arriving for work with inappropriate clothing. They wear blue jeans, jogging suits, tennis shoes, etc. No one *else* seems to be enforcing the dress code policy, but I think the employees look unprofessional. What do you think I should do?"
25:00	**"Please Stop with Part I of the Simulation"**

Simulation Part II

Time	Message
1:30	"Georgia called about her schedule. On Friday she can only work 8am to 2pm. She is still available all day Tuesday and Wednesday."
3:00	"This is Jennifer in the accounting department. I need some advice on one of my employees. When she was hired last year, she seemed adequate, and the performance appraisals from her previous jobs were outstanding. It's been 12 months though, and she is clearly unable to perform the work. I've tried to assign her to different projects, but I'm having trouble finding a position that she's qualified for. I've thought about firing her, but she hasn't violated any policies and I couldn't justify letting her go. What should I do?"
6:00	"Bill called about next weeks schedule. He wanted to remind you that he will be on vacation all week and unable to work."
7:30	"I just got off the phone with Dan. He called about next week's schedule. He will be able to work anytime on Monday, Wednesday from 10-1, and Friday after 11am."
9:00	"Hi this is Sara from the sales & marketing department. Next week is a holiday, and my staff has been asking about taking vacation time. I'm reasonably sure that there won't be any urgent projects that need to be done next week, but I don't know for sure. What should I tell my staff?"
12:00	"Amanda called about her schedule. She will be available to work Monday after 10am and Tuesday between 9am and 3pm. She can work anytime on Thursday."
13:30	"Hi, I work with CLR and needed some advice on how to handle a situation. A few days ago when I was leaving work, I saw a CLR employee backing his car into a parking space. As he was backing in though, he accidentally hit a supervisor's vehicle. I saw the employee get out of his car, look at the damage, and then drive off. I heard today that the supervisor has initiated an investigation to find who hit his car. I'm not sure what I should do. How would you handle the situation?"
16:30	"Henry called about his schedule for next week. He can only work until 3pm on Wednesday and Friday."
18:00	"I just received a call from Cathy. Her daughter has the flu and Cathy will not be able to work at all next week."

Simulation Part II

Time	**Message**
19:30	"This is the sales & marketing department. I'm having problems with one of my employees and don't know what to do. The employee is just not pulling his weight. He avoids difficult assignments, complains about the amount of work that has to be done, and says the job really doesn't matter anyway. What do you think I should do?"
22:30	"Elaine called about next week's schedule. She can only work Tuesday and Friday, but on Friday she can only work after 9am."
24:00	"Frank called about his schedule for next week. On Monday he will have to leave at 2 and on Wednesday, he can only work after 11am. He can work anytime on Thursday."
25:30	"This is accounting. I need advise on how to handle one of my employees. The employee wants to become a manager and discussed the possibility with me. Specifically, he wants me to go over the requirements to be a CLR manager with him. The problem is that I don't believe this guy could ever qualify to be a manager and even if he did, he would not be a very good one. What do you think I should tell him?"
30:00	*(Experimental Condition Only)* "You have 5 minutes remaining in Part II. Please complete the scheduling task if you have not done so already."
35:00	"Please Stop with Part II of the Simulation."

APPENDIX E

Simulation Scoring Key

Part I: Scheduling Task (18 points total)

- **1point for correct meeting/person 1point for correct time**

Monday	Tuesday	Wednesday
8	8 Staff Meeting	
9	9	
10	10	10 Team Meeting
11	11 Linda	11
12	12	12
1	1 Ken	1
2	2	2 Mike
3	3	3
4	4	4
5	5	5 Oscar

Thursday	Friday	Notes:
8 Nicole	8	
9	9	
10	10	
11	11	
12	12 Project Meeting	
1	1	
2	2	
3	3	
4	4	
5	5 Patricia	

Situational Judgment Item #1

Hi this is Bob, I'm a manager in the Sales & Marketing department. I'm having a problem in my department. Employees from other departments have started to congregate in our work area, which is disrupting the staff's activities. How should I handle the situation?

Low	Medium	High
• Do Nothing • Tell the employees to leave • Give employee a few minutes to talk then tell them to get back to work	• Advise the employees to meet during their break or over lunch • Advise the employees to talk during non-work time • Speak with the supervisor from the other department about his/her employees • Send a memo	• Discuss the problem with the employees • Work together to find a solution • Remind employees of your expectations and their responsibilities to work
① ②	③	④ ⑤

Situational Judgment Item #2

Hi this is Sandy, I'm a manager in accounting. I've noticed that some of the accounting staff have been arriving for work with inappropriate clothing. They wear blue jeans, jogging suits, tennis shoes, etc. No one *else* seems to be enforcing the dress code policy, but it still is the policy. What do you think I should do?

