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The Effect of Pay System and Instructions on Creativity and Performance: A Simulation Study

Nicola Robertson

A Thesis

In

The John Molson School of Business

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ABSTRACT

The Effect of Pay System and Instructions on Creativity and Performance: A Simulation Study

Nicola Robertson

Two contrasting theories concerning the effects of performance-contingent rewards have developed within the literature. Eisenberger and his colleagues argue in favour of the use of pay-for-performance strategies, whereas Self-Determination Theory argues against them. SDT claims that performance-contingent rewards are controlling and undermine perceived autonomy, intrinsic motivation, and creative performance. Eisenberger argues that these rewards, when given with appropriate instructions, increase autonomy, motivation and performance by giving people the choice to work harder for rewards if they so choose. This study simultaneously tested these two opposing theories to determine which one is best supported by empirical evidence.

The present study was designed as a computer simulation. Participants were randomly assigned to one of six Pay (Piece-Rate vs. Base-Pay vs. No Reward) by Instruction Type (Creative vs. Quantity) conditions and asked to provide slogans for the John Molson MBA International Case Competition. They then completed a set of questionnaires. Participants were given the option to complete a second task, which was included as an indicator of their intrinsic motivation.

Main findings showed mixed results but with a general trend in support of Self-Determination Theory and the use of base-pay strategies. Most significantly were the findings that base-pay was consistently related to higher levels of intrinsic motivation than piece-rate pay. There was limited evidence in support of Eisenberger's hypothesis that instructions are key to improving performance, and no evidence that piece-rate pay improves perceived autonomy, intrinsic motivation or performance. Implications for the use of different pay systems in organizations are discussed.

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Human capital is a primary source of competitive advantage (Lawler, 2000). This is as true for small start-up companies as it is for major multinational corporations. Given this fact, it is important to consider how employees can be motivated to perform to their full potential.

The expression 'Full potential' takes on a different meaning now than it did fifty years ago. The current business environment is marked by such factors as globalization, technological innovation, and a high demand for "knowledge" and service workers, as opposed to manufacturers (Lawler, 2000). This environment requires that workers have more creative and innovative skills than was the case in the past. For this reason, creative performance is especially important.

Performance-contingent pay or "pay-for-performance" has often been cited as a viable means for motivating workers (Agarwal, 1998; Baer, Oldham & Cummings, 2003; Shaw Gupta, & Delery, 2002; Stajkovic & Luthans, 2001). However, it has been observed that the majority of evidence concerning the effectiveness of pay for performance systems is based on testimonials and single case studies, rather than on empirical tests. This has resulted in contradictory evidence about whether pay-for-performance strategies are effective in improving performance (Stajkovic & Luthans, 2001).

The idea of using money for motivating creative performance has been the source of considerable debate. On this issue there are essentially two opposing camps. R. Eisenberger and his colleagues (Eisenberger & Armeli, 1997; Eisenberger, Armeli, & Pretz, 1998; Eisenberger, Rhoades & Cameron, 1999; Eisenberger & Selbst, 1994; Eisenberger & Shanock, 2003) argue that pay-for-performance is one of the most effective ways to motivate creative performance, whereas Deci, Connell & Ryan (1989)

argue (based on their Self-Determination Theory) that pay-for-performance decreases intrinsic interest and creativity, and that non-contingent pay systems would be more effective. The main argument centers on the way in which reward systems affect perceived autonomy (freedom of action), intrinsic motivation (enjoyment of the task), and creative performance. Both authors agree that perceived autonomy and intrinsic motivation mediate (or explain) the relationship between rewards and creative performance, however they offer diametrically opposite predictions about the outcome of this interaction. Simply stated, self-determination means that “one’s behaviour emanates from one’s self” (Deci, Eghrari, Patrick & Leone, 1994). Self-Determination Theory predicts that performance-contingent extrinsic rewards will decrease perceived autonomy, intrinsic motivation, and creative performance, whereas Eisenberger et al. (1999) predict that these rewards will increase perceived autonomy, intrinsic motivation and creative performance, when instructions specify that creativity is important. The present study seeks to determine if perceived autonomy increases or decreases depending on the type of pay system, and if instructions make a difference in how rewards affect performance. First, Self-Determination Theory and supporting research will be presented, followed by Eisenberger’s theory and research. Current compensation practices will then be discussed including both base pay strategies and pay-for-performance strategies. This will be followed by an overview of the current study and hypotheses.

Self-Determination Theory & Research

Self-Determination Theory rests on the assumption that people have a natural inclination and desire to seek out new experiences that enable them to learn and grow called intrinsic motivation. Deci and Ryan (2000) define intrinsic motivation as the tendency for individuals to engage in activities that they find inherently interesting and, in doing this, they are able to expand their learning, and develop new capabilities.

Intrinsic motivation exists whenever people behave for the enjoyment of the behaviour itself (Deci & Ryan, 2000). This natural intrinsic motivation is thought to be present at birth and can be witnessed in children's curiosity and experimentation with their environment as they grow and change.

Intrinsic motivation and enjoyment are closely related concepts and are both measured in the present study. Enjoyment is experienced when people are intrinsically motivated and thus, enjoyment is an indicator of intrinsic motivation. Free-choice performance is a further indication of intrinsic motivation and is also assessed in the present studies. Free-choice tasks were developed by Deci (1972) and are used in this study to assess performance outcomes on an optional, non-rewarded task. Free-choice performance is a behavioural measure of intrinsic motivation, meaning that interest is measured based on how participants behave. Beyond this, intrinsic motivation is assessed using self-report questionnaires, which directly ask participants how interested they are in the task. Enjoyment, free-choice performance, and self-reported intrinsic motivation are all assessed in the present studies as indicators of intrinsic motivation.

Intrinsic motivation is contrasted with extrinsic motivation, which is the desire to engage in a task for the purpose of obtaining an external reward such as money or praise. Studies have shown that intrinsic motivation is associated with more desirable outcomes than extrinsic motivation. It has been reported that intrinsic motivation has a positive impact on employees' performance and well-being. For example, heightened intrinsic motivation and self-determination has been associated with increased creativity (Amabile, 1983), conceptual understanding (Benware & Deci, 1984), self-esteem (Deci, Schwartz, Sheinman & Ryan, 1981) and general well-being (Langer & Rodin, 1976). Furthermore, it has been reported that those individuals who are extrinsically motivated (motivated by external factors such as money or status) exhibit more negative affect

(Clugston, Howell & Dorfman, 2000), perform fewer organizational citizenship behaviours (OCB), experience more anxiety, and report worse interpersonal relationships (Deci & Ryan, 2000).

Basic Needs

It is argued that in order to be intrinsically motivated, individuals must satisfy certain basic human needs. SDT (Deci, Connell & Ryan 1989) proposes that all people have the need to experience competence, relatedness and autonomy in their daily lives.

Competence is defined as feeling capable and confident in performing job tasks, and is similar to Bandura's concept of self-efficacy. *Relatedness* is the need to have positive interactions with others and to experience a sense of belonging. This is analogous to Baumeister & Leary's conceptualization of the "need to belong." It represents the desire to feel as though one is a part of something larger than oneself. Finally, *autonomy* is described as the need to feel as though one is acting voluntarily and is in control of one's own actions, thoughts and feelings (Deci et al., 1989). Self-Determination theorists predict that if these needs for competence, relatedness and autonomy can be satisfied within the organizational environment, employees are more likely to be intrinsically motivated and perform at a higher level. The focus of this study is on perceived autonomy because it is this need that is predicted to be most affected by pay systems and is at the heart of this debate.

Perceived Autonomy

Self-determination theorists claim that when employees perceive autonomy in their job, intrinsic motivation will be enhanced. Autonomy is the extent to which a person's actions are determined by personal interests and values as opposed to being controlled and influenced by external factors (Houlihan, Koestner, Gagné & Joussemet, 2004). Of particular importance for this study are the managerial behaviours that satisfy employees'

need for autonomy. Baard (2002) claims that employees will feel autonomous when managers:

- 1) Optimize subordinate's control/influence*
- 2) Reduce both internal and external pressures*
- 3) Eliminate excessive rules*
- 4) Allow choice in job tasks
- 5) Are tolerant of failure
- 6) Take/understand subordinates perspective
- 7) Provide non-controlling feedback*
- 8) Are assertive rather than aggressive
- 9) Avoid manipulative incentive programs*

Several items are highlighted with an asterisk indicating that pay-for-performance incentive programs are incompatible with these autonomy supportive behaviours. In other words, pay-for-performance *minimizes* subordinate's control and influence, *increases* internal and external pressures, *adds* excessive rules, *introduces* controlling feedback, and is *precisely* a manipulative incentive program.

Pay-for-performance minimizes control and influence by using money or other external rewards to pressure workers into behaving in a way that is desirable for managers and owners, limiting their own freedom. Internal and external pressures are increased because those in control of valuable rewards have the power to manipulate worker's behaviour and drive them to behave in ways that they otherwise would not. Incentive programs introduce excessive and unnecessary rules in order to define performance criteria. Contingent-pay requires that workers perform up to a very strict performance standard if rewards are to be obtained, leaving little room for personal discretion and style. Finally, pay-for-performance introduces controlling feedback by linking pay directly to feedback. Any negative feedback will not be interpreted as an area for improvement but rather as a failure and a punishment. In this way, pay-for-performance undermines the support of autonomy.

External Rewards & Intrinsic Motivation

Self-determination theory claims that performance-contingent rewards are a form of external control, which is associated with extrinsic motivation. Under such a pay-system, employees do not feel free to act as they choose and will be less intrinsically motivated. On the other hand, base pay does not entail a controlling reward contingency and therefore does not undermine perceived autonomy or intrinsic motivation.

A study conducted by Deci (1971) involving two lab experiments and one field study focused on the effects of external rewards on intrinsic motivation and found that when money was used as a reward for an initially intrinsically appealing task, intrinsic motivation would decrease. Also, results showed that when positive feedback and verbal reinforcements were used as a reward, intrinsic motivation would increase. It was explained that this effect was seen because positive feedback and verbal reinforcements were not interpreted as controlling and provide information on one's competence (Deci, 1971).

The imposition of external control is said to affect the "locus of causality" or the individual's reason for engaging in the behaviour (deCharms, 1968). One can have either an internal locus of causality or an external locus of causality, which is essentially the difference between feeling like an agent vs. a pawn. External rewards shift the locus of causality from within the individual to outside the individual (Gagné & Deci, 2005). This means that, where, at first, the individual's reason for engaging was internal (personal enjoyment, pleasure and interest) the reason is now shifted to the external (money, rewards and status). In other words, people behave in order to receive a reward rather than for enjoyment of, and interest in, the behaviour itself. Once a person becomes motivated by external rewards, what was once an intrinsically appealing and self-

determined behaviour becomes less interesting, and the person becomes less likely to engage in that behaviour in the absence of rewards (Deci & Ryan, 2000).

It is proposed that certain types of external rewards reduce perceived autonomy and intrinsic motivation by extrinsically motivating, and therefore controlling behaviour (Gagné & Deci, 2005). Self-Determination theorists have found that the presence of external rewards such as money, and controlling positive feedback can undermine intrinsic motivation (Deci & Ryan, 2000).

A recent meta-analysis conducted by Deci, Koestner and Ryan (1999) using 128 studies and summarizing 30 years of research supports the claim that contingent rewards have detrimental effects on intrinsic motivation (as measured by free-choice behaviour). It is also concluded that non-controlling verbal rewards increase intrinsic motivation.

This meta-analysis separates the different types of reward contingencies into four main categories including: task-noncontingent rewards, engagement-contingent rewards, completion-contingent rewards and performance-contingent rewards. Task non-contingent rewards are defined as rewards given for something other than the specified task, such as being paid for time spent at the lab. Deci, Koestner and Ryan (1999) explain that this reward contingency is meant to “simulate the typical work condition in which people are paid a salary without having their pay tied in any direct way to the specific tasks they perform” (p. 640). This reward is reinforcing only time at the lab and not engagement in any specific behaviour. This type of reward has been shown to have no undermining effect on intrinsic motivation. Engagement-contingent rewards are defined as rewards that are given for engaging in an activity. The reward reinforces any engagement in the specified task. This type of reward is more controlling than a task-noncontingent reward, and provides very little competence information to counteract the negative effects of this control, and therefore decreases intrinsic motivation. Completion-

contingent rewards are given for the completion of one or more tasks. Contrary to engagement-contingent rewards, the task must be completed entirely in order to receive a reward, and not simply engaged in on some undefined level. This is an even more controlling reward contingency than both the task-noncontingent and engagement-contingent rewards but provides more competence feedback, which can partially counteract the negative effects of control on intrinsic motivation. Performance-contingent rewards are defined as rewards given for performing up to a particular pre-specified standard. Performance-contingent rewards are both the most controlling and the most capable of providing competence information and this will have a nullifying effect on intrinsic motivation. To the extent that Performance-contingent rewards are controlling as opposed to informational in nature, intrinsic motivation will decline. Pay-for-performance pay systems are an example of performance-contingent rewards in that they reward a particular standard of behaviour.

Task non-contingent rewards and Performance-contingent rewards are the two types of reward contingencies that will be contrasted in the present study and are therefore of primary interest. Base pay is a task-noncontingent reward, and piece-rate pay is a performance-contingent reward. Deci, Koestner and Ryan (1999) demonstrated that performance-contingent rewards generally undermine free-choice intrinsic motivation, and that task non-contingent rewards do not show these same detrimental effects.

Empirical evidence is still split on the issue of whether performance-contingent rewards increase or decrease performance. Self-Determination theorists explain that this may be because rewards can be either beneficial or detrimental depending on the manner in which the rewards are presented. Amabile (1993) argued that rewards that are presented in a controlling way decrease intrinsic motivation, whereas non-contingent rewards that are used to recognize personal achievement do not interfere with intrinsic

motivation, and may in fact increase it. Non-contingent rewards do not compromise intrinsic motivation because the reward contingency is not explicit and expectations of external rewards are not formed. In this situation, the locus of causality is not shifted externally, and intrinsic motivation remains intact. Unexpected rewards can increase intrinsic motivation because they provide positive feedback and information about performance without inducing a sense of pressure or control. In summary, when behaviour is controlled by external contingencies, intrinsic motivation will suffer.

Creative Performance

It has been demonstrated that when intrinsic interest is low, creative performance is compromised (Amabile, 1982). Creativity is defined as the creation of novel and appropriate ideas and solutions to work problems (Amabile, 1982). Amabile (1983) explained that the reduction of perceived autonomy is experienced as controlling and aversive and leads directly to a drop in intrinsic interest on a creative task. The individual focuses on the reward instead of the enjoyment of the task and as a result creativity is compromised (Amabile, 1983). Amabile's (1993) more recent findings on rewards, intrinsic motivation and creativity show that there may be a synergistic relationship between intrinsic and extrinsic motivation, where extrinsic motivation does not necessarily undermine intrinsic motivation. Amabile summarizes that many extrinsic motivators do undermine creativity such as "win-lose competition within an organization, expected negative evaluation of one's ideas, a concern with rewards, and constraint on how the work is to be done" (Amabile, 1993: 192). However, she also found that other types of extrinsic motivators support creativity such as "reward and recognition for creative ideas, clearly defined overall project goals, and frequent feedback on the work" (Amabile, 1993: 192). These types of extrinsic motivators are referred to as "synergistic extrinsic motivators" that do not undermine intrinsic motivation because they provide

information about the person's competence and the value of their work. Other recent studies in this area demonstrate that high levels of both extrinsic and intrinsic motivation can co-exist resulting in positive effects on creativity (Hennessey & Zbikowski, 1993).

Self-determination theory explains the negative effects of certain types of contingent rewards on intrinsic motivation and creative performance by asserting that controlling reward contingencies undermine perceived autonomy, thus making the task less enjoyable.