Low	Medium	High
• Do nothing • Humiliate/Reprimand employees who are improperly dressed • Do not let improperly dressed employees work	• Circulate a memo reminding employees and supervisors of the dress code policy • Send improperly dressed employees home to change • Discuss the option of changing the dress code policy	• Discuss the dress code policy with employees • Explain the importance of following the dress code • Clearly state your expectations of your employees concerning the dress code
① ②	③	④ ⑤

Give credit on written response if it is correct given their computation of the data

Answer Sheet #3

Office Furniture Summary Report

	Cost to furnish 1 office	Cost to furnish 20 offices	
Company A	**$1200**	x 20	**$24,000**
Company B	**$1350**	x 20	**$27,000**
Company C	**$1350**	x 20	**$27,000**

	Lowest Priced Company	Cost per item	Cost for 20	
Desk	**A**	**$500**	x 20	**$10,000**
Hutch	**A**	**$250**	x 20	**$5,000**
Chair	**C**	**$100**	x 20	**$2,000**
Book Shelf	**C**	**$150**	x 20	**$3,000**
File Cabinet	**A**	**$100**	x 20	**$2,000**
			Total:	**$22,000**

Answer Sheet #3 continued

Office Furniture Summary Report

Where should the office furniture be purchased (company A, B, C, or a combination) if the goal is to furnish the offices for the least amount of money? Explain the reason for your answer.

The desk, hutch, and file cabinet should be purchased from company A. The chair and bookshelf should be purchased from company C. Company A & C offer the best price on the respective items.

Answer Sheet #4

Employee Overtime Summary Report

Department	Overtime Hours	Overtime Pay Rate	Overtime Wages	Overtime Hours	New Hire Pay Rate	New Hire Wages
Sales	**30**	**15**	**450**	**30**	**10**	**300**
Accounting	**40**	**12**	**480**	**40**	**8**	**320**
Shipping	**15**	**10**	**150**	**15**	**7**	**105**
Clerical	**20**	**9**	**180**	**20**	**6**	**120**

Department	Overtime Wages	New Hire Wages	Weekly Savings	4 Week Savings	24 Week Savings	Training Costs
Sales	**450**	**300**	**150**	**600**	**3600**	**2000**
Accounting	**480**	**320**	**160**	**640**	**3840**	**2500**
Shipping	**150**	**105**	**45**	**180**	**1080**	**500**
Clerical	**180**	**120**	**60**	**240**	**1440**	**1000**

Answer Sheet #4

Employee Overtime Summary Report Continued

Assuming the need for overtime persists for four (4) weeks, what would be the most cost effective strategy to compensate for the workload (i.e., continue paying overtime or hire new people).

The best strategy would be to pay overtime. The cost of training new hires would far exceed the cost of overtime charges over 4 weeks.

If overtime persists for six (6) months (24 weeks), what would be the most cost effective strategy to compensate for the workload (i.e., continue paying overtime or hire new employees)?

After 6 months, the best strategy would be to hire and train new employees. The savings in overtime costs will more than pay for the cost of training.

Simulation Answer Key

Part II: Scheduling Task

- **1 point for correct person**
- **1 point for correct time (must be exact or no credit)**
- **28 points total**

Monday	Tuesday	Wednesday
8 (1)Frank 8-12 (3)Dan 8-4 9 10 11 12 (2)Amanda 12-4 1 2 3 4 5	8 (6)Elaine 8-4 (7)Georgia 8-4 9 10 11 12 1 2 3 4 5	8 (12)Henry 8-12 (14)Georgia 8-4 9 10 11 12 (13)Frank 12-4 1 2 3 4 5
Thursday	**Friday**	**Notes:**
8 (4)Amanda 8-4 (5)Frank 8-4 9 10 11 12 1 2 3 4 5	8 (8) Henry 8-12 (10)Georgia 8-12 9 10 11 12 (9)Elaine 12-4 (11)Dan 12-4 1 2 3 4 5	

Situational Judgment Item #3

Dialogue: "This is the accounting department. I need some advice on one of my employees. When she was hired last year, she seemed adequate, and the performance appraisals from her previous jobs were outstanding. It's been 12 months though, and she is clearly unable to perform the work. I've tried to assign her to different projects, but I'm having trouble finding a position that she's qualified for. I've thought about firing her, but she hasn't violated any policies and I couldn't justify letting her go. What should I do?"

Low	Medium	High
• Tell the employee to quit or look for another job • Look for ways of having the employee fired or transferred • Do nothing; accept the fact that the employee is incompetent	• Try to re-train the employee • Help the employee find a position more suited to her skills and interests • Re-iterate your expectations to the employee and tactfully tell her that she needs to improve her performance	• Discuss the problem with the employee • Work with the employee to identify the root cause of the problem • Look for a solution that will resolve the underlying issues
① ②	③	④ ⑤

Situational Judgment Item #4

Dialogue: "Hi this is the sales & marketing department. Next week is a holiday, and the staff has been asking about taking vacation time. I'm reasonably sure that there won't be any urgent projects that need to be done next week, but I don't know for sure. What should I tell my staff about taking vacations?"