A further study tested the effects of contingent vs. non-contingent rewards on motivation and creativity and found that intrinsic motivation was related to improved creativity, while contingent extrinsic rewards were not (Cooper, Clasen, Silva-Jalonen & Butler, 1999).

Although the present studies tested creative and quantity performance, the main debate focused on the effect of rewards on creative performance. This review focused specifically on creative performance because it is creativity that SDT expects to be most damaged by the imposition of controlling external rewards. Eisenberger made the opposite prediction that creativity is enhanced by external rewards.

Eisenberger's Theory & Research

In direct contrast to Self-Determination Theory, Eisenberger et al. (1999) assert that performance-contingent rewards increase perceived autonomy, intrinsic motivation and creative performance.

External Reward and Intrinsic Motivation

The positive relationship between performance-contingent rewards and perceived autonomy is hypothesized to exist because people can decide whether or not to accept the reward contingency and therefore have more control over their work related behaviour.

In Eisenberger's view "the utilitarian use of reward conveys not social control, but freedom of action" (Eisenberger, Rhoades & Cameron, 1999: 1027). The logic for this argument is that "the promise of repeated use of reward conveys that (a) the person, group or organization giving the reward lacks control over the performance of the potential reward recipient, and (b) the potential recipient can, if he or she so wishes, decline the reward and not act as requested. Thus, performance-contingent reward might increase self-determination" (Eisenberger et al., 1999: 1027). These authors suggest that it is the imposition of tasks and performance standards that is controlling, and that the offer of rewards counteracts these infringements on autonomy (Eisenberger et al., 1999). Eisenberger et al. explain that rewarding high performance allows employees freedom in how they perform their job, and that this reward system might therefore increase employees' beliefs that their organization is committed to them. Thus, it is claimed that offering performance-contingent rewards acts to increase perceived autonomy (Eisenberger et al., 1999). A laboratory study supporting this theory shows that pay-for-performance had a positive effect on perceived self-determination, competence, enjoyment and free time spent on the task (Eisenberger et al., 1999). Furthermore, a related field study showed that perceived self-determination explained the positive relationship between performance-reward expectancy of workers and their perceived organizational support, positive mood, and job performance (Eisenberger et al., 1999).

When employees experience this heightened sense of autonomy or freedom within their job, they will experience higher levels of intrinsic motivation. Autonomy and intrinsic motivation are predicted to lead to improved creative performance.

Creative Performance

Since Eisenberger and Self-Determination theorists make opposite predictions concerning the effects of rewards on perceived autonomy and intrinsic motivation, they

also make opposite predictions about the effects of rewards on creativity. Eisenberger claims that performance-contingent rewards lead to increased creative performance when creativity is rewarded (Eisenberger & Shanock, 2003). Eisenberger and Shanock (2003) stated that when it is clearly explained to participants that the reward is dependant on novel performance, novel performance would increase, as with any other response class. They argued that instructions provide cues that alert individuals to the desired performance criteria, and that they will respond by essentially doing what they are told. They claim that without clearly specifying that creative performance is desirable, conventional performance would be assumed to bring about rewards (Eisenberger & Shanock, 2003). Eisenberger & Shanock claimed that the reason why extrinsic rewards seem to undermine creative performance in SDT research is because creative performance is not specified. They stated that “it is unclear what the effects would be if participants were offered reward specifically for being creative” (Eisenberger & Shanock, 2003:125). It is predicted that instructions emphasizing creative performance, in combination with contingent rewards should be the most effective way of obtaining high levels of creativity.

A study conducted by Eisenberger, Armeli, and Pretz (1998) tested this hypothesis and found that a group of fifth and sixth graders produced more novel drawings when given specific instructions to produce novel drawings, than when they were given non-specific instructions. Furthermore, Eisenberger and Selbst (1994) found that a monetary reward for a specified high degree of divergent thought increased school children’s subsequent originality on a separate task. It was also found that a monetary reward for a specified low degree of divergent thought, decreased originality. In a separate study, Eisenberger and Armeli (1997) conducted two experiments looking at the effects of reward on intrinsic interest and creative performance in schoolchildren. The first

experiment showed that instructions specifying novel performance on Task 1 produced an increase in novel performance on a subsequent task. The second experiment showed that reward for novel performance on Task 1 produced increased subsequent interest in producing original drawings as opposed to copying familiar ones. They reported that the explicit requirement of creative performance in exchange for a reward increases creativity without reducing intrinsic interest (Eisenberger and Armeli, 1997).

The theoretical debate concerning rewards and their effects on motivation has practical implications for organizations. Recent literature on contemporary compensation practices highlights how both SDT and Eisenberger's theory relate to current organizational practices.

Compensation

A review of recent trends in compensation reveals that several types of pay systems are currently being used in Canadian businesses. These pay systems include broadbanding, skill-based pay, variable pay, and team rewards (Agarwal, 1998). Both skill-based pay and broadbanding relate to the establishment of base pay, whereas variable pay and team rewards are pay-for-performance strategies.

Base Pay

Broadbanding and skill-based pay both refer to different ways of establishing base pay, which is essentially an hourly wage or salary. Agarwal (1998) defined base pay as pay given to employees based on time worked, and not on performance criteria. This form of pay is usually determined by conducting an extensive job evaluation, and rating the job value in terms of its market value.

Broadbanding is an adaptation of previous pay grading systems with tall hierarchical structures and many narrow pay grades. A pay grade is defined as a group of jobs that can be categorized within a particular range of job evaluation points based on the job

description (Agarwal, 1998). This means that all jobs falling within a particular grade have a minimum and maximum pay, and that with each higher grade, there is a higher minimum and maximum pay spread. Currently, organizational structures are generally flattening out, becoming more team focused and interdependent. Thus, broadbanding has been adopted to flatten base-pay scales in accordance with the changing organizational structure.

Lawler (2000) argued that in the current business environment, reward systems should be changed and designed to pay the person, rather than the job. Lawler's research supports the use of skill-based pay which determines base-pay or hourly wage based on the skills, talents and knowledge that the individual employee possesses (Lawler, 2000). Employees can raise their pay by improving skills, and expanding their knowledge through education and training programs.

Both broadbanding and skill-based pay represent a means for determining base pay. Base pay involves paying the individual for time spent at work and is not dependant on any pre-specified level of performance. In this way, base pay can be considered a task-noncontingent reward, which was shown in Deci, Koestner & Ryan's (1999) meta-analysis to have no detrimental effects on intrinsic motivation.

Pay-for-Performance

Both variable pay and team rewards are forms of pay-for-performance compensation. Pay-for-performance is defined as paying employees based on a predetermined amount of money for each unit of output produced (Lawler, 1990). Although variable pay and team rewards are two previously mentioned performance-contingent rewards, individual variable pay plans are both popular (Agarwal, 1998) and controversial (Jenkins, Mitra, Gupta & Shaw, 1998). Individual variable pay plans include merit pay systems, bonuses, piece-rate, gainsharing and stock ownership (Houliort, Koestner, Gagné & Joussemet,

2004). Individual incentive plans are popular because they are relatively easily implemented and are intuitively appealing. It seems logical that tying pay directly to performance will enhance performance and highlight the most important aspects of the job. The Conference Board of Canada's annual surveys show that the percentage of Canadian businesses using individual incentive plans increased from 61% in 1990 to 75% in 1996 (Carlyle, 1996). However, this type of pay system is becoming more controversial because empirical evidence has not unequivocally supported its effectiveness in improving performance.

Pay-for-performance plans have been developed based on a number of theories. These theories include reinforcement theory, expectancy theory and goal-setting theory (Jenkins et al., 1998). The most basic foundation has come from reinforcement theory stating the famous "law of effect" (Luthans & Stajkovic, 1999). That is, behaviours followed by reinforcement will increase, and behaviours followed by punishment will decrease. Expectancy theory predicts that financial incentives increase extrinsic motivation to expend effort and thus, increase performance (Jenkins et al., 1998). Goal setting theory predicts that financial incentives increase acceptance of difficult performance goals, thereby increasing performance (Jenkins et al., 1998). Taken together, it would be expected that tying pay directly to performance would increase motivation and performance.

As it happens, empirical evidence has failed to consistently support the effectiveness of pay-for-performance systems, with some studies finding positive correlations between incentive pay and performance, and others finding null or negative relationships between these two variables (Taylor & Pierce, 1999). Many researchers have attempted to explain these null and negative findings by asserting that the pay system was either not implemented properly (Stajkovic & Luthans, 2001), used under the wrong conditions

(Shaw, Gupta & Delery, 2002) or used on the wrong types of people (Baer, Oldham & Cummings, 2003). Lawler (1981) explained that performance-contingent pay should be avoided when organizational trust is low, performance cannot be accurately measured, and large rewards cannot be given to the highest performers. Furthermore, Shaw et al. (2002) concluded that pay-for-performance is likely to be ineffective when work is characterized as highly interdependent. It can be argued that these conditions are common in the current business environment, and therefore pay-for-performance should rarely be used.

In an attempt to settle this controversy, a meta-analysis was conducted assessing the effects of financial incentives on performance (Jenkins et al., 1998). These authors found that pay-for-performance was positively correlated with performance quantity, but more importantly was *not* related to performance quality (Jenkins et al., 1998). This finding is exemplified (with some irony) in a field study conducted at Safelite glass where quantity of output increased by 44% but quality plummeted “rather quickly” resulting in an increase in defects and broken windshields (Lazear, 2000).

In their meta-analysis, Jenkins et al. (1998) note that most studies reporting positive correlations between financial incentives and performance have been conducted in manufacturing organizations. One study conducted in a manufacturing organization demonstrated that routine pay-for-performance (as it is normally implemented) improved performance by 11%. They also found that performance feedback alone improved performance by 20% and social recognition alone improved performance by 24% in the same organization (Stajkovic & Luthans, 2001).

A study that did attempt to measure the effectiveness of individual pay-for-performance in a non-manufacturing setting found no relationship between financial incentives and managerial performance in 11 out of 12 tests (Pearce, Stevenson & Perry,

1985). These results are supported by Deci, Koestner and Ryan's (1999) meta-analytic findings showing that controlling performance-contingent rewards undermine intrinsic interest.

In summary, pay-for-performance rewards tend to increase performance quantity in manufacturing organizations but at the expense of performance quality. Moreover, the positive effects of individual pay-for-performance programs in non-manufacturing organizations have not generally been supported.

Financial incentives not only fail to improve performance in industries that require knowledge and service workers, they are also clearly associated with undesirable outcomes such as depression and somatic complaints (Shirom, Westman & Melamed, 1999). Beyond this, Murray, Sujan, Hirt & Sujan (1990) reported that negative moods interfere with cognitive flexibility and result in a decrease in performance quality on creative tasks.

Although many managers implement a combination of both base pay and performance pay (Agarwal, 1998), there is considerable uncertainty as to whether to use only base pay, only performance pay, or some combination of the two. Performance-contingent pay is currently a popular means for motivating workers, but empirical evidence does not consistently support its effectiveness. It is necessary to understand why these mixed results have been found in order to develop pay programs that are capable of enhancing both employee performance and organizational effectiveness.

The contemporary business environment requires that workers possess a high level of creative and innovative skill and therefore, organizations must be able to foster this in their employees. Motivating employees to their fullest potential in the current business environment is not as easy as it may seem. Given the importance of human capital for achieving competitive advantage, the relationship between rewards and creative

performance must be understood with more clarity. The present study examines the relative effectiveness of piece-rate rewards and base pay on creative performance, as well as the possible mediating variables that may explain this relationship.

Overview of Studies & Hypotheses

The purpose of the studies was to determine how pay system and type of instructions impact perceived autonomy, intrinsic motivation and ultimately performance. Two studies were conducted, that used a 2 (Creative instructions, Quantity instructions) X 3 (Base-Pay, Piece-Rate Pay, No Reward) between-subjects design. They were laboratory experiments that were presented as a simulation where participants were working for the John Molson School of Business. All participants completed the entire experiment on a personal computer in a computer lab. Participants were randomly assigned to one of six Pay/Instruction conditions (see Appendix A for complete instructions for each condition). There were two tasks; the first task was to create slogans for the JMSB International Case Competition. This task was timed for 15 minutes, at which time participants were stopped and asked to complete a questionnaire assessing perceived autonomy and intrinsic motivation. Participants were then given the option to complete a second task, which was to provide suggestions for “how we can better serve JMSB students.” The computer recorded time spent on this activity and the number of suggestions provided.

The model presented in Figure 1 is based on SDT and depicts how perceived autonomy and intrinsic motivation are predicted to mediate the relationship between the reward contingency and performance under both creative and quantity instructions. This means that the reason why certain pay structures affect task performance is because of

their impact on the individuals' perceived autonomy, and interest in the task and not because of the type of instructions provided.

An additional variable, competence, is not included in the model but is measured in the present studies as a check to ensure that all subjects received the same feedback. The three indicators of intrinsic motivation are self-reported intrinsic motivation, enjoyment, and free-choice performance.

The model presented in Figure 2 is based on Eisenberger's theory and depicts how the combination of appropriate instructions and piece-rate rewards will interact to increase perceived autonomy and creative and quantity performance.