Low	Medium	High
• Tell the employees that you will check the schedule and get back to them • Wait until the last minute to give the employees a response • Avoid the issue, don't provide a definite answer	• Give employees a definitive answer (yes/no) without telling them the whole story • Allow employees to take vacation time without planning for possibility emergencies • Let the employees who ask take vacation but do not offer the opportunity to everyone	• Be honest with the employees • Tell them they will probably have time off • Take precautions to have employees available to work if the need arises
① ②	③	④ ⑤

Situational Judgment Item #5

Dialogue: "Hi, I work with CLR and needed some advice on how to handle a situation. A few days ago when I was leaving work, I saw a CLR employee backing his car into a parking space. As he was backing in though, he accidentally hit a supervisor's vehicle. I saw the employee get out of his car, look at the damage, and then drive off. I heard today that the supervisor has initiated an investigation to find who hit his car. I'm not sure what I should do. How would you handle the situation?

Low		Medium	High	
• Wait to report the incident to see what happens • Wait until someone asks about the incident • Don't get involved; say nothing about what you saw		• Confront the employee who hit the car • Try to verify the information to see if the employee reporting the incident is telling the truth • Make an anonymous call to the supervisor	• Report the incident immediately • Give the investigators all of the information available	
①	②	③	④	⑤

Situational Judgment Item #6

Dialogue: "This is the sales & marketing department. I'm having problems with one of my employees and don't know what to do. The employee is just not pulling his weight. He avoids difficult assignments, complains about the amount of work that has to be done, and says the job really doesn't matter anyway. What do you think I should do?

Low	Medium	High
• Have the employee re-assigned or fired • Reprimand the employee for his poor attitude and performance • Do nothing; the employee won't change anyway	• Discuss your expectations with the employee and tell him that his performance needs improvement • Have other employees work with him to improve his performance • Give the employee encouragement that will improve his attitude and commitment to his work	• Discuss the problem with the employee • Work to identify the root cause of the problem • Try to develop effective solutions that will improve the employee's attitude and performance
①	② ③	④ ⑤

Situational Judgment Item #7

Dialogue: "This is accounting. I need your advise on how to handle one of my employees. The employee wants to become a manager and discussed the possibility with me. Specifically, he wants me to go over the requirements to be a CLR manager with him. The problem is that I don't believe this guy could ever qualify to be a manager and even if he did, he would not be a very good one. What do you think I should tell him?

Low	Medium	High
• Have the employee ask someone else • Tell the employee you don't know what the qualifications are or that they change depending on the position • Tell the employee that the requirements but that there will be no openings for a while	• Give the employee a list of the requirements and let him decide if he should pursue a managerial position • Be honest with the employee and tell him he is not qualified for the position • Answer the employee's questions but provided no additional information that would reveal your personal opinion on his qualifications	• Discuss the job requirements openly with the employee • Work with the employee to develop a plan for improving his skills/qualifications • Help the employee improve and become a more qualified candidate
① ②	③	④ ⑤

Answer Sheet #11

Team Based Work Unit Summary Report

Summary results		
	CLR's 1997 Results	Team's 1997 Results
Sales	$20,000,000	$4,000,000
Total Expenses ($)	**$16,000,000**	**$3,000,000**
Profit ($)	**$4,000,000**	**$1,000,000**
% Profit		
Profit (%)	**20%**	**25%**

Financial Summary Report		
	CLR's 1997 Results	Team's 1997 Results
Sales	**$20,000,000**	**$4,000,000**
% of Sales spent on Expenses		
Truck Maintenance	**10%**	**10%**
Transportation Costs	**25%**	**25%**
Transportation Overhead	**10%**	**5%**
Wages	**20%**	**20%**
Office/Warehouse Rent	**10%**	**10%**
Office Supplies/Equipment	**5%**	**5%**

Using the percentages computed in the last table (**Financial Summary Report**), what trends do you notice between CLR's 1997 financial results and the Team's 1997 financial results?

The percentage of money spent on each expenses is equal except for transportation overhead. The team saved 5% on this expenses.

Based on the results computed above, what recommendation would you make concerning the move to team based work units (accept or reject). Explain your answer.

Accept the move to team based work units. The pilot team saved 5% on transportation overhead which could translate into $1 mil a year in additional profits.