FIGURE 1: SDT Model

Creative & Quantity Instructions on a Creative Task

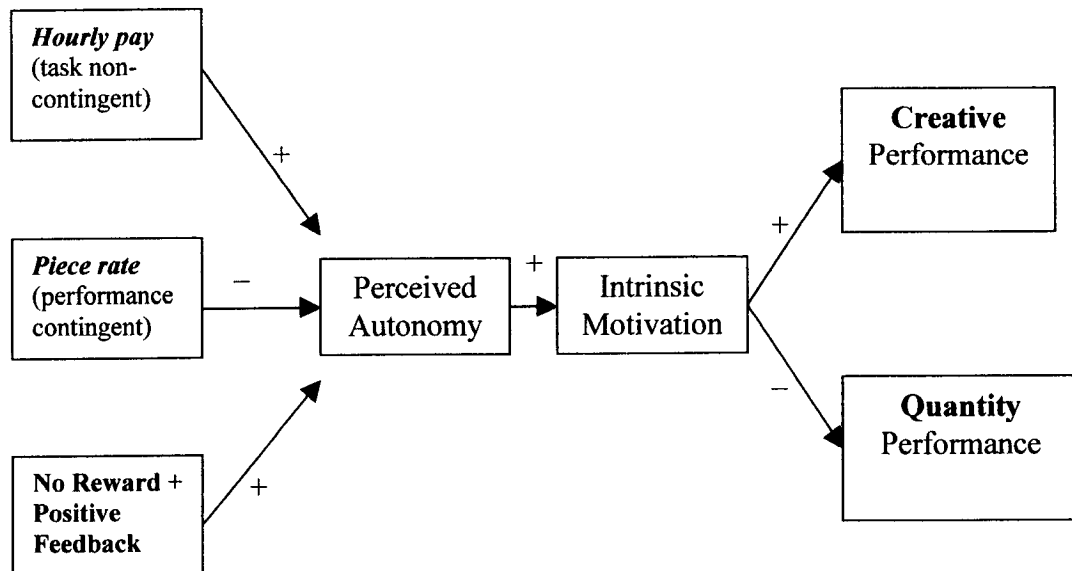
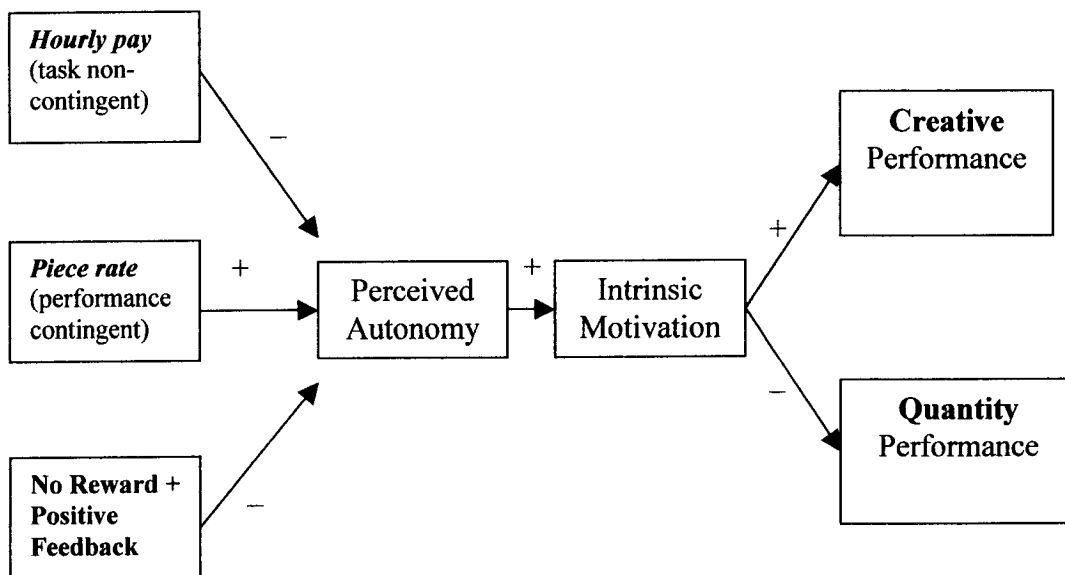
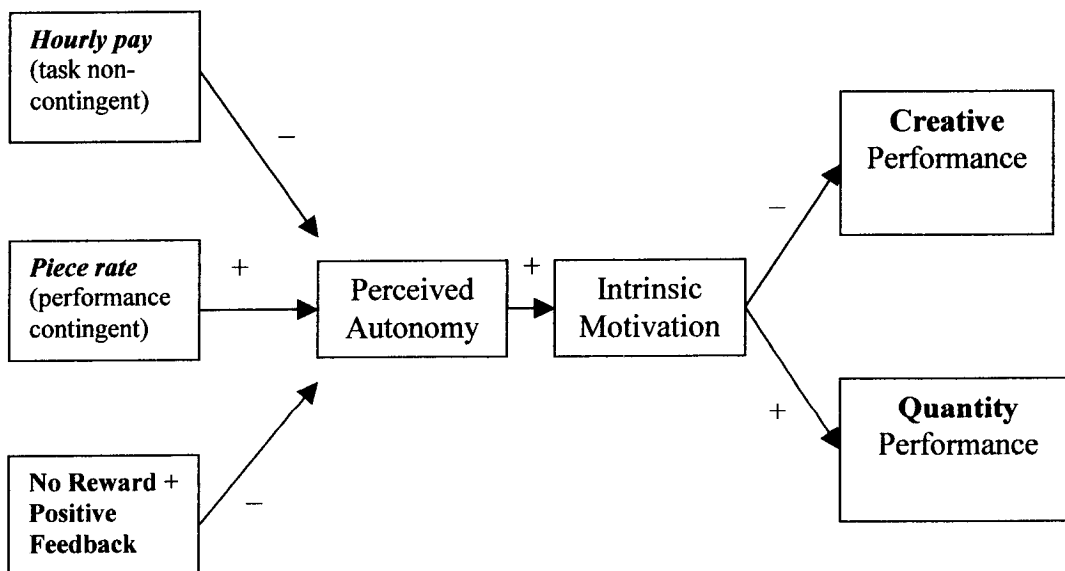


FIGURE 2: Eisenberger's Models

A. Creative Instructions on a Creative Task



B. Quantity Instructions on a Creative Task



Hypotheses

Mediation of perceived autonomy

Self-Determination Theory predicts that perceived autonomy explains the relationship between rewards and creativity. When people feel autonomous in their work, they are most likely to be interested in this work and perform creatively. If this is the case, intercorrelations between measures should show that perceived autonomy is positively correlated with intrinsic motivation and creative performance, as predicted in H1a and H1b.

It is also predicted that perceived autonomy will be negatively correlated with performance quantity, because it is expected that autonomy is not a necessary factor in pushing people to produce more. Controlling pay systems such as piece-rate pay, which are predicted to undermine autonomy and intrinsic motivation, could still be effective in increasing the quantity of output, as specified in H1c.

Based on SDT, it is hypothesized that:

- H1a. Perceived autonomy will be positively correlated with intrinsic motivation
- H1b. Perceived autonomy will be positively correlated with creative performance
- H1c. Perceived autonomy will be negatively correlated with performance quantity

Similarly to SDT, Eisenberger predicts that perceived autonomy explains the relationship between rewards and creativity. Eisenberger predicts that intercorrelations between measures should show that perceived autonomy is positively correlated with intrinsic motivation and creative performance.

Contrary to SDT, it is predicted that perceived autonomy would be positively correlated with performance quantity because it is expected that autonomy is necessary in order to increase the quantity of output. Eisenberger explains that Piece-Rate pay

systems increase autonomy by giving people the choice to perform at whatever level they choose, and therefore will increase performance quantity.

Based on Eisenberger's theorizing, it is hypothesized that:

H1d. Perceived autonomy will be positively correlated with performance quantity.

Mediation of competence

Self-Determination Theory and Eisenberger both predict that competence will also play a role in mediating the relationship between rewards and performance. As mentioned earlier, SDT highlights competence as one of the three basic needs in order for self-determination. When people feel competent, it is expected that they will show high levels of intrinsic motivation and creative performance, as predicted in H2a and H2b.

It is also expected that feelings of competence are necessary in order for people to produce more. Regardless of whether or not the pay system is controlling, feedback information concerning competence will increase the quantity of output. This hypothesis is specified in H2c.

Based on both SDT and Eisenberger's theory, it is hypothesized that:

H2a. Competence will be positively correlated with intrinsic motivation

H2b. Competence will be positively correlated with creative performance

H2c. Competence will be positively correlated with performance quantity

Perceived autonomy

Self-Determination Theory expects that Piece-Rate rewards will be detrimental to feelings of autonomy due to their controlling nature. The use of Piece-Rate reward systems is based on a behavioural principle called the Law of Effect. This principle states that behaviours that are rewarded will increase in frequency, and those which are punished will decrease in frequency. This "Behaviourism" began with the training of

animals and was designed specifically to control behaviour. For this reason, SDT hypothesizes that Piece-Rate rewards will be interpreted as controlling, and decrease perceived autonomy, whereas Base Pay and No Reward will not interfere with a perceived sense of autonomy. This hypothesis is stated in H3a.

Based on SDT, it is hypothesized that:

H3a. Participants receiving Piece-Rate rewards will have lower levels of perceived autonomy compared to those receiving Base Pay or No reward.

Eisenberger expects that Piece-Rate rewards will increase feelings of autonomy because they provide a choice for how participants want to respond. They can perform at a higher level and receive more money, or they can choose to perform at a lower level and accept the lower pay. In the organizational context, the implementation of Piece-Rate rewards are viewed as an expression from upper management that they have little control over employee behaviour and that employees are free to perform as they wish. In this way, Piece-Rate rewards are thought to be not controlling, but rather providing choice for the individual to perform at the level they desire. It is therefore predicted that those in the Piece-Rate condition would experience significantly more perceived autonomy than those in either the Base Pay or No Reward condition. This hypothesis is stated in H3b.

Based on Eisenberger's theorizing, it is hypothesized that:

H3b. Participants receiving Piece-Rate rewards will have higher levels of perceived autonomy compared to those receiving Base Pay or No reward.

Competence

SDT and Eisenberger both predict that Piece-Rate rewards will increase competence because they provide additional information about competence. However, in

the present study, positive feedback is given to all participants to control for this effect and therefore there should be no difference between competence levels in each of the Pay System conditions as specified in H4.

Based on SDT and Eisenberger's theory, it is hypothesized that:

- H4. Participants receiving Piece-Rate rewards will report the same levels of competence as those receiving Base Pay and No Reward.

Intrinsic motivation

Self-Determination theory predicts that Piece-Rate rewards will interfere with intrinsic motivation, primarily because of their effects on perceived autonomy. If Piece-Rate rewards are perceived as being controlling and manipulative, people will enjoy the task less. Additionally, their focus will turn to the external reward as opposed to the fun of the task. It is therefore hypothesized that those in the Piece-Rate reward condition will experience less intrinsic motivation than either those in the Base Pay or No Reward condition, as stated in H5a.

Based on SDT it is hypothesized that:

- H5a. Participants receiving Piece-Rate rewards will have lower levels of intrinsic motivation compared to those receiving Base Pay or No reward.

Eisenberger predicts that Piece-Rate rewards will increase intrinsic motivation because of their positive effects on perceived autonomy. If Piece-Rate rewards are perceived as being a choice and a freedom for workers, people will become more interested in the task. It is therefore hypothesized that those in the Piece-Rate reward condition will experience more intrinsic motivation than those in either the Base Pay or No Reward condition, as stated in H5b.

Based on Eisenberger's theorizing, it is hypothesized that:

H5b. Participants receiving Piece-Rate rewards will have higher levels of intrinsic motivation compared to those receiving Base Pay or No reward.

Enjoyment

Enjoyment is an indicator of intrinsic motivation and therefore, similar hypotheses are proposed. SDT predicted that those in the Piece-Rate reward condition would experience less enjoyment than either those in the Base Pay or No Reward condition, as stated in H6a.

Based on SDT, it is hypothesized that:

H6a. Participants receiving Piece-Rate rewards will report less enjoyment than those receiving Base Pay or No Reward.

On the contrary, Eisenberger hypothesizes that those in the Piece-Rate reward condition will experience more enjoyment than either those in the Base Pay or No Reward condition, as stated in H6b.

Based on Eisenberger's theorizing, it is hypothesized that:

H6b. Participants receiving Piece-Rate rewards will report more enjoyment than those receiving Base Pay or No Reward.

Creative performance

Self-Determination Theory predicts that Piece-Rate rewards will interfere with creative performance because people will experience infringements on their autonomy, enjoy the task less, and therefore be less inclined to produce creative responses on the task. Their attention will also be focused on receiving a reward as opposed to focusing on the task. It is therefore hypothesized that those in the Piece-Rate reward condition will perform less creatively than those in the Base Pay or No Reward condition, as stated in H7a.

Based on SDT, it is hypothesized that:

- H7a. Participants receiving Piece-Rate rewards will have lower levels of creative performance than those receiving Base Pay or No reward.

Eisenberger predicts that Piece-Rate rewards will increase creative performance because people will feel more autonomous, enjoy the task more, and therefore be more likely to produce creative responses on the task. It is therefore hypothesized that those in the Piece-Rate reward condition will perform more creatively than those in the Base Pay or No Reward condition, as stated in H7b.

There is a predicted main effect for Instruction Type on creative performance, with those who receive creative instructions producing more creative slogans, as stated in H7c. This is predicted because Eisenberger claims that instructions draw the participant's attention to the specified performance criteria and that they will adapt their responses in order to perform well.

There is also a predicted interaction between Pay System and Instruction Type for creative performance. Eisenberger hypothesizes that those in the Piece Rate condition who receive creative instructions will show the highest levels of creative performance, as stated in H7d. This is predicted because, once the participant understands what constitutes good performance, they will be increasingly motivated to achieve this standard of performance with the enticement of a reward.

Based on Eisenberger's theorizing, it is hypothesized that:

- H7b. Participants receiving Piece-Rate rewards will have higher levels of creative performance than those receiving Base Pay or No reward.
- H7c. Participants receiving Creative instructions will demonstrate higher levels of creative performance as those receiving Quantity instructions.

H7d. There will be an interaction between Pay System and Instruction Type for creative performance. Those receiving Piece-Rate rewards and Creative Instructions will be most creative.

Performance quantity

SDT predicts that Piece-Rate pay will be effective in increasing performance quantity. Piece-Rate rewards may undermine autonomy and intrinsic motivation, but it is hypothesized that these are not required in order to increase the level of output. Piece-Rate rewards introduce external contingencies and likely increase extrinsic motivation, leading to an increase in production. For this reason it is hypothesized that those in the Piece-Rate reward condition will create more slogans than those in the Base Pay or No Reward condition, as stated in H8a.

Based on SDT it is hypothesized that:

H8a. Participants receiving Piece-Rate rewards will create more slogans than those receiving Base Pay or No reward.

Eisenberger also predicts that Piece-Rate pay will be effective in increasing performance quantity. According to him, Piece-Rate rewards increase autonomy and intrinsic motivation, and should therefore increase the quantity of output. For this reason it is hypothesized that those in the Piece-Rate reward condition will create more slogans than those in the Base Pay or No Reward condition.

Eisenberger also predicts a main effect for Instruction Type on performance quantity, with those who receive quantity instructions producing more slogans than those who receive instructions to be creative, as specified in H8b. This is predicted because instructions are thought to draw the participant's attention to the "quantity" performance criteria and that they will adapt their responses in order to perform well.

There is also a predicted interaction between Pay System and Instruction Type for performance quantity. It is predicted that those in the Piece-Rate condition who receive quantity instructions will produce the most slogans, as stated in H8c. This is predicted because the participant will understand that producing more is better, and they will therefore be increasingly motivated to achieve this standard of performance when offered a reward.

Based on Eisenberger's theorizing, it is hypothesized that:

- H8b. Participants receiving Quantity instructions will produce more slogans than those receiving Creative instructions.
- H8c. There will be an interaction between Pay System and Instruction Type for the number of slogans created. Those receiving Piece-Rate rewards and Quantity Instructions will produce the most slogans.

Free-choice performance

Free-choice performance is a behavioural measure of intrinsic motivation and measures how interested participants are in engaging in an optional task when no reward is offered (Deci, 1972). In the present studies the optional task is to provide suggestions for how to better serve JMSB students. All free-choice performance measures are included as additional measures of intrinsic motivation. Data for this measure will include: agreement to engage in the extra task, the amount of time spent on it, and the number of suggestions provided.

For each of these three measures, SDT predicts that performance on the extra task will be lowest for those in the Piece-Rate condition, and higher for those in either the Base Pay or No Reward conditions. Eisenberger on the other hand, predicts that performance on the extra task will be highest for those in the Piece-Rate condition, and lower for those in either the Base Pay or No Reward conditions.

Agreement to participate in extra task:

Based on SDT, it is hypothesized that:

H9a. Participants receiving Piece-Rate rewards will be least likely to agree to participate in the extra task than those receiving Base Pay or No Reward.

Based on Eisenberger's theorizing, it is hypothesized that:

H9b. Participants receiving Piece-Rate rewards will be most likely to agree to participate in the extra task than those receiving Base-Pay or No Reward

Time spent on extra task:

Based on SDT, it is hypothesized that:

H10a. Participants receiving Piece-Rate rewards will spend less time on the extra task than those receiving Base Pay or No Reward.

Based on Eisenberger's theorizing, it is hypothesized that:

H10b. Participants receiving Piece-Rate rewards will spend more time on the extra task than those receiving Base Pay or No Reward.

Number of suggestions provided in extra task:

Based on SDT, it is hypothesized that:

H11a. Participants receiving Piece-Rate rewards will provide fewer suggestions in the extra task than those receiving Base Pay or No Reward.

Based on Eisenberger's theorizing, it is hypothesized that:

H11b. Participants receiving Piece-Rate rewards will provide more suggestions in the extra task than those receiving Base Pay or No Reward.

STUDY 1

Method

Participants

Participants were recruited from the JMSB subject pool at Concordia University. The subject pool was made up of second year commerce students who received two points toward their final grade in an introductory course. It was required that participants had excellent English speaking ability in order to participate in this study. All participants provided written consent for their participation and were informed that they were free to withdraw from the study at any point. They also received 10\$ for their participation.