Answer Sheet #12

Office Facilities Summary Report

Building	Total cost of rent	# of computer connections needed	Cost of computer connections		Total cost after year 1
Wilson	**5,100,000**	**40**	x 2000	**80,000**	**5,180,000**
Yardley	**4,900,000**	**30**	x 2500	**75,000**	**4,975,000**
Johnson	**6,500,000**	**10**	x 3500	**35,000**	**6,535,000**
Montgomery	**6,000,000**	**15**	x 1500	**22,500**	**6,022,500**
Northrop	**6,500,000**	**20**	x 4000	**80,000**	**6,580,000**

Based on these results computed above, indicate which building will be the most cost effective after the first year. Explain the reasoning for your recommendation.

The Yardley building is the most cost effective. After calculating the cost of computer connections and rent, it offers the lowest rate.

Answer Sheet #13

Internet Carrier Summary Report

	Total # of minutes	Company A Annual Cost		Company B Annual Cost		Company C Annual Cost	
Morning	**1500**	.30	**450**	.20	**300**	.20	**300**
Afternoon	**2500**	.20	**500**	.30	**750**	.20	**500**
Evening	**2000**	.10	**200**	.10	**200**	.20	**400**
Total Annual Cost		**1150**		**1250**		**1200**	

Based on these results, which Internet carrier would be the best value? Explain your answer.

Company A offers the best value. Their total cost of service is the cheapest when computed across all three time slots.

Answer Sheet #14

Training System Summary Report

If CLR expects to keep employees for a minimum of two (2) years, which training program should CLR implement? Explain your answer.

Classroom training should be the training system implemented. After 2 years, employees showed the greatest performance.

APPENDIX F

Data Collection Agenda

Time	Task
0:00	Informed Consent Form
5:00	Part I Simulation Instructions
8:00	Begin Part I
33:00	Administration of Measures (motivation, self-monitoring, demographic info)
45:00	Break
55:00	Part II Instruction
60:00	Begin Part II
95:00	Stop Part II of the Simulation
96:00	Distribute Motivation Measure
105:00	Collect Motivation Measure and Distribute Debriefing Form

APPENDIX G

Informed Consent Form: No Incentive

Participant's Name:_____ **Date:**_____
Participant's PID#:_____
Project Title: Managerial Performance
Investigator's Name: Kevin E. Plamondon & Neal Schmitt
Project Description: The purpose of this study is to investigate managerial performance in a simulated work environment. You will be asked to complete a managerial simulation. There are two parts to the simulation. Each part consists of a written task, scheduling task, and situational judgment task. The tasks take approximately 90 minutes to complete. In addition, you will be asked to provide your ACT/SAT score along with other demographic (PID#, age, year in school, major field of study, etc.). ALL INFORMATION OBTAIN WILL BE KEPT CONFIDENTIAL. No one outside of the research team will have access to your information or simulation performance data.

Estimated Time Required: 120 minutes (2 hours)
Credits Earned for Participation: 4 credits

I have fully explained to the participant the nature and purpose of the study procedures and the risks that are involved in its performance. I have responded to and will answer all participant's questions to the best of my ability.

_____
Kevin E. Plamondon (355-2171), Investigator

Consent:

- I have been fully informed of the study procedures including the possible benefits and risks.
- I understand that I will be able to view summary results at a later date and be fully debriefed on them if I so desire.
- I give permission for my participation in this study.
- I also agree to allow the researcher to obtain my ACT/SAT scores from the registrar.
- I know that the investigator and his/her associates will be available to answer any questions that I may have.
- If at any time I feel that my questions have not been answered, I may speak to the Head of the Department of Psychology (Gordon Wood, 355-9563) or the University Committee of Research Involving Human Subjects (355-2180).
- I understand that I am free to withdraw this consent and discontinue participation in this study at any time without penalty.
- I am also aware that within one year of my participation a copy of this informed consent will be provided to me upon request.

_____
Signature of Participant

Participant's Name:_____ **Date:**_____
Participant's PID#:_____
Project Title: Managerial Performance
Investigator's Name: Kevin E. Plamondon & Neal Schmitt
Project Description: The purpose of this study is to investigate managerial performance in a simulated work environment. You will be asked to complete a managerial simulation. There are two parts to the simulation. Each part consists of a written task, scheduling task, and situational judgment task. The tasks take approximately 90 minutes to complete. Those scoring in the top 50% on Part II of the simulation will receive a $10.00 prize. In addition, you will be asked to provide your ACT/SAT score along with other demographic (PID#, age, year in school, major field of study, etc.). ALL INFORMATION OBTAIN WILL BE KEPT CONFIDENTIAL. No one outside of the research team will have access to your information or simulation performance data.

Estimated Time Required: 120 minutes (2 hours)
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Consent:

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- I understand that I will be able to view summary results at a later date and be fully debriefed on them if I so desire.
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- I understand that I am free to withdraw this consent and discontinue participation in this study at any time without penalty.
- I understand that if I score in the top 50% on Part II of the simulation, I will receive $10.00 prize.
- I am also aware that within one year of my participation a copy of this informed consent will be provided to me upon request.

_____
Signature of Participant

APPENDIX H

Simulation Instructions

Simulation Instructions

Today you will be participating in a managerial simulation. The simulation was designed to include the types of tasks commonly associated with the job of supervisor. You will be working for CLR Shipping Inc. CLR is a shipping firm based in Detroit, MI. The company contracts with large manufacturers (e.g., General Motors, Ford, Nabisco, Proctor & Gambill, IBM, etc.,) to transport their products to various locations through out the United States.

You have been hired to work as **Supervisor of the Quality Control Department**. The main purpose of the quality control department is to improve CLR's performance. Your job responsibilities include the following:

- **Scheduling appointments/employees**
- **Advising CLR staff on situational judgment problems**
- **Writing reports**

Today's simulation will include each of these tasks. The packet of information that you've been given contains all of the necessary materials for the simulation. In addition, portions of the scheduling and situational judgment tasks will be presented in audio. While performing the written tasks, you will be interrupted with audio messages. It is important that you pay close attention to the audio information as it will be needed to complete the simulation.

The simulation has two parts. You will begin with Part I. Part I consists of the following tasks:

1. **Scheduling personal appointments**
2. **Advising CLR staff on situational judgment problems**
3. **Writing summary reports**

You will have 25 minutes to complete Part I

Part II of the simulation will consist of the following tasks:

1. **Creating an employee work schedule**
2. **Advising CLR staff on situational judgment problems**
3. **Writing summary reports**

You will have 35 minutes to complete Part II

The instruction to Part I are on the following pages. You will receive instructions to Part II following the break.

Managerial Simulation
Part I

1. Scheduling personal appointments

As a supervisor you are continually scheduling appointments and attending meetings. While attending to your paper work, you will receive audio messages concerning your schedule for next week.

The packet of materials labeled **Personal Appointment Book** contains the needed materials and additional instructions for the appointment scheduling task.

2. Advising CLR staff on situational judgment problems

As supervisor of the quality control department, CLR employees look to you for guidance. Periodically throughout your day, employees will call you for advice on how to address situations with other employees or customers. When confronted with a problem it is imperative that you consider the problem carefully, and give a response that will address the problem in the most effective manner possible. Your responses should reflect how **you** would behave in the situations.

The packet of materials labeled **Situational Judgment Items** contains answer sheets on which to write your responses.

3. Writing summary reports

The main focus of the quality control department is continuous improvement. One of your key job responsibilities is to identify and implement new policies and procedures. For Part I of the simulation you will be working on the following two tasks:

1. **Ordering new office furniture**
2. **Evaluate Employee Overtime Expenses**

You have asked members of your staff to research information on these topics. The result of their work has been summarized for you. Your task is to review the information and use it to make recommendations to top management concerning each of these topics.

The packet of materials labeled **Summary Reports** contains the needed materials and additional instructions.

You will have 25 minutes to complete Part I
If you finish early please remain quiet and seated until everyone has finished

Managerial Simulation
Part II

Consistent with Part I of the simulation, you are the supervisor of the quality control department for CLR Shipping Inc. For Part II of the simulation you will be completing the following tasks:

1. **Creating an employee work schedule**
2. **Advising CLR staff on situational judgment problems**
3. **Writing summary reports**

The packet of information that you've been given contains all of the necessary materials for the simulation. In addition, portions of the scheduling and situational judgment tasks will be presented in audio. While performing the written tasks, you will be interrupted with audio messages. It is important that you pay close attention to the audio information as it will be needed to complete the simulation.

Instructions

1. Creating an Employee Work Schedule

Because CLR is dedicated to serving its customers, the quality control department has instituted a toll-free support line to answer questions and address customer concerns. You have eight employees who answer phone calls. One of your supervisory responsibilities is to create the weekly work schedule for these employees.

The packet of materials labeled **Employee Work Schedule** contains the needed materials and additional instructions for the scheduling task.

2. Advising CLR Staff on Situational Judgment Problems

As supervisor of the quality control department, CLR employees look to you for guidance. Periodically throughout your day, employees will call you for advice on how to address situations with other employees or customers. When confronted with a problem it is imperative that you consider the problem carefully, and give a response that will address the problem in the most effective manner possible. Your responses should reflect how **you** would behave in the situations.

The packet of materials labeled **Situational Judgment Items** contains answer sheets on which to write your responses.

Continue to the next page

Managerial Simulation
Part II continued

3. Writing Summary Reports

The main focus of the quality control department is continuous improvement. After numerous discussions with CLR board of directors, the decision was made to introduce four improvements:

1.) Implement team based work units
2.) Move to a different office facility
3.) Connect CLR to the Internet
4.) Improve the training system

You have asked members of your staff to research information on these four topics. The result of their work is contained in four reports. Your task is to review the information and use it to make recommendations to top management concerning each of the four topics.