Procedure

The present research was designed as a lab/simulation study. Participants were aware that they were participating in a study, but they were told that the purpose of the study was to help JMSB and the International Case Competition. The methodology was based on a simulation study conducted by Bono and Judge (2003, Study 2).

All participants provided written consent before beginning the experiment. Participants were randomly assigned to one of six Pay System/Instruction Type conditions by the computer. Instructions were provided either on the computer screen or orally through headphones attached to their computer. All responses were saved on disk to be analyzed at a later date. Groups of participants were seated one person per computer in a computer lab. A researcher was present throughout the experiment to answer any questions that participants had. Participants were instructed to wear the headphones and begin the experiment.

The computer program proceeded screen by screen as follows: (see Appendix B)

1. Written instructions were displayed for the task and the same instructions were presented orally through headphones to participants. Manipulations were given through

these instructions, so they varied depending on the condition to which the participant was assigned. Instructions received by participants and participant ID numbers were saved. Participants pressed a key to go on when finished.

2. Participants worked on a task where they were asked to generate slogans for the International Case Competition. Participants were required to write their slogans on the computer. The computer timed participants and stopped them after 15 minutes. There was a message displayed at the top of the screen that varied depending on the instructions they received. Responses were saved and both the creativity of slogans and the number of slogans provided were assessed.

3. Participants received feedback on their performance from the computer. This was bogus feedback. Everyone received the same feedback (varying slightly depending on instructions), so there were 6 sets of feedback in total. Once participants read it, they pressed a key to go on.

4. Participants completed a short survey with no time limit choosing a number between 1 and 7 for each statement. This data was saved along with data from the previous task.

5. Participants were given a second task to work on. They were required to choose whether to work on it or end the experiment. Once they had chosen (if they chose yes), they were presented with written instructions. They then pressed a key to go on.

6. Participants worked on a task where they had to write suggestions for improving student life at JMSB. There was no time limit. They clicked on a "stop" button on the screen (with the mouse) when they were finished. Their agreement to participate in the

optional task was recorded, along with the time spent on this extra task, and the number of suggestions provided in this task.

7. Participants were provided a debriefing form and paid when they completed the experiment.

Measures

Perceived autonomy

Perceived autonomy was measured using a self-report questionnaire. Perceived autonomy included both decisional autonomy and affective autonomy (Houffort, Koestner, Gagné & Joussemet, 2004). Affective autonomy refers to a sense of pressure or control and was measured using a four-item scale that was adapted for work contexts from the Reeve, Nix and Hamm's (2001) Autonomy Scale and the Intrinsic Needs Scale (Houffort, Koestner, Gagné & Joussemet, 2004). An example of an item from this scale is "I felt pressure". Agreement was rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The internal reliability of this scale was acceptable with a Cronbach's alpha of 0.75.

Decisional autonomy refers to a perceived sense of freedom in decision-making and was measured using a four-item scale adapted from Reeve et al.'s (2001) Autonomy Scale and the Intrinsic Needs Scale. An example of an item from this scale is "I felt I had control to decide how to solve the task". The extent of agreement was measured using a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). High scores represented more perceived decisional autonomy. The internal reliability of this scale was not acceptable (Cronbach's alpha = 0.22) and was therefore excluded from analyses.

Perceived competence

Perceived competence is the sense that one is capable of successfully performing a given task. This variable was assessed using the Intrinsic Motivation Inventory (IMI) (Ryan, 1982). An example of an item from the Perceived Competence scale is “I think I am pretty good at this activity”. This was the only item used in the analysis because the other two items were not recorded due to glitches in the computer program. The extent of agreement was measured using a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Intrinsic motivation

Intrinsic motivation was measured using the Situational Motivation Scale (SIMS; Guay, Vallerand, & Blanchard, 2000). This scale included sixteen items assessing four different subscales of four items each. The one four-item subscale measuring intrinsic motivation was used in this study. Participants were asked to answer the question “Why are you currently engaged in this activity?” An example of an item from the intrinsic motivation subscale was “Because I think that this activity is interesting”. The extent of agreement was measured using a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Internal reliability of the intrinsic motivation scale was acceptable with a Cronbach’s alpha of 0.86.

Enjoyment

This variable was assessed using the Intrinsic Motivation Inventory (IMI) (McAuley, Duncan, & Tammen, 1987). An example of an item from the Enjoyment scale is “I enjoyed doing this activity very much”. The extent of agreement was measured using a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The Enjoyment scale showed acceptable levels of internal reliability with a Cronbach’s alpha of 0.79.

Creative performance

Creative performance is defined as “novel behaviour that meets a standard of quality or utility” (Eisenberger & Selbst, 1994:1116). Creative performance was judged using Amabile’s (1983) consensual agreement approach where three judges rated creativity of slogans based on their own conception of creativity. Inter-rater reliabilities have been shown to be high using this measure of creative performance (Cooper et al., 1999). Judges were people working for, or very familiar with the JMSB International Case Competition. Rating instructions were provided for the judges indicating that they should: 1. Rate responses based on their own definition of creativity 2. Rate responses independently 3. Rate responses relative to one another and not relative to some absolute standard (Cooper et al., 1999). Creativity was judged based on a 10-point scale ranging from 1 (not creative) to 10 (very creative). See Appendix D for the complete set of instructions given to all judges. Inter-judge reliability between three judges rating the creativity of slogans was high, showing an average within group correlation (RWG) of 0.95 and a Cronbach alpha of 0.69.

Performance quantity

Performance quantity was measured objectively by counting the number of slogans provided by participants in Task 1.

Free-choice performance

Free-choice performance is a behavioural measure of intrinsic motivation and measures how interested participants are in engaging in an optional task when no reward is offered (Deci, 1972). Intrinsic motivation was measured by assessing responses obtained from the optional task (Task 2). The computer recorded: a. whether or not the

participant agreed to do the task; b. amount of time spent on the extra task; c. number of suggestions provided by the participant in the extra task.

Manipulation checks

There were two questions assessing the participants' understanding of the instructions and pay system. They were to click on the correct answer. These questions were presented after the instructions were given and before Task 1. The questions were:

1. What did the instructions indicate that you should focus on during this activity?
 - A. Creativity of slogans
 - B. Quantity of slogans

2. How were you paid for this activity?
 - A. No pay
 - B. Paid \$2 per creative slogan
 - C. Paid \$2 per usable slogan
 - D. Paid \$10 for your time

Results

Manipulation Checks

The responses to the manipulation check questions were not correctly saved by the server and therefore manipulation check results are not reported.

Correlational Analyses

Mediation of Perceived Autonomy

Intercorrelations between measures are shown in Table 1.1. These correlations provide preliminary support for hypotheses concerning the possible mediation of perceived autonomy in the relationship between rewards, intrinsic motivation and performance outcomes.

H1a stated that perceived autonomy would be positively correlated with intrinsic motivation and this hypothesis was supported ($r = .19, p < .05$).

H1b stated that perceived autonomy would be positively related to creative performance. This hypothesis was not supported ($r = .02, ns$).

H1c stated that perceived autonomy would be negatively related to performance quantity. This was predicted because it was conceivable that people may do more under controlling and pressured conditions. This hypothesis was not supported, as there was an observed *positive* correlation between perceived autonomy and performance quantity ($r = .19, p < .05$). Instead it supported Eisenberger's hypothesis H1d that perceived autonomy would be positively related to performance quantity.

Additional analyses of correlations within each condition revealed no indication that the relationship between variables changed as a result of the condition to which participants were assigned.

When looking at those who received instructions to be creative there was no significant correlation between perceived autonomy and intrinsic motivation ($r = .08, p = ns$), or between perceived autonomy and creative performance ($r = .03, p = ns$). There was also no correlation between autonomy and the number of slogans provided ($r = .15, p = ns$). There was no correlation between intrinsic motivation and creativity of slogans ($r = -.07, p = ns$), and no correlation between intrinsic motivation and the number of slogans created ($r = .13, p = ns$). These correlations are non-supportive of Eisenberger's models claiming that under creative instructions intrinsic motivation would be positively correlated with creative performance.

For those who received instructions to produce as many slogans as possible, there was a significant positive correlation between perceived autonomy and intrinsic motivation ($r = .33, p < .01$), but no correlation between autonomy and creative performance ($r = .01, p$

= *ns*). The correlation between autonomy and the number of slogans provided was marginally significant ($r = .23, p < .10$). There was no correlation between intrinsic motivation and creativity of slogans ($r = .03, p = ns$), and no correlation between intrinsic motivation and the number of slogans created ($r = .09, p = ns$). These results are unsupportive of Eisenberger's models claiming that under quantity instructions intrinsic motivation would be positively correlated with quantity performance.

Mediation of Competence

H2a stated that competence would be positively correlated with intrinsic motivation and this hypothesis was not supported ($r = .17, ns$).

H2b stated that competence would be positively correlated with creative performance and this hypothesis was not supported ($r = .09, ns$).

H2c stated that competence would be positively correlated with performance quantity and this hypothesis was supported ($r = .22, p < .05$).

Other Correlations

As expected, competence was positively correlated with enjoyment ($r = .28, p < .001$) and autonomy ($r = .31, p < .001$). Intrinsic motivation and enjoyment also showed a strong positive correlation ($r = .71, p < .001$).

SDT did not predict that the number of slogans provided in the first task would be positively correlated with the number of suggestions provided on the second extra task, but this relationship was observed ($r = .32, p < .001$). Although this correlation was not predicted it does make sense that participants would be consistent in their behaviour on both tasks.

Free-choice performance on the second task, where participants were asked to provide suggestions on how to best improve the experience of JMSB students, indicated that amount of time spent on the extra task was positively related to intrinsic motivation ($r = .28, p < .01$). Also, the time spent on the extra task was positively correlated with enjoyment ($r = .28, p < .01$). As expected, the amount of time spent on the extra task was positively correlated with the number of suggestions provided in the extra task ($r = .45, p < .001$). Although the hypothesized correlation between the number of suggestions provided on the extra task and intrinsic motivation was not significant, it was marginally significant in the predicted direction ($r = .20, p < .10$).

Unexpectedly, the correlation between time spent on the extra task and affective autonomy was non-significant ($r = 0.14, ns$). Similarly, the correlation between the number of suggestions provided on the extra task and affective autonomy was not significant ($r = .16, ns$).

Experimental Analyses

In order to determine whether the type of Pay Strategy or the Instruction Type had an effect on perceived autonomy, intrinsic motivation, creativity, performance quantity, and free-choice performance, a series of 2 (instruction type) X 3 (pay strategy) ANOVAs were conducted.

Perceived autonomy

Hypothesis H3a predicted that participants receiving Piece-Rate rewards would have lower levels of perceived autonomy compared to those in the Base Pay or No reward conditions. The main effect for Pay System on affective autonomy was not

significant, $F(2,56) = .52$, *ns* and therefore this hypothesis was not supported (see Table 1.2).

Eisenberger's Hypothesis H3b was also not supported in that participants receiving Piece-Rate rewards did not show higher levels of perceived autonomy compared to those in the Base Pay or No reward conditions.

Competence

Hypothesis H4 predicted that participants receiving Piece-Rate rewards would report the same level of competence as those receiving Base Pay or No Reward. Hypothesis H4 was predicted by both SDT and Eisenberger. The main effect for Pay System on competence was not significant, $F(2,56) = 1.4$, *ns*, and therefore this hypothesis was supported. When participants were given oral instructions, the main effect for Instruction Type on competence was significant, $F(1,62) = 5.59$, $p < .05$, indicating that those receiving quantity instructions reported higher levels of competence (Mean = 4.7, SD = 1.3) than those receiving instructions to be creative ($M = 4.1$, $SD = 1.1$) (see Table 1.3). These results were not predicted by either SDT or Eisenberger's theory. It is possible that an Instruction Type main effect was found when instructions were given orally because participants were more affected by intonations that provided extra emphasis to the importance of being creative. If participants felt that they were not particularly creative, this could likely result in decreased feelings of competence. It could also be that instructions to be creative are more vague than quantity instructions, leaving participants unsure of how to respond, and therefore feeling less competent.

Intrinsic motivation

Hypothesis H5a predicted that participants receiving Piece-Rate rewards would show lower levels of intrinsic motivation compared to those receiving Base Pay or No reward. The main effect for Pay System on intrinsic motivation was non-significant, $F(2,124) = 1.2, ns$, and therefore this hypothesis was not supported (see Table 1.4).

Eisenberger's Hypothesis H5b predicted that participants receiving Piece-Rate rewards would show higher levels of intrinsic motivation compared to those receiving Base Pay or No reward. The main effect for Pay System on intrinsic motivation was non-significant and therefore this hypothesis was not supported.

Enjoyment

Hypothesis H6a stated that participants receiving Piece-Rate rewards would report less enjoyment than those in the Base Pay or No Reward conditions. The main effect for Pay System on enjoyment was not significant, $F(2,56) = .22, ns$, and therefore this hypothesis was not supported (see Table 1.5). When participants were given oral instructions, the main effect for Instruction Type on enjoyment was marginally significant $F(1,62) = 3.17, p < .10$, indicating that those receiving quantity instructions reported higher levels of enjoyment ($M = 5.2, SD = 1.2$) than those receiving instructions to be creative ($M = 4.7, SD = 1.2$) (see Table 1.6). Although this result was not predicted, it is in line with results found earlier concerning the effects of oral creative instructions on competence. If the extra emphasis on being creative decreases feelings of competence, it follows that enjoyment of the task would also decrease, as seen here.

Eisenberger's hypothesis H6b that those in the Piece-Rate pay would experience more enjoyment than those in either the Base Pay or No Reward conditions was not

supported. The main effect for Pay System on enjoyment was not significant, and therefore this hypothesis was not supported.

Creative performance

Hypothesis H7a predicted that participants receiving Piece-Rate rewards would have lower levels of creative performance compared to those receiving Base Pay or No reward. The main effect for Pay System on creative performance was not significant, $F(2,130) = .14, ns$, and therefore this hypothesis was not supported (see Table 1.7).

Eisenberger's hypothesis H7b predicted that participants receiving Piece-Rate rewards would show higher levels of creative performance compared to those receiving Base Pay or No reward. The main effect for Pay System on creative performance was not significant, as reported above, and therefore this hypothesis was not supported. H7c predicted a main effect for Instruction Type on creative performance this hypothesis was not supported, $F(1,130) = .35, ns$. H7d predicted an interaction effect between Pay System and Instruction Type on creative performance. The hypothesis was that those receiving the combination of Piece-Rate rewards and Creative instructions would be most creative. This hypothesis was also not supported, $F(2,130) = .64, ns$.

Performance quantity

Hypothesis H8a predicted that participants receiving Piece-Rate rewards would create more slogans compared to those receiving Base Pay or No reward. The main effect for Pay System on performance quantity was not significant, $F(2,59) = .15, ns$, and therefore this hypothesis was not supported (see Table 1.8).

Eisenberger's hypothesis H8b predicted a main effect for Instructions, such that those receiving quantity instructions would produce more. This hypothesis was not

supported, $F(1,59) = .09$, *ns*. Hypothesis H8c predicted an interaction effect between Pay System and Instruction Type on performance quantity. The prediction was that those in the Piece-Rate/Quantity Instructions condition would produce the most slogans. This hypothesis was not supported, $F(2,59) = .68$, *ns*.

Free-choice performance

Agreement to engage in the extra task:

Hypothesis H9a predicted that participants receiving Piece-Rate rewards would be least likely to engage in the extra task compared to those receiving Base Pay or No reward. The Chi Square was not significant and therefore this hypothesis was not supported, $\chi^2(2) = 1.37$, *ns*. However a trend in the predicted direction was observed with 64% of participants in the Piece-Rate pay condition agreeing to participate, vs. 71% and 75% agreeing in the Base Pay and No Reward conditions.