The packet of materials labeled **Summary Reports** contains the needed materials and additional instructions.

You will have 35 minutes to complete Part II
If you finish early please remain quiet and seated until everyone has finished

Managerial Simulation
Part II

Consistent with Part I of the simulation, you are the supervisor of the quality control department for CLR Shipping Inc. For Part II of the simulation you will be completing the following tasks:

1. **Creating an employee work schedule**
2. **Advising CLR staff on situational judgment problems**
3. **Writing summary reports**

The packet of information that you've been given contains all of the necessary materials for the simulation. In addition, portions of the scheduling and situational judgment tasks will be presented in audio. While performing the written tasks, you will be interrupted with audio messages. It is important that you pay close attention to the audio information as it will be needed to complete the simulation.

Instructions

1. Creating an Employee Work Schedule

Because CLR is dedicated to serving its customers, the quality control department has instituted a toll-free support line to answer questions and address customer concerns. You have eight employees who answer phone calls. One of your supervisory responsibilities is to create the weekly work schedule for these employees.

The packet of materials labeled **Employee Work Schedule** contains the needed materials and additional instructions for the scheduling task.

2. Advising CLR Staff on Situational Judgment Problems

As supervisor of the quality control department, CLR employees look to you for guidance. Periodically throughout your day, employees will call you for advice on how to address situations with other employees or customers. When confronted with a problem it is imperative that you consider the problem carefully, and give a response that will address the problem in the most effective manner possible. Your responses should reflect how **you** would behave in the situations.

The packet of materials labeled **Situational Judgment Items** contains answer sheets on which to write your responses.

Continue to the next page

Managerial Simulation
Part II continued

3. Writing Summary Reports

The main focus of the quality control department is continuous improvement. After numerous discussions with CLR board of directors, the decision was made to introduce four improvements:

1.) Implement team based work units
2.) Move to a different office facility
3.) Connect CLR to the Internet
4.) Improve the training system

You have asked members of your staff to research information on these four topics. The result of their work is contained in four reports. Your task is to review the information and use it to make recommendations to top management concerning each of the four topics.

The packet of materials labeled **Summary Reports** contains the needed materials and additional instructions.

$10.00 Prize

To encourage performance on Part II of the simulations, there will be a prize awarded to the top half of performers. Those of you who score in the top 50% (or approximately one out of every two people in this room) will receive $10.00. At the end of the simulation you will be given instructions and a phone number to call to receive the money.

You will have 35 minutes to complete Part II
If you finish early please remain quiet and seated until everyone has finished

Managerial Simulation Part II

Consistent with Part I of the simulation, you are the supervisor of the quality control department for CLR Shipping Inc. For Part II of the simulation you will be completing the following tasks:

1. **Creating an employee work schedule**
2. **Advising CLR staff on situational judgment problems**
3. **Writing summary reports**

The packet of information that you've been given contains all of the necessary materials for the simulation. In addition, portions of the scheduling and situational judgment tasks will be presented in audio. While performing the written tasks, you will be interrupted with audio messages. It is important that you pay close attention to the audio information as it will be needed to complete the simulation.

To achieve the best score on the simulation:

- Begin by working on the summary reports. All of the information you need to complete the reports is contained within the packet of materials you have been given.
- Pay close attention to any audio information that you are given.
- If an employee is calling about the work schedule, make a note of when s/he can work. **Do not complete the schedule until all eight employees have contacted you.**
- When a situational judgment item is presented, respond to the item immediately, writing your response on the sheet provided.

The following pages contain instructions and example items for each of the three tasks.

Managerial Simulation Part II
Instructions

1. Creating an Employee Work Schedule

Because CLR is dedicated to serving its customers, the quality control department has instituted a toll-free support line to answer questions and address customer concerns. You have eight employees who answer phone calls. One of your supervisory responsibilities is to create the weekly work schedule for these employees.

The packet of materials labeled **Employee Work Schedule** contains the needed materials and additional instructions for the scheduling task.

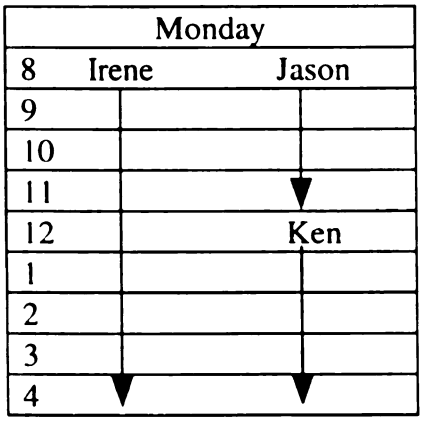
Example Item

Employee Scheduling Task

Instructions:
Write a schedule for next Monday. You will need two employees in the office from 8am to 4pm. You have the following three people to choose from:

Employee	**Availability**
Irene	All day Monday
Jason	8-12 on Monday
Ken	12-4 on Monday

Answer:



For the Scheduling task in Part II, be sure to follow the scheduling guidelines:

Scheduling Guidelines

- Shifts are from 8am to 4pm Monday through Friday
- Two employees must be scheduled at all times
- Shifts can be either 4 or 8 hours long

Managerial Simulation Part II
Instructions

2. Advising CLR Staff on Situational Judgment Problems

As supervisor of the quality control department, CLR employees look to you for guidance. Periodically throughout your day, employees will call you for advice on how to address situations with other employees or customers. When confronted with a problem it is imperative that you consider the problem carefully, and give a response that will address the problem in the most effective manner possible. Your responses should reflect how **you** would behave in the situations.

The packet of materials labeled **Situational Judgment Items** contains answer sheets on which to write your responses.

Example Item

Situational Judgment Task

Situation:

A supervisor from another department has a tendency to single out employees for clerical errors and publicly describe those errors to other members of the department. This causes employees to feel stupid and humiliated. How would you handle this situation?

Answer:

High Scoring Response:

"I would set up a meeting with the supervisor and discuss the importance of speaking with his/her employees in private rather than confronting them in front of the entire department."

Moderate Scoring Response:

"I would advise the supervisor to focus on the problem directly, discussing how it could be avoided, rather than focusing on the individuals who caused the problem."

Low Scoring Response:

"I would tell the supervisor to never reprimand employees in front of the rest of the department again."

Managerial Simulation Part II
Instructions

3. Writing Summary Reports

The main focus of the quality control department is continuous improvement. After numerous discussions with CLR board of directors, the decision was made to introduce four improvements:

1.) Implement team based work units
2.) Move to a different office facility
3.) Connect CLR to the Internet
4.) Improve the training system

You have asked members of your staff to research information on these four topics. The result of their work is contained in four reports. Your task is to review the information and use it to make recommendations to top management concerning each of the four topics.

The packet of materials labeled **Summary Reports** contains the needed materials and additional instructions.

Example Item

Summary Report Form

Instructions:
You are responsible for ordering new computers. Companies A, B, & C sell the exact same computer systems. The price for the computer processor and monitor are listed below. **(Computer processors and monitors cannot be purchased separately).**

Table A

	Company A	Company B	Company C
Computer Processor	$1200	$1300	$1400
Computer Monitor	$800	$500	$700

From which company would you purchase new computer equipment?

Answer: *Computer systems should be purchased from Company B. Because computer processors and monitors must be purchased together, it is the total cost of the system that is important. Company A's system costs $2000, Company B's $1800, and Company C's $2100. As all three companies offer the exact same system, Company B's computer system is the best value at $1800.*

You will have 35 minutes to complete Part II
If you finish early please remain quiet and seated until everyone has finished

Managerial Simulation Part II

Consistent with Part I of the simulation, you are the supervisor of the quality control department for CLR Shipping Inc. For Part II of the simulation you will be completing the following tasks:

1. **Creating an employee work schedule**
2. **Advising CLR staff on situational judgment problems**
3. **Writing summary reports**

The packet of information that you've been given contains all of the necessary materials for the simulation. In addition, portions of the scheduling and situational judgment tasks will be presented in audio. While performing the written tasks, you will be interrupted with audio messages. It is important that you pay close attention to the audio information as it will be needed to complete the simulation.

To achieve the best score on the simulation:

- Begin by working on the summary reports. All of the information you need to complete the reports is contained within the packet of materials you have been given.
- Pay close attention to any audio information that you are given.
- If an employee is calling about the work schedule, make a note of when s/he can work. **Do not complete the schedule until all eight employees have contacted you.**
- When a situational judgment item is presented, respond to the item immediately, writing your response on the sheet provided.

The following pages contain instructions and example items for each of the three tasks.

Managerial Simulation Part II
Instructions

1. Creating an Employee Work Schedule

Because CLR is dedicated to serving its customers, the quality control department has instituted a toll-free support line to answer questions and address customer concerns. You have eight employees who answer phone calls. One of your supervisory responsibilities is to create the weekly work schedule for these employees.

The packet of materials labeled **Employee Work Schedule** contains the needed materials and additional instructions for the scheduling task.