Eisenberger's hypothesis H9b predicted that participants receiving Piece-Rate rewards would be most likely to engage in the extra task compared to those receiving Base Pay or No reward. As reported above, a trend in the opposite direction was observed, with those in the Piece-Rate condition being the least likely to agree to the extra task, however this difference between groups was not significant.

Time spent on the extra task:

Hypothesis H10a predicted that participants receiving Piece-Rate rewards would spend less time on the extra task than those receiving Base Pay or No reward. The main effect for Pay System on time spent on the extra task was not significant, $F(2,89) = .18$, *ns*, and therefore this hypothesis was not supported (see Table 1.9).

Eisenberger's hypothesis H10b predicted that participants receiving Piece-Rate rewards would spend more time on the extra task than those receiving Base Pay or No reward. The main effect for Pay System on time spent on the extra task was not significant and therefore this hypothesis was not supported.

Number of suggestions provided in the extra task:

Hypothesis H11a predicted that participants receiving Piece-Rate rewards would provide fewer suggestions in the extra task than those receiving Base Pay or No reward. The main effect for Pay System on the number of suggestions provided in the extra task was not significant $F(2,87) = .37, ns$, and therefore this hypothesis was not supported (see Table 1.10).

Eisenberger's hypothesis H11b predicted that participants receiving Piece-Rate rewards would provide more suggestions in the extra task than those receiving Base Pay or No reward. The main effect for Pay System on the number of suggestions provided in the extra task was not significant and therefore this hypothesis was not supported.

Summary of Results

Correlational results indicated that both SDT and Eisenberger et al. were partly correct in identifying the link between perceived autonomy and intrinsic motivation. The positive correlation between these two variables lends support to the claim that people would derive more internal satisfaction if they feel autonomous in their work. This was corroborated by the findings that perceived autonomy was positively correlated with enjoyment and competence since these variables are closely related with intrinsic motivation.

Both SDT and Eisenberger et al. predicted that perceived autonomy would be positively correlated with creative performance and this hypothesis was not supported.

Self-determination theory predicted that perceived autonomy would be negatively correlated with performance quantity, whereas Eisenberger et al. predicted that perceived autonomy would be positively correlated with performance quantity. On this issue, Eisenberger's hypothesis was supported with an observed positive correlation between perceived autonomy and the number of slogans created.

Overall, there is limited evidence to support either side of the debate concerning the effects of Performance-contingent rewards and Instructions on affective autonomy, intrinsic motivation, creativity and quantity performance since few main or interaction effects were found in this study. The main effects that were found (when participants were given oral instructions through their headphones) indicated that competence and enjoyment were higher when given quantity instructions as opposed to instructions emphasizing creativity. This finding provided preliminary contradictory evidence to Eisenberger et al.'s claim that creative instructions combined with a piece-rate reward would be the best way to inspire creative performance.

A follow-up study was necessary because data concerning participant responses to the manipulation check questions were irretrievable. Responses to the manipulation check questions were supposed to be saved automatically by the computer, along with the rest of the data, but were not correctly saved. Initially, the programmer did not send any manipulation check data. When asked, the data that were sent did not match the participant numbers, and there were many participants missing. The data were therefore dismissed as being unusable.

Without this information, it was impossible to determine if null results were legitimate, or if rather they were the result of participants' failure to read, comprehend, or remember the instructions. There was some indication that participants did not understand instructions, due to the nature of the questions that were asked during the experiment. For example, some participants were confused when shown the page asking them to fill in slogans for the International Case Competition (despite the highlights above the page) and asked what they were supposed to do. This was most likely due to the fact that English was not their first language. Although it was stipulated at the beginning that only those students with English as their first language were allowed to participate, many students found this unfair and attended anyway. A second study was designed to test the same variables but with extra emphasis placed on the importance of reading and understanding the instructions, and on correctly saving manipulation check data.

STUDY 2

Method

Participants

Participants were recruited from the JMSB subject pool during the summer semester. This subject pool was made up of second year commerce students attending summer classes. They received one point towards their final grade for participating in the experiment. The requirement that participants have excellent English speaking ability was relaxed due to the high number of foreign students attending summer classes. All participants provided written consent for their participation and were informed that they were free to withdraw from the study at any point. They also received 10\$ for their participation.

Procedure

Study 2 followed the same basic procedure as Study 1 except for a few minor modifications. Primarily, the second study attempted to more clearly emphasize the need to read instructions carefully and to remember them (See Appendix C for added instructions). It was explained to participants that they would be quizzed on the instructions that they received in order to be sure that they were fully aware of the Pay System and whether to concentrate on creativity or quantity during the task. This would ensure that the manipulation was effective. Manipulation check questions were included in the experiment and responses were correctly recorded and saved for more detailed analysis. The questions were presented after the instructions were given, and before Task1. The questions were:

1. What did the instructions indicate that you should focus on during this activity?
 - A. Creativity of slogans
 - B. Quantity of slogans

2. How were you paid for this activity?
 - A. No pay
 - B. Paid \$2 per creative slogan
 - C. Paid \$2 per usable slogan
 - D. Paid \$10 for your time

Measures

The rest of the experiment proceeded as in Study 1, using the same computer simulation tasks, and measures for perceived autonomy, competence, intrinsic motivation, enjoyment, creative performance, performance quantity and free choice performance.

In this second study, two out of the four perceived autonomy items were highly correlated ($r = 0.85, p < .001$) and were therefore used in the analysis. The decisional

autonomy measure did not reach acceptable levels of internal reliability (Cronbach's $\alpha = 0.19$) and was therefore excluded from analysis.

Two out of the three items for perceived competence were highly correlated ($r = .44$, $p < .01$) and were used in the analysis.

Measures for intrinsic motivation and enjoyment showed acceptable levels of internal reliability with Cronbach's alphas of 0.73 and 0.88, respectively.

For creative performance, inter-judge reliability was high with an RWG of 0.95 and a Cronbach alpha of 0.75.

Results

Manipulation Checks

Pay System

Manipulation checks revealed that people generally understood the instructions. Out of 20 participants in the No Reward condition, 1 person mistakenly reported that they were being paid per creative slogan, 1 person mistakenly reported that they were being paid per usable slogan, and 5 people mistakenly reported that they were being paid for their time. Out of 10 people in the Flat-Pay condition, 1 person mistakenly reported that they were to receive No Reward. Out of 10 people in the Piece-Rate pay condition 1 person mistakenly reported that they were to receive No Reward.

Instruction Type

For those 16 participants who received quantity instructions, 10 people mistakenly reported that they received instructions to be creative. It is possible that the instructions emphasizing "usable" slogans was confusing to participants, perhaps indicating some standard of creativity for certain individuals. For those 24 who received

instructions to be creative, all participants answered correctly that they were given instructions to be creative.

Despite some misunderstanding of instructions, the entire sample was used for all statistical analyses, given the relatively small sample size ($N = 40$). Additional analyses excluded those who answered one or more of the Manipulation Check questions incorrectly indicating that instructions were not understood.

Correlational Analysis

Mediation of Perceived Autonomy

Intercorrelations between measures are shown in Table 2.1. SDT's hypothesis H1a predicted that perceived autonomy would be positively correlated with intrinsic motivation and this hypothesis was not supported ($r = -.03, ns$). Hypothesis H1b predicted that perceived autonomy would be positively correlated with creative performance and this hypothesis was not supported ($r = .18, ns$). Hypothesis H1c stated that perceived autonomy would be negatively correlated with performance quantity and this hypothesis was not supported ($r = -.18, ns$). Eisenberger's hypothesis H1d predicted that perceived autonomy would be positively correlated with performance quantity and this was also not supported, as reported above.

Additional analyses of correlations within condition revealed no indication that the relationship between variables changed depending on the condition to which participants were assigned.

When looking at those who received instructions to be creative there was a marginally significant positive correlation between perceived autonomy and intrinsic motivation ($r = .47, p < .10$). There was no correlation between autonomy and creative

performance ($r = .11, p = ns$), or between autonomy and the number of slogans provided ($r = -.40, p = ns$). There was no correlation between intrinsic motivation and creativity of slogans ($r = -.19, p = ns$) and similarly, no correlation between intrinsic motivation and the number of slogans provided ($r = -.11, p = ns$). These results are not supportive of Eisenberger's models predicting that for those receiving instructions to be creative, intrinsic motivation would be positively correlated with creative performance.

For those who received instructions to produce as many slogans as possible, there was a marginally significant negative correlation between perceived autonomy and intrinsic motivation ($r = -.50, p < .10$). There was no correlation between perceived autonomy and creative performance ($r = .32, p = ns$) or between autonomy and the number of slogans provided ($r = .16, p = ns$). There was no correlation between intrinsic motivation and creativity of slogans ($r = -.44, p = ns$) and similarly, no correlation between intrinsic motivation and the number of slogans provided ($r = .15, p = ns$). These results do not support Eisenberger's models claiming that for those receiving quantity instructions, intrinsic motivation would be positively correlated with quantity performance.

Mediation of Competence

Concerning the possible mediation of competence SDT hypothesis H2a stated that competence would be positively correlated with intrinsic motivation and this hypothesis was supported ($r = .41, p < .05$). Hypothesis H2b stated that competence would be positively correlated with creative performance and this hypothesis was not supported ($r = -.27, ns$). Hypothesis H2c predicted that competence would be positively correlated with performance quantity and this was not supported ($r = .09, ns$).

Other Intercorrelations

As expected there was a significant positive correlation between intrinsic motivation and enjoyment ($r = .38, p < .05$). Contrary to hypotheses, positive correlations between intrinsic motivation and creativity were not significant and in fact were marginally significant in the opposite direction ($r = -.29, p < .10$).

An unexpected finding was that enjoyment was negatively correlated with the creativity of slogans ($r = -.39, p < .05$), indicating that those who enjoyed the task more were less creative.

Free-choice performance on the second task, where participants were asked to provide suggestions on how to best improve the experience of JMSB students, indicated that there was an expected positive correlation between affective autonomy and competence ($r = .38, p < .05$). There was also an expected negative correlation between the number of slogans provided on the first task and the amount of time spent on the extra task ($r = -.64, p < .001$). There was a strong positive correlation between the amount of time spent on the extra task and the number of suggestions provided in the extra task ($r = .50, p < .001$).

An unexpected, and somewhat contradictory finding for free-choice performance was the negative correlation between the creativity of slogans provided in the first task and the number of suggestions provided in the extra task ($r = -.58, p < .001$). Since the number of suggestions provided in the extra task is a behavioural measure of intrinsic motivation, this finding suggests that more creative slogans in the first task were correlated with less intrinsic motivation for providing suggestions in the second task.

Experimental Analyses

To determine the effects of the Pay Strategy and the Instruction Type on perceived autonomy, intrinsic motivation, creativity, performance quantity, and free-choice performance, a series of 2 (instruction type) X 3 (pay strategy) ANOVAs were performed.

Perceived autonomy

Hypothesis H3a predicted that participants receiving Piece-Rate rewards would have lower levels of perceived autonomy compared to those in the Base Pay or No reward conditions. The main effect for Pay System on affective autonomy was not significant, $F(2,24) = .72$, *ns*, and therefore this hypothesis was not supported. There was an unpredicted yet significant interaction effect $F(2,24) = 4.59$, $p < .05$ showing that affective autonomy was highest in the Base Pay/Creativity instructions condition ($M = 6.9$, $SD = .25$) and lowest in the No Reward/Creativity instructions condition ($M = 4.6$, $SD = 1.7$ (see Table 2.2).

Eisenberger's hypothesis H3b predicted that participants receiving Piece-Rate rewards would have higher levels of perceived autonomy compared to those in the Base Pay or No reward conditions. The main effect for Pay System on affective autonomy was not significant and therefore this hypothesis was not supported.

Competence

Hypothesis H4 predicted that participants receiving Piece-Rate rewards would report the same levels of competence as those receiving Base Pay or No Reward. The main effect for Pay System on competence was not significant, $F(2,24) = 1.14$, *ns*, and therefore this hypothesis was supported. There was an unexpected main effect for

Instruction Type on competence $F(1,24) = 5.90, p < .05$, indicating that those receiving creative instructions reported higher levels of competence ($M = 5.1, SD = 1.3$) than those receiving quantity instructions ($M = 4.4, SD = 0.7$) (see Table 2.3). These results were not predicted by either SDT or Eisenberger's theory and were opposite to the effect seen in Study 1, where those in the quantity instructions condition felt significantly more competent.

Intrinsic motivation

Hypothesis H5a predicted that participants receiving Piece-Rate rewards would show lower levels of intrinsic motivation compared to those receiving Base Pay or No reward. When analyzing the entire sample, the main effect for Pay System on intrinsic motivation was non-significant, $F(2,33) = 1.66, ns$, and therefore this hypothesis was not supported (see Table 2.4).

However, when the sample was divided into those who understood the instructions vs. those who did not, significant results were observed (see Table 2.5). The main effect for Pay System was significant, $F(2,18) = 5.02, p < .05$ and hypothesis H5a was partly supported. Intrinsic motivation was highest for those in the Base-pay condition ($M = 6.1, SD = 0.8$), followed by lower levels of intrinsic motivation in the Piece-Rate condition ($M = 5.5, SD = 1.2$). The lowest levels of intrinsic motivation were observed in the No Reward condition ($M = 4.5, SD = 1.3$).

Eisenberger's hypothesis H5b predicted that participants receiving Piece-Rate rewards would show higher levels of intrinsic motivation compared to those receiving Base Pay or No reward. When analyzing the entire sample, the main effect for Pay System on intrinsic motivation was non-significant, as reported earlier, and therefore this

hypothesis was not supported. When using only the sample of people who understood the instructions, the main effect for Pay System was significant, as previously reported, and Eisenberger's hypothesis H5b was contradicted. Intrinsic motivation was highest for those in the Base-pay condition, followed by lower levels of intrinsic motivation in the Piece-Rate condition.

Enjoyment

Hypothesis H6a predicted that participants receiving Piece-Rate rewards would report lower levels of enjoyment compared to those receiving Base Pay or No reward. When analyzing the entire sample, the main effect for Pay System on enjoyment was non-significant, $F(2,24) = 1.94$, *ns*, and therefore this hypothesis was not supported (see Table 2.6).

When analyzing only those who understood the instructions, the main effect for Pay System was significant, $F(2,11) = 4.08$, $p < .05$, and hypothesis H6a was partially supported. Those receiving Piece-Rate rewards ($M = 6.1$, $SD = 0.6$) did in fact experience less enjoyment than those receiving Base Pay ($M = 6.5$, $SD = 0.3$) however, contrary to predictions, those in the Piece-Rate condition experienced more enjoyment than those in the No Reward condition ($M = 5.1$, $SD = 1.1$) (see Table 2.7).

Eisenberger's hypothesis H6b predicted that participants receiving Piece-Rate rewards would show higher levels of enjoyment compared to those receiving Base Pay or No reward. When analyzing the entire sample, the main effect for Pay System on enjoyment was non-significant, as reported earlier, and therefore this hypothesis was not supported. When analyzing only those who understood the instructions, the main effect for Pay System was significant, as reported previously, and hypothesis H6b was

contradicted. Those receiving Piece-Rate rewards experienced less enjoyment than those receiving Base Pay.

Creative performance

Hypothesis H7a predicted that participants receiving Piece-Rate rewards would have lower levels of creative performance compared to those receiving Base Pay or No reward. The main effect for Pay System on creative performance was non-significant, $F(2,34) = .34, ns$, and therefore this hypothesis was not supported (see Table 2.8).

Eisenberger's hypothesis H7b predicted that participants receiving Piece-Rate rewards would have higher levels of creative performance compared to those receiving Base Pay or No reward. The main effect for Pay System on creative performance was non-significant, as reported earlier, and therefore this hypothesis was not supported. Hypothesis H7c predicted a main effect for Instruction Type on creative performance, such that those receiving Creative instructions would be more creative. This hypothesis was not supported, $F(1,34) = .06, ns$. Hypothesis H7d predicted an interaction between Pay System and Instruction Type on creative performance. It was predicted that those in the Piece-Rate condition who received Creative instructions would show the highest levels of creativity. This hypothesis was not supported, $F(2,34) = 2.2, ns$.

Performance quantity

Hypothesis H8a predicted that participants receiving Piece-Rate rewards would create more slogans compared to those receiving Base Pay or No reward. The main effect for Pay System on performance quantity was non-significant, $F(2,34) = 1.90, ns$, and therefore this hypothesis was not supported. There was a marginally significant main effect for Instruction Type on performance quantity $F(1,34) = 3.23, p < .10$. Follow-up

analyses reveal that participants receiving quantity instructions created more slogans ($M = 12.4$, $SD = 3.5$) than those receiving creative instructions ($M = 9.6$, $SD = 4.9$) (see Table 2.9).

Eisenberger's hypothesis H8b predicted a main effect for Instruction Type on performance quantity, with those receiving quantity instructions producing more slogans than those receiving creative instructions. This hypothesis was marginally supported as reported above. Hypothesis H8c predicted an interaction between Pay System and Instruction Type on performance quantity and this hypothesis was not supported $F(2,34) = .65$, *ns*.

Free-choice performance

Agreement to engage in the extra task:

Hypothesis H9a predicted that participants receiving Piece-Rate rewards would be least likely to engage in the extra task compared to those receiving Base Pay or No reward. This hypothesis was supported by an observed trend in the predicted direction with those in the Piece-Rate condition being the least likely to agree to the extra task (64% agreed), and those in the Base Pay (100% agreed) and No Reward (94% agreed) being marginally significantly more likely to participate in the extra task, $\chi^2(2) = 5.70$, $p < .10$.

Eisenberger's hypothesis H9b predicted that participants receiving Piece-Rate rewards would be most likely to engage in the extra task compared to those receiving Base Pay or No reward. A trend in the opposite direction was observed, with those in the Piece-Rate condition being the least likely to agree to the extra task and those in the Base

Pay and No Reward condition being more likely to participate in the extra task, as reported above.

Time spent on the extra task:

Hypothesis H10a predicted that participants receiving Piece-Rate rewards would spend less time on the extra task than those receiving Base Pay or No reward. The main effect for Pay System on time spent on the extra task was not significant, $F(2,20) = 1.40$, *ns*, and therefore this hypothesis was not supported (see Table 2.10).

Eisenberger's hypothesis H10b predicted that participants receiving Piece-Rate rewards would spend more time on the extra task than those receiving Base Pay or No reward. The main effect for Pay System on time spent on the extra task was not significant and therefore this hypothesis was not supported.

Number of suggestions provided in the extra task:

Hypothesis H11a predicted that participants receiving Piece-Rate rewards would provide fewer suggestions in the extra task than those receiving Base Pay or No reward. The main effect for Pay System on the number of suggestions provided in the extra task was not significant, $F(2,20) = .31$, *ns*, and therefore this hypothesis was not supported. An interaction effect between Pay System and Instruction Type on the number of suggestions provided in the extra task was marginally significant, $F(2,20) = 2.81$, $p < .10$. Post-hoc analysis indicated that participants in the Base Pay/Creativity Instructions condition provided more suggestions ($M = 3.3$, $SD = 1.5$) than participants in the Piece-Rate/Creativity Instructions condition ($M = 1.5$, $SD = 0.7$) (see Table 2.11).

Eisenberger's hypothesis H11b predicted that participants receiving Piece-Rate rewards would provide more suggestions in the extra task than those receiving Base Pay

or No reward. The main effect for Pay System on the number of suggestions provided in the extra task was not significant, and therefore this hypothesis was not supported.

Summary of Results

Correlational results in this study lend some support to SDT hypotheses concerning the effect of performance-contingent rewards on affective autonomy, intrinsic motivation, creativity, and quantity performance.

The observed positive correlations between competence and intrinsic motivation, and between competence and affective autonomy support SDT hypotheses concerning the mediation of perceived competence. Also, the negative correlation between the number of slogans on the first task and the time spent on the second task is supportive of SDT hypotheses since they predicted intrinsic motivation would be negatively related to performance quantity.

There were several unexpected findings that seemed to run contrary to both SDT and Eisenberger's hypotheses. The unexpected negative correlation between enjoyment and creativity of slogans was not explainable by either theory. The negative correlation between the number of suggestions provided in the extra task (a behavioural measure of intrinsic motivation) and the creativity of slogans also appears to contradict both sides, suggesting that when creativity on the first task is high, intrinsic motivation for providing suggestions in the second task is low.

With respect to the question of how Pay System and Instruction Type affects intrinsic motivation, creativity, quantity performance, and free choice performance, this study provided considerably more evidence than Study 1 in support of SDT hypotheses.

The interaction effect between Pay System and Instruction Type on affective autonomy shows that those in the Base Pay/Creativity instructions condition showed the highest levels of perceived autonomy. However, the lowest levels of perceived autonomy were seen in the No Reward/Creativity instructions condition, which was not predicted by SDT or Eisenberger.

Beyond this, it was observed that those in the Base Pay condition had higher levels of intrinsic motivation, and also were more likely to engage in the optional task (a behavioural indication of intrinsic motivation) than those in the Piece-Rate condition. It was not predicted by SDT, however, that those in the No Reward condition would exhibit the lowest levels of intrinsic motivation, as was found in this study. The same pattern was found for the effect of Pay System on enjoyment, with those in the Base Pay condition reporting the highest levels of enjoyment, followed by those in the Piece-Rate condition. The lowest levels of enjoyment were reported by participants in the No Reward condition. A significant interaction between Pay System and Instruction Type for the number of suggestions provided in the extra task also indicated that those in the Base Pay/Creativity Instructions condition provided more suggestions than those in the Piece-Rate /Creativity Instructions condition.

The null findings concerning the effects of Pay System and Instruction Type on creative and quantity performance did not support either side of this debate.

Although these results were not entirely supportive of SDT hypotheses, Eisenberger et al.'s prediction that intrinsic motivation would be highest in the Piece-Rate condition was clearly refuted by this evidence.

General Discussion

The present study sought to overcome the controversy concerning the effects of performance-contingent rewards on creativity and quantity performance, and to determine the mediating influences of this relationship. There have been few studies examining the direct effects of reward on perceived autonomy (Eisenberger et al., 1999) and the present research contributes to explaining the nature of this relationship. This study was able to test two opposing sets of predictions concerning the impact of different pay systems (Piece-Rate vs. Flat Pay vs. No Reward) on perceived autonomy, intrinsic motivation, creativity, quantity performance and free-choice performance.

Summary of Results and Support for Hypotheses

In Study 1, correlations between variables were partly supportive of both SDT and Eisenberger's hypotheses. Both sides agree that affective autonomy should be positively correlated with intrinsic motivation, and that intrinsic motivation should then be associated with improved creative performance. Results showed that perceived autonomy was in fact positively correlated with intrinsic motivation and enjoyment, but that intrinsic motivation was not related to improved creative performance.

The positive correlation between affective autonomy and quantity performance (number of slogans provided), and also that between enjoyment and quantity performance supports Eisenberger's hypothesis that when people feel more autonomous, they produce more. SDT predicted that autonomy was not necessary to increase performance quantity.

Hypotheses concerning the main and interaction effects of Pay System and Instruction Type on affective autonomy, intrinsic motivation, enjoyment, competence, creativity, quantity performance and free-choice performance were largely non-

significant in Study 1, supporting neither SDT nor Eisenberger. The significant results that were found were only evident when the sample was broken into those who received oral instructions vs. those who received written instructions. It is possible that the oral instructions allowed a clearer emphasis on the importance of the instructions to produce either *as many* slogans as possible, or to be *as creative* as possible. A main effect was observed for Instruction Type on competence, showing that those who received quantity instructions (provide as many usable slogans as possible) felt more competent in the task than those who received instructions to be creative (be as creative as possible). It is conceivable that being creative takes considerably more effort than simply responding as many times as possible and therefore, when creative performance is emphasized, feelings of competence decrease. It is also possible that instructions to be creative are more vague than instructions to produce a high quantity and therefore participants could have been unsure about the expectations, leading to a decline in feelings of competence. The same pattern emerged for enjoyment when looking at the sample of participants who received oral instructions. Those who received quantity instructions reported enjoying the task significantly more than those who received creative instructions. Given the high correlation between competence and enjoyment, this finding is not surprising.

In the second study, the reverse relationship was found, with competence being higher in the creative instruction condition as opposed to the quantity instruction condition. On this issue, results found in the second study may be less trustworthy given the smaller sample size.

In general, these findings run contrary to Eisenberger's hypothesis that creative instructions are the key to obtaining high levels of creative performance. These results

suggest that providing instructions to be creative does not focus the individual's attention on creativity, as Eisenberger would predict, but rather undermines feelings of competence and enjoyment in the activity itself. Future research could focus on the differential effects of written instructions vs. oral instructions, and the possible mediating influences. Also, future studies could examine in more detail the psychological and attentional effects of providing creative instructions vs. quantity instructions.

Study 2 correlations between variables provided some support for SDT hypotheses. The hypothesized link between competence and intrinsic motivation was supported, as was the link between competence and affective autonomy.

Contrary to Study 1, there was a negative correlation between performance quantity (number of slogans provided) and the time spent on the extra task. This can be explained by SDT, which hypothesizes that performance quantity can be high due to extrinsic motivation, while intrinsic motivation (as demonstrated by performance on an optional task) remains low.

A surprising finding that runs contrary to both SDT and Eisenberger's hypotheses was the significant negative correlation between enjoyment and the creativity of slogans. Similarly, the number of suggestions provided on the extra task (a behavioural measure of intrinsic motivation) was also negatively related to creativity meaning that the more creative people were on the first task, the less intrinsically motivated they were to provide suggestions on the second task.

In Study 2, hypotheses concerning the main and interaction effects of Pay System and Instruction Type on intrinsic motivation, enjoyment, creative performance, quantity performance and free-choice performance were generally more supportive of SDT

hypotheses than Eisenberger's hypotheses. However, the primary question of whether the Pay System or the Instruction Type had any effect on perceived autonomy was not clearly answered. Neither the Pay System, nor the Instruction Type alone had any effect on perceived autonomy, but an unusual interaction was found where those in the Base Pay/Creativity condition exhibited the highest levels of autonomy and those in the No Reward/Creativity condition showed the lowest levels of autonomy. The interpretation of this result is not explainable by either theory.

Manipulation checks revealed that participants did have some trouble understanding instructions. Analyses separating those who understood vs. those who did not revealed some significant findings. Primarily, when looking only at those who understood the instructions (those who answered both manipulation check questions correctly), there was a significant main effect for Pay System on intrinsic motivation showing that those in the Base Pay condition reported the highest levels of intrinsic motivation, followed by those in the Piece-Rate pay condition, and finally those in the No Reward condition reported the lowest levels of intrinsic motivation. A similar main effect was seen for Pay System on enjoyment when looking only at those who understood the instructions. Those in the Base Pay condition reported the highest levels of enjoyment, followed by those in the Piece-Rate pay condition, and those in the No Reward condition had the lowest levels of enjoyment. These results support SDT in their prediction that Base Pay will cause higher levels of intrinsic motivation and enjoyment than Piece-Rate rewards. However, these results also contradict SDT in their prediction that intrinsic motivation would be higher in the No Reward condition than in the Piece-Rate condition. This was predicted because the task was meant to be initially

intrinsically appealing and therefore intrinsic motivation should remain high in the absence of controlling reward contingencies. This SDT hypothesis was not supported. Both Piece-Rate pay and Base Pay cause intrinsic motivation to increase above normal levels, however Base Pay increases intrinsic motivation the most.

A slightly different pattern was observed that when looking at agreement to engage in the optional task, with those in the Base Pay showing the highest levels of intrinsic motivation by agreeing most often (100% agreed). Those in the No Reward condition were the next most likely to agree to the extra task (94% agreed), followed by those in the Piece-Rate condition (64% agreed) who were the least likely to agree to do the extra task. SDT is fully supported here, in their prediction that Piece-Rate rewards would cause the lowest levels of intrinsic motivation, whereas those in both the Base Pay and No Reward conditions would demonstrate higher levels of intrinsic motivation. This finding shows that people given Piece-Rate rewards on a first task are less likely to engage in a second non-rewarded task, than if they were given no reward at all.

For the number of suggestions provided in the extra task, there was a significant Pay System by Instruction Type interaction, showing that participants in the Base Pay/Creativity instructions condition provided significantly more suggestions than those in the Piece-Rate/Creativity instructions. This finding once again supports the SDT hypothesis that intrinsic motivation remains higher in the Base Pay condition. The fact that the effect was seen when participants were given creativity instructions directly contradicts Eisenberger's hypothesis that providing creativity instructions in combination with Piece-Rate rewards will increase intrinsic motivation. This result clearly indicates

that the combination of Piece-Rate rewards with creativity instructions decreases intrinsic interest in a subsequent optional task where rewards are not provided.

Neither the Pay System nor the Instruction Type had any effect on creative performance. However, the type of instructions did have an effect on performance quantity (the number of slogans provided). Partly in line with Eisenberger's hypothesis was the observation that those who received quantity instructions produced more slogans than those who received creativity instructions. Contrary to Eisenberger's hypothesis though, the addition of piece-rate rewards was not effective in improving quantity performance.

Limitations & Strengths

One of the limitations of this study was the use of a web-based program for gathering data. This type of computer simulation proved to be somewhat unreliable for both the collection and storage of data. Repeated, unpredictable Internet disconnection caused disturbances in the simulation, resulting in the loss of some data for certain participants, and for some measures (e.g. competence). Other glitches in the system interfered with the storage of data, such as the responses to the manipulation checks in Study 1.

The absence of manipulation check data was a limitation for Study 1. Because these data were not available, it was impossible to determine if null results were due to the misunderstanding or oversight of instructions by participants, or if there was actually no relationship between the tested variables. Study 2 sought to overcome this problem by running essentially the same study a second time with extra emphasis placed on the importance of reading and understanding the instructions. It was also ensured that responses to the manipulation check questions were saved in the computer. These data

indicated that there were a number of students who did not understand or remember the instructions that they were given. It is conceivable that null results in the first study were partly due to participant's failure to carefully read the instructions.

A further limitation of the present studies was the observed low internal reliabilities of the decisional autonomy measure. It is possible that low reliabilities were found because participants were not given any decision making power, and therefore this variable was less relevant in this particular simulation.

In both Study 1 and Study 2, samples were made up of university students enrolled in a second year commerce course receiving points toward their final grade for participation. It is possible that those who signed up for the experiment were already focused on the external reward of points towards their grade, and were not interested in the study itself, however, intrinsic motivation was recorded in order to control for this effect. Overall, means for intrinsic motivation were moderately high (Study 1 = 4.2/7; Study 2 = 5.0/7). Means for Enjoyment were also moderately high (Study 1 = 4.8/7; Study 2 = 5.7/7) indicating that student motivation is not likely a major limitation to the present studies.

Another possible limitation was that some students did not believe that they would actually be receiving money for their work. Since students were not told in advance (by their teachers) that they would be paid, there was some skepticism as to the truth of this claim when they received this information over the computer. Efforts were made to legitimize the claim that payment would ensue by explaining that grant money had been obtained for the research and that participants would in fact receive their payment.

However, if this claim was not convincing, results could have been affected in such a way that the impact of the pay system was significantly diminished.

A further reason why the pay system would have had little impact on participant's sense of autonomy or other variables is that the pay was not significantly large enough to have the desired effect. In a real life situation concerning pay, many important concerns, including basic survival and lifestyle, depend on income and the way it is delivered. In this situation the pay system would be of much greater concern to those affected than was the case in this one-time experiment, with a total pay of \$10. However, the inclusion of a No Reward control condition reveals that the manipulation was effective.