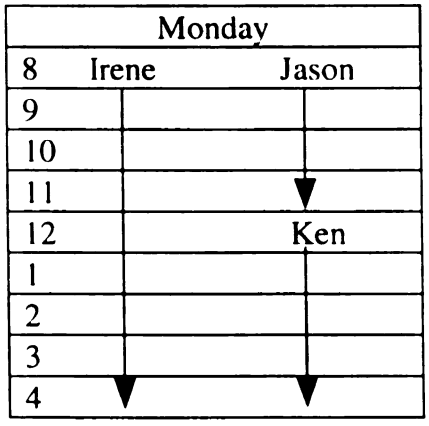
Example Item

Employee Scheduling Task

Instructions:
Write a schedule for next Monday. You will need two employees in the office from 8am to 4pm. You have the following three people to choose from:

Employee	**Availability**
Irene	All day Monday
Jason	8-12 on Monday
Ken	12-4 on Monday

Answer:



For the Scheduling task in Part II, be sure to follow the scheduling guidelines:

Scheduling Guidelines

- Shifts are from 8am to 4pm Monday through Friday
- Two employees must be scheduled at all times
- Shifts can be either 4 or 8 hours long

Managerial Simulation Part II
Instructions

2. Advising CLR Staff on Situational Judgment Problems

As supervisor of the quality control department, CLR employees look to you for guidance. Periodically throughout your day, employees will call you for advice on how to address situations with other employees or customers. When confronted with a problem it is imperative that you consider the problem carefully, and give a response that will address the problem in the most effective manner possible. Your responses should reflect how **you** would behave in the situations.

The packet of materials labeled **Situational Judgment Items** contains answer sheets on which to write your responses.

Example Item

Situational Judgment Task

Situation:

A supervisor from another department has a tendency to single out employees for clerical errors and publicly describe those errors to other members of the department. This causes employees to feel stupid and humiliated. How would you handle this situation?

Answer:

High Scoring Response:

"I would set up a meeting with the supervisor and discuss the importance of speaking with his/her employees in private rather than confronting them in front of the entire department."

Moderate Scoring Response:

"I would advise the supervisor to focus on the problem directly, discussing how it could be avoided, rather than focusing on the individuals who caused the problem."

Low Scoring Response:

"I would tell the supervisor to never reprimand employees in front of the rest of the department again."

Managerial Simulation Part II
Instructions

3. Writing Summary Reports

The main focus of the quality control department is continuous improvement. After numerous discussions with CLR board of directors, the decision was made to introduce four improvements:

1.) Implement team based work units
2.) Move to a different office facility
3.) Connect CLR to the Internet
4.) Improve the training system

You have asked members of your staff to research information on these four topics. The result of their work is contained in four reports. Your task is to review the information and use it to make recommendations to top management concerning each of the four topics.

The packet of materials labeled **Summary Reports** contains the needed materials and additional instructions.

Example Item

Summary Report Form

Instructions:
You are responsible for ordering new computers. Companies A, B. & C sell the exact same computer systems. The price for the computer processor and monitor are listed below. **(Computer processors and monitors cannot be purchased separately).**

Table A

	Company A	Company B	Company C
Computer Processor	$1200	$1300	$1400
Computer Monitor	$800	$500	$700

From which company would you purchase new computer equipment?

Answer: *Computer systems should be purchased from Company B. Because computer processors and monitors must be purchased together, it is the total cost of the system that is important. Company A's system costs $2000, Company B's $1800, and Company C's $2100. As all three companies offer the exact same system, Company B's computer system is the best value at $1800.*

Managerial Simulation Part II
Instructions

$10.00 Prize

To encourage performance on Part II of the simulations, there will be a prize awarded to the top half of performers. Those of you who score in the top 50% (or approximately one out of every two people in this room) will receive $10.00. At the end of the simulation you will be given instructions and a phone number to call to receive the money.

You will have 35 minutes to complete Part II
If you finish early please remain quiet and seated until everyone has finished

APPENDIX I

Debriefing Forms

Debriefing Form: No Incentive Group

Managerial Performance Study

You have completed the Managerial Performance study. The study was designed to identify the qualities that enable individuals to perform effectively in a simulated work environment. The goal of the study is to identify characteristics that can be used to hire and promote individuals into managerial positions.

We appreciate your willingness to participate in this study. All of the information that you have provided will be kept confidential. We ask that you do not discuss this study with other individuals as this may affect future data collection efforts.

If you have any questions or comments please contact Kevin Plamondon (355-2171).

Debriefing Form: Incentive Group

Managerial Performance Study

You have completed the Managerial Performance study. The study was designed to identify the qualities that enable individuals to perform effectively in a simulated work environment. The goal of the study is to identify characteristics that can be used to hire and promote individuals into managerial positions.

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If you have any questions or comments please contact Kevin Plamondon (355-2171).

$10.00 Prize

To see if you qualified for the $10.00 prize (i.e., you scored in the top 50%) you will need your PID # as it is written on the demographic information form. A space has been provided below for you to copy your number.

PID_____

At the **end** of the semester (May 4 - May 8) call the number listed above (355-2171). Say that you are part of the Managerial Performance Study and are calling to see if you scored in the top 50%. Provide your PID#, your name, and a phone number where you can be reached. To receive the $10.00 you **must** call between **Monday, May 4 and Friday, May 8**.