A possible limitation of Study 2 was the small sample size of 40 participants. Although this number provides enough power, there is less power than in Study 1 indicating that there is a higher probability of falsely accepting null hypotheses.

A major strength of the present study is that it is experimental, and not simply correlational. Because of this design, causal inferences can be made about the relationships between variables. For instance, it can be interpreted that Piece-Rate pay *causes* intrinsic interest in participating in an optional task to decrease below levels that it would be without any pay.

Also, the simulation design of this study brought an element of realism to an experimental design. By designing an experiment that was as close to a real work situation as possible, results are more easily applied to practical problems occurring in organizations.

Another strength of the present research was the use of several behavioural measures of intrinsic motivation. The free-choice performance measure included three behavioural

items; agreement to participate in the optional task, time spent on the task, and the number of suggestions provided in the task. These measures provided more information than simply responses to a self-report questionnaire. Self-report questionnaires that are normally used in Organizational Behaviour research are limited in that they measure only perceptions and attitudes about the level of interest and intrinsic motivation experienced by the individual. There may be some discrepancy between what people feel or think, and what they actually do. This study therefore used a combination of questionnaires and behavioural measures to overcome this difficulty.

Future Research

Future research in this area should focus primarily on creating a computer simulation that is designed as a distinct program, as opposed to a web-based program.

Inconsistencies and lost data are significant obstacles that are likely to occur when using the more unpredictable internet-based programs. Researchers and programmers should work closely to ensure that the program runs in the same exact way for each participant, and that all data is stored reliably.

Furthermore, future studies could overcome possible sampling biases by recruiting from a wider population than a commerce student population. Workers could be recruited by other means such as newspaper ads, Internet postings, or flyers. Efforts to obtain participants that are interested in the study, and not motivated only by a significant external reward, would also be beneficial.

Another way to more effectively examine the questions that were the focus of the present studies would be to conduct a field experiment as opposed to an in-laboratory

simulation study. It was a concern that the reward in the present studies was not large enough to have a significant impact on participants, and this could be surmounted by conducting a field experiment with access to company resources. To work collaboratively with managers in providing pay systems over longer periods of time, and involving larger amounts of money could reveal more significant effects on autonomy and performance outcomes.

In both Study 1 and Study 2, it was noted that creativity scores were generally low and showing very little variability. It may be helpful in future research to use a different type of creative task, such as the divergent thought tasks used in previous studies.

The present study also found some unexpected results that deserve more attention in future research. The fact that results in Study 1 were only seen when instructions were given orally, raises questions about the psychological impact of how instructions are delivered. Further investigations into the method of delivery of instructions could help to clarify some of the discrepant findings within the literature. Also, the finding that competence and enjoyment can be undermined by specific creative instructions highlights issues surrounding the perceptions and interpretations of different types of instructions. Future research is warranted to investigate the impact of instructions on a wider array of psychological variables than was considered in the present research.

Implications and Applications

The implications of these studies are both theoretical and practical. A simulation design provides useful data that is less artificial and more applicable to the real work setting than a laboratory experiment. By attempting to maximize control and realism, this simulation study contributes new insights into the effects of contemporary pay strategies.

The present studies attempted to clarify the disagreement between two opposing theories with respect to the effects of performance-contingent rewards, and contribute to the theoretical literature by demonstrating that there is overall, more evidence in support of SDT hypotheses than those of Eisenberger et al.

For the practitioner, results provide some meaningful insights relating to the design and implementation of pay systems within the organizational context where creativity and innovation are desirable. If employers are seeking to maximize intrinsic motivation and creativity in their workers, Base Pay systems are the most likely to maintain high levels of intrinsic motivation, which is conducive to creativity. Because of the strong positive correlation between perceived autonomy and intrinsic motivation, it is likely that Base Pay maintains higher intrinsic motivation through the mediation of perceived autonomy. Based on the present results, managers should consider the advantages of adopting Base Pay strategies in order to encourage intrinsic interest and allowing for creative performance as well as improved performance quantity.

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Study 1: Table 1.1

Means, Standard Deviations, and Intercorrelations among Variables in Study 1

	M	SD	1	2	3	4	5	6	7	8
1. Intrinsic	4.2	1.4	.86							
2. Affective Autonomy	5.1	1.2	.19*	.75						
3. Enjoyment	4.8	1.4	.71**	.37**	.79					
4. Competence	4.5	1.6	.17	.31**	.28**	---				
5. # of slogans	11.2	4.8	.10	.19*	.11	.22*	---			
6. # of suggestions	2.1	1.3	.20	1.6	.17	.02	.32**	---		
7. Time spent on extra task (transform)	0.7	0.7	.28**	.01	.28**	-.05	.02	.47**	---	
8. Creativity of slogans	2.0	0.4	-.02	.02	-.06	0.09	-.06	-.06	-.2	---

Note: $N = 136$. Correlations are two-tailed.

Cronbach's Alphas for each scale are in **bold** on the diagonal.

$p < 0.05^*$

$p < 0.01^{**}$

Table 1.2.

<u>Perceived Autonomy</u>							
	<u>No Reward</u>		<u>Base</u>		<u>Piece-Rate</u>		
Instruction Type	M	SD	M	SD	M	SD	
Quantity	5.3	1.2	5.1	1.0	4.8	1.0	
Creative	5.2	1.4	5.4	0.9	5.0	1.6	

Table 1.3.

<u>Competence (oral instructions only)</u>							
	<u>No Reward</u>		<u>Base</u>		<u>Piece-Rate</u>		
Instruction Type	M	SD	M	SD	M	SD	
Quantity	4.6	1.2	4.4	1.3	5.3	1.4	
Creative	4.1	1.3	3.7	1.2	4.3	0.7	

Table 1.4.

Intrinsic Motivation

	No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD
Quantity	3.8	1.4	3.8	1.1	4.6	1.4
Creative	4.1	1.7	4.3	1.8	4.6	1.7

Table 1.5.

Enjoyment

	No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD
Quantity	4.7	1.4	4.9	1.2	5.0	1.3
Creative	4.8	1.5	4.9	1.8	5.0	1.4

Table 1.6.

Enjoyment (oral instructions only)

Instruction Type	No Reward		Base		Piece-Rate	
	M	SD	M	SD	M	SD
Quantity	5.0	1.4	5.1	1.0	5.7	1.1
Creative	4.6	1.3	4.5	1.4	5.1	0.9

Table 1.7.

Creativity

Instruction Type	No Reward		Base		Piece-Rate	
	M	SD	M	SD	M	SD
Quantity	2.0	0.4	2.0	0.5	2.0	0.3
Creative	1.9	0.3	2.0	0.3	1.9	0.4

Table 1.8.

Number of Slogans

	No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD
Quantity	11.6	5.0	10.4	5.8	12.2	4.3
Creative	10.7	5.0	13.1	5.6	11.7	6.1

Table 1.9.

Time Spent on Extra Task (natural log transformation)

	No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD
Quantity	0.9	0.8	0.6	0.6	0.6	0.6
Creative	0.7	0.8	0.8	0.8	0.9	0.6

Table 1.10.

Number of Suggestions in Extra Task

Instruction Type	No Reward		Base		Piece-Rate	
	M	SD	M	SD	M	SD
Quantity	2.2	1.1	2.2	0.8	2.2	1.0
Creative	1.9	1.2	2.4	2.5	1.9	0.8

Study 2: Table 2.1.

Means, Standard Deviations, and Intercorrelations among Variables in Study 2

	M	SD	1	2	3	4	5	6	7	8
1. Intrinsic	5.0	1.4	.88							
2. Affective autonomy	5.7	1.4	-.03	.85						
3. Enjoyment	5.7	1.0	.38*	.12	.74					
4. Competence	4.8	1.1	.41*	.38*	.34	.44				
5. # of slogans	10.7	4.6	-.07	-.18	.10	.09	---			
6. # of suggestions	1.9	1.2	.07	.29	.03	.06	-.38	---		
7. Time spent on extra task (transformed)	0.8	1.0	-.02	.34	-.01	-.15	-.64**	.50**	---	
8. Creativity of slogans	1.8	0.1	-.29	.18	-.39*	-.27	-.11	.58**	.31	---

Note: $N = 40$. Correlations are two-tailed.

Cronbach's Alphas for each scale are in **bold** on the diagonal.

$p < 0.05^*$

$p < 0.01^{**}$

Table 2.2.

Perceived Autonomy		No Reward		Base		Piece-Rate	
		M	SD	M	SD	M	SD
Instruction Type							
Quantity		6.0	1.2	4.7	1.0	6.0	0.8
Creative		4.8	1.7	6.9	0.3	6.0	1.2

Table 2.3.

Competence		No Reward		Base		Piece-Rate	
		M	SD	M	SD	M	SD
Instruction Type							
Quantity		4.5	0.8	4.3	0.8	4.3	0.6
Creative		4.4	1.1	5.6	1.7	5.9	0.5

Table 2.4.

Intrinsic Motivation		No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD	
Quantity	4.3	2.0	5.8	1.4	4.7	2.0	
Creative	4.8	1.1	5.4	1.2	5.7	1.1	

Table 2.5.

Intrinsic Motivation (those who understood instructions)		No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD	
Quantity	3.5	1.1	6.8	0	5	1.4	
Creative	4.9	1.2	6.0	0.7	5.8	1.2	

Table 2.6.

Enjoyment		No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD	
Quantity	5.6	1.0	6.4	0.2	5.8	0.7	
Creative	5.2	1.0	5.8	1.5	6.3	0.7	

Table 2.7.

Enjoyment (those who understood instructions)		No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD	
Quantity	4.5	1.2	6.3	0	6.0	0	
Creative	5.3	1.0	6.6	0.4	6.1	0.8	

Table 2.8.

Creativity		No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD	
Quantity	1.8	0.2	1.7	0.1	1.8	0.1	
Creative	1.7	0.1	1.8	0.2	1.7	0.0	

Table 2.9.

Number of Slogans		No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD	
Quantity	11.7	3.5	12.7	3.2	13.8	4.3	
Creative	7.5	4.6	12.4	5.3	10.2	3.7	

Table 2.10.

Time Spent of Extra task (in seconds)						
	No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD
Quantity	3.7	3.9	1.3	1.7	2.6	0.8
Creative	3.9	3.1	2.9	1.1	2.2	0.1

Table 2.11.

Number of Suggestions in Extra Task						
	No Reward		Base		Piece-Rate	
Instruction Type	M	SD	M	SD	M	SD
Quantity	1.7	0.8	1.0	1.7	2.0	1.7
Creative	1.7	0.8	3.3	1.5	1.5	0.7

APPENDIX A

Instructions: Task 1

CONDITION 1: Base-Pay/Creative Instructions

Instructions

- Thank you for agreeing to work on behalf of the John Molson School of Business
- This job involves helping JMSB promote its MBA International Case Competition. This event draws MBA students from around the world who compete by analyzing five different business cases and present solutions and strategic courses of action to high profile executive judges.
- JMSB is currently trying to increase the promotion of this prestigious Case Competition into new international markets, and would like to create a slogan that would help its marketing plan.
- Next year is the 25th Anniversary of this case competition and JMSB is designing an intensive marketing and promotions campaign to celebrate the continued success of this event.
- We hired you today to help us brainstorm about possible slogans we could use for marketing the 25th anniversary of the John Molson MBA International Case Competition.
- The organizers of this even will choose among the slogans you and other paid volunteers generate to help promote this event.
- You will have 15 minutes to complete this task. After 15 minutes, the computer will automatically stop you and take you to the next task.

- Concentrate on making each slogan as creative as possible. Your performance will be assessed according to the level of creativity demonstrated in each slogan. Creativity will be assessed through a computer algorithm.
- You will be paid 10\$ for your time, regardless of the creativity of the slogans you create.

- Click next to continue.

Written Highlights

- **CREATE MARKETING SLOGANS FOR THE JOHN MOLSON MBA INTERNATIONAL CASE COMPETITION**
 - **BE AS CREATIVE AS POSSIBLE**
 - **PAID \$10 FOR YOUR TIME**
-

CONDITION 2: Base-Pay/Quantity Instructions

Instructions

- Thank you for agreeing to work on behalf of the John Molson School of Business
- This job involves helping JMSB promote its MBA International Case Competition. This event draws MBA students from around the world who compete by analyzing five different business cases and present solutions and strategic courses of action to high profile executive judges.
- JMSB is currently trying to increase the promotion of this prestigious Case Competition into new international markets, and would like to create a slogan that would help its marketing plan.
- Next year is the 25th Anniversary of this case competition and JMSB is designing an intensive marketing and promotions campaign to celebrate the continued success of this event.
- We hired you today to help us brainstorm about possible slogans we could use for marketing the 25th anniversary of the John Molson MBA International Case Competition.
- The organizers of this even will choose among the slogans you and other paid volunteers generate to help promote this event.
- You will have 15 minutes to complete this task. After 15 minutes, the computer will automatically stop you and take you to the next task.

- Try to come up with as many slogans as you can during those 15 minutes. Your performance will be assessed according to the number of usable slogans you generate. Usability will be assessed through a computer algorithm.
- You will be paid \$10 dollars for your time, regardless of the number of slogans you create.

- Click next to continue

Written Highlights

- **CREATE MARKETING SLOGANS FOR THE JOHN MOLSON MBA INTERNATIONAL CASE COMPETITION**
 - **CREATE AS MANY SLOGANS AS POSSIBLE**
 - **PAID \$10 FOR YOUR TIME**
-

CONDITION 3: Piece-Rate Pay/Creative Instructions

Instructions

- Thank you for agreeing to work on behalf of the John Molson School of Business
- This job involves helping JMSB promote its MBA International Case Competition. This event draws MBA students from around the world who compete by analyzing five different business cases and present solutions and strategic courses of action to high profile executive judges.
- JMSB is currently trying to increase the promotion of this prestigious Case Competition into new international markets, and would like to create a slogan that would help its marketing plan.
- Next year is the 25th Anniversary of this case competition and JMSB is designing an intensive marketing and promotions campaign to celebrate the continued success of this event.
- We hired you today to help us brainstorm about possible slogans we could use for marketing the 25th anniversary of the John Molson MBA International Case Competition.
- The organizers of this even will choose among the slogans you and other paid volunteers generate to help promote this event.
- You will have 15 minutes to complete this task. After 15 minutes, the computer will automatically stop you and take you to the next task.

- Concentrate on making each slogan as creative as possible. Your performance will be assessed according to the level of creativity demonstrated in each slogan. Creativity will be assessed through a computer algorithm

- You will be paid \$2 dollars for each creative slogan that you generate.

- Click next to continue

Written Highlights

- **CREATE MARKETING SLOGANS FOR THE JOHN MOLSON MBA INTERNATIONAL CASE COMPETITION**
 - **BE AS CREATIVE AS POSSIBLE**
 - **PAID \$2 PER CREATIVE SLOGAN**
-

CONDITION 4: Piece-Rate Pay/Quantity Instructions

Instructions

- Thank you for agreeing to work on behalf of the John Molson School of Business
- This job involves helping JMSB promote its MBA International Case Competition. This event draws MBA students from around the world who compete by analyzing five different business cases and present solutions and strategic courses of action to high profile executive judges.
- JMSB is currently trying to increase the promotion of this prestigious Case Competition into new international markets, and would like to create a slogan that would help its marketing plan.
- Next year is the 25th Anniversary of this case competition and JMSB is designing an intensive marketing and promotions campaign to celebrate the continued success of this event.
- We hired you today to help us brainstorm about possible slogans we could use for marketing the 25th anniversary of the John Molson MBA International Case Competition.
- The organizers of this even will choose among the slogans you and other paid volunteers generate to help promote this event.
- You will have 15 minutes to complete this task. After 15 minutes, the computer will automatically stop you and take you to the next task.

- Try to come up with as many slogans as you can during those 15 minutes. Your performance will be assessed according to the number of usable slogans you generate. Usability will be assessed through a computer algorithm.

- You will be paid \$2 dollars for each usable slogan that you provide.

- Click next to continue

Written Highlights

- **CREATE MARKETING SLOGANS FOR THE JOHN MOLSON MBA INTERNATIONAL CASE COMPETITION**
 - **CREATE AS MANY SLOGANS AS POSSIBLE**
 - **PAID \$2 PER SLOGAN**
-

CONDITION 5: No Reward/Creative Instructions

Instructions

- Thank you for agreeing to work on behalf of the John Molson School of Business
- This job involves helping JMSB promote its MBA International Case Competition. This event draws MBA students from around the world who compete by analyzing five different business cases and present solutions and strategic courses of action to high profile executive judges.
- JMSB is currently trying to increase the promotion of this prestigious Case Competition into new international markets, and would like to create a slogan that would help its marketing plan.
- Next year is the 25th Anniversary of this case competition and JMSB is designing an intensive marketing and promotions campaign to celebrate the continued success of this event.
- We want you to help us brainstorm about possible slogans we could use for marketing the 25th anniversary of the John Molson MBA International Case Competition.
- The organizers of this even will choose among the slogans you and other volunteers generate to help promote this event.
- You will have 15 minutes to complete this task. After 15 minutes, the computer will automatically stop you and take you to the next task.

- Concentrate on making each slogan as creative as possible. Your performance will be assessed according to the level of creativity demonstrated in each slogan. Creativity will be assessed through a computer algorithm.

- Click next to continue

Written Highlights

- **CREATE MARKETING SLOGANS FOR THE JOHN MOLSON MBA INTERNATIONAL CASE COMPETITION**
 - **BE AS CREATIVE AS POSSIBLE**
-

CONDITION 6: No Reward/Quantity Instructions

Instructions

- Thank you for agreeing to work on behalf of the John Molson School of Business
 - This job involves helping JMSB promote its MBA International Case Competition. This event draws MBA students from around the world who compete by analyzing five different business cases and present solutions and strategic courses of action to high profile executive judges.
 - JMSB is currently trying to increase the promotion of this prestigious Case Competition into new international markets, and would like to create a slogan that would help its marketing plan.
 - Next year is the 25th Anniversary of this case competition and JMSB is designing an intensive marketing and promotions campaign to celebrate the continued success of this event.
 - We want you to help us brainstorm about possible slogans we could use for marketing the 25th anniversary of the John Molson MBA International Case Competition.
 - The organizers of this even will choose among the slogans you and other volunteers generate to help promote this event.
 - You will have 15 minutes to complete this task. After 15 minutes, the computer will automatically stop you and take you to the next task.
-
- Try to come up with as many slogans as you can during those 15 minutes. Your performance will be assessed according to the number of usable slogans you generate. Usability will be assessed through a computer algorithm.
-
- Click next to continue

Written Highlights

- **CREATE MARKETING SLOGANS FOR THE JOHN MOLSON MBA INTERNATIONAL CASE COMPETITION**
- **CREATE AS MANY SLOGANS AS POSSIBLE**

Feedback

CONDITION 1: Base-Pay/Creative Instructions

Congratulations! You performed within the 80th percentile as compared to other students who have so far participated in this experiment. Your responses are well above average in creativity and may be used by the JMSB in the near future to help promote the International Case Competition. You will receive \$10 dollars for your time.

CONDITION 2: Base-Pay/Quantity Instructions

Congratulations! You performed within the 80th percentile as compared to other students who have so far participated in this experiment. Your responses are well above average in number and may be used by the JMSB in the near future to help promote the International Case Competition. You will receive \$10 dollars for your time.

CONDITION 3: Piece-Rate Pay/Creative Instructions

Congratulations! You performed within the 80th percentile as compared to other students who have so far participated in this experiment. Your responses are well above average in creativity and may be used by the JMSB in the near future to help promote the International Case Competition. Given the number of creative responses you have provided, you will be paid \$10 dollars.

CONDITION 4: Piece-Rate Pay/Quantity Instructions

Congratulations! You performed within the 80th percentile as compared to other students who have so far participated in this experiment. Your responses are well above average in number and may be used by the JMSB in the near future to help promote the International Case Competition. Given the number of usable responses you have provided, you will be paid \$10 dollars.

CONDITION 5: No Reward/Creative Instructions

Congratulations! You performed within the 80th percentile as compared to other students who have so far participated in this experiment. Your responses are well above average in creativity and may be used by the JMSB in the near future to help promote the International Case Competition.

CONDITION 6: No Reward/Quantity Instructions

Congratulations! You performed within the 80th percentile as compared to other students who have so far participated in this experiment. Your responses are well above average in number and may be used by the JMSB in the near future to help promote the International Case Competition.

Questionnaire

Perceived Autonomy:

We would like to know how you felt while generating slogans:

1 2 3 4 5 6 7
 not at all very a moderately strongly very completely
 little little true strongly true

Affective Autonomy

1. I felt a relaxed sense of personal freedom	1	2	3	4	5	6	7
2. I felt pressure	1	2	3	4	5	6	7
3. I felt tense	1	2	3	4	5	6	7
4. I felt nervous	1	2	3	4	5	6	7
5. I felt anxious	1	2	3	4	5	6	7

Decisional Autonomy

1. I felt I was pursuing goals that were my own.	1	2	3	4	5	6	7
2. I felt I had control to decide how to solve the task.	1	2	3	4	5	6	7
3. I believe I had a choice over strategies to try.	1	2	3	4	5	6	7
4. I felt I was doing what the experimenter wanted me to do.	1	2	3	4	5	6	7
5. How much choice did you have as to whether or not to carry out the picture task?	1	2	3	4	5	6	7

Situational Motivation Scale (SIMS):

Why did you help create slogans for the International Case Competition?

1. Corresponds not at all
2. Corresponds very little
3. Corresponds a little
4. Corresponds moderately
5. Corresponds enough
6. Corresponds a lot
7. Corresponds exactly

1. Because I was interested in the task.	1	2	3	4	5	6	7
2. Because I did it for the good of the International Case Competition.	1	2	3	4	5	6	7
3. Because this is what I was supposed to do.	1	2	3	4	5	6	7
4. There may be good reasons for generating slogans but personally I don't see any.	1	2	3	4	5	6	7
5. Because I enjoyed generating slogans.	1	2	3	4	5	6	7
6. Because generating slogans is a good learning experience for me.	1	2	3	4	5	6	7
7. Because I had to generate slogans.	1	2	3	4	5	6	7
8. I created slogans but I am not sure if it is worth it	1	2	3	4	5	6	7
9. Because thinking up slogans is fun.	1	2	3	4	5	6	7
10. Because I personally decided to do this task.	1	2	3	4	5	6	7
11. Because I did not have any choice.	1	2	3	4	5	6	7
12. I don't know; I don't see what generating slogans brings me	1	2	3	4	5	6	7
13. Because I felt good while creating slogans.	1	2	3	4	5	6	7
14. Because creating slogans was important for me.	1	2	3	4	5	6	7
15. Because I felt obliged to do this task.	1	2	3	4	5	6	7
16. I did this task, but I am not sure if it is a good thing to pursue it.	1	2	3	4	5	6	7

Intrinsic Motivation Inventory (IMI)

For each of the following statements, please indicate how true it is for you, using the following scale:

1	2	3	4	5	6	7
not at all	very little	a little	moderately true	strongly	very strongly	completely true

Interest/Enjoyment

1. I enjoyed doing this activity very much	1	2	3	4	5	6	7
2. This activity was fun to do	1	2	3	4	5	6	7
3. I thought this was a boring activity	1	2	3	4	5	6	7

Perceived Competence

1. I think I am pretty good at this activity	1	2	3	4	5	6	7
2. I think I did pretty well at this activity, compared to other students	1	2	3	4	5	6	7
3. I am satisfied with my performance at this task	1	2	3	4	5	6	7

Manipulation Checks:

1. What did the instructions indicate that you should focus on during this activity?
 - A. Creativity of slogans
 - B. Quantity of slogans

2. How were you paid for this activity?
 - A. No pay
 - B. Paid \$2 per creative slogan
 - C. Paid \$2 per usable slogan
 - D. Paid \$10 for your time

Instructions: Task 2

Instructions:

- We would like to ask you to participate in a second task that consists of providing suggestions to JMSB. The JMSB is currently altering their strategic plan and would appreciate input from students.
- For this optional task I would like you to provide some thoughts on what we, here at the John Molson School of Business can do to best serve university students. Your participation in this task is voluntary. You are not obliged to do it.
- Unfortunately we cannot compensate you for participating. Your participation will help us build a strategic plan that will better serve the needs of JMSB students.
- When you have completed this task press the “stop” button and proceed to the final screen.

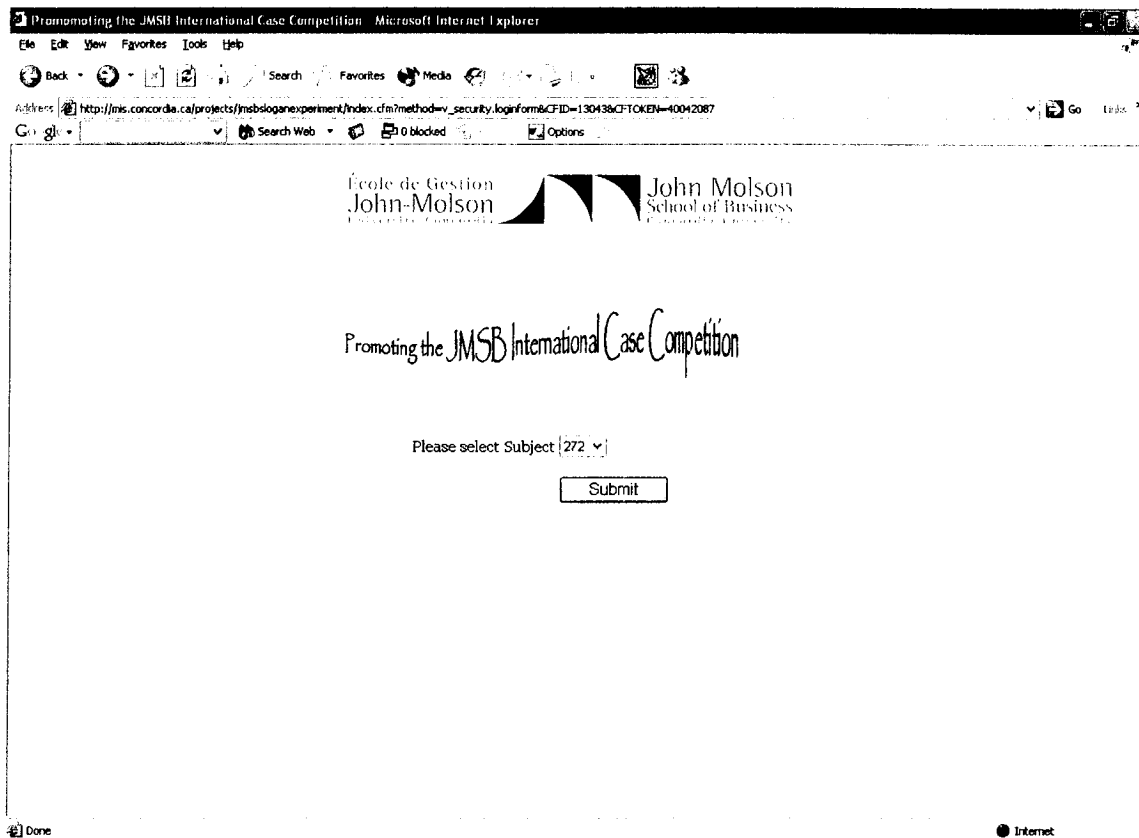
Written Highlights:

- **Suggestions on how to best serve JMSB students...**

APPENDIX B

Sample of Computer Simulation: Study 1

Condition 1 - Base-Pay/Creative Instructions



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Address http://mis.concordia.ca/projects/jmsbsloganexperiment/index.cfm/method=jmsbslogan.instructions&CFID=130438&CFTOKEN=40042087

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READ ALL INSTRUCTIONS VERY CAREFULLY. YOU WILL BE QUIZZED ON THESE INSTRUCTIONS

- Thank you for agreeing to work on behalf of the John Molson School of Business
- In addition to receiving one point toward your final grade, you will be paid cash upon completion of this experiment.
- A Government grant has been issued to support this research and these funds will be used to compensate you for your contribution.

- This job involves helping JMSB promote its MBA International Case Competition. This event draws MBA students from around the world who compete by analyzing five different business cases and present solutions and strategic courses of action to high profile executive judges.
- JMSB is currently trying to increase the promotion of this prestigious Case Competition into new international markets, and would like to create a slogan that would help its marketing plan.
- Next year is the 25th Anniversary of this case competition and JMSB is designing an intensive marketing and promotions campaign to celebrate the continued success of this event.
- We hired you today to help us brainstorm about possible slogans we could use for marketing the 25th anniversary of the John Molson MBA International Case Competition.
- The organizers of this even will choose among the slogans you and other paid volunteers generate to help promote this event.
- You will have 15 minutes to complete this task. After 15 minutes, the computer will automatically stop you and take you to the next task.

- Concentrate on making each slogan as creative as possible. Your performance will be assessed according to the level of creativity demonstrated in each slogan. Creativity will be assessed through a computer algorithm

- You will be paid \$2 dollars for each creative slogan that you generate.

Next

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Address http://ms.concordia.ca/projects/jmsbsloganexperiment/index.d/method=jmsbslogan.taskSummary Go Link

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Ecole de Gestion John-Molson
John Molson School of Business

Promoting the JMSB International Case Competition

Highlights

- CREATE MARKETING SLOGANS FOR THE JOHN MOLSON MBA INTERNATIONAL CASE COMPETITION
- BE AS CREATIVE AS POSSIBLE
- PAID \$2 PER CREATIVE SLOGAN

MAKE SURE YOU CLEARLY UNDERSTAND ALL OF THE INSTRUCTIONS. THE FOLLOWING PAGE WILL QUIZ YOU ON THESE INSTRUCTIONS

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Address http://ms.concordia.ca/projects/jmsbslogonexperi/index.cfm?method=jmsbslogon.manCheck&CFID=130438&CFTOKEN=40042087 Go Links

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École de Gestion
John Molson
Université Concordia

John Molson
School of Business
Concordia University

Promoting the JMSB International Case Competition

Manipulation Check

1. What did the instructions indicate that you should focus on during this activity?
 - Creativity of slogans
 - Quantity of slogans
2. How will you prepare for this activity?
 - No pay
 - Paid per creative slogan
 - Paid per usable slogan
 - Flat pay-no performance criteria

[Next](#)

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Address <http://iris.concordia.ca/projects/jmsblogarexperiment/index.cfm?method=jmsblogarexperiment.evaluateBlog&CFID=130436&CFTOKEN=40042087> Go List »

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- Evaluating...

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Address <http://ms.concordia.ca/projects/jmsbsloganexperiment/index.dfm?method=jmsbslogan.feedback&instruction&CFID=130438&CFTOKEN=40042087> Go Tell

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École de Gestion
John-Molson
John Molson
School of Business

Promoting the JMSB International Case Competition

Congratulations! You performed within the 80th percentile as compared to other students who have so far participated in this experiment. Your responses are well above average in creativity and may be used by the JMSB in the near future to help promote the International Case Competition. Given the number of creative slogans you have provided, you will be paid \$10 dollars.

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Address http://ms.concordia.ca/projects/jmsbsloganeexperiment/index.cfm?method=jmsbslogan.questionnaire1

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	1	2	3	4	5	6	7
1. Because I was interested in the task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Because I did it for the good of the International Case Competition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Because this is what I was supposed to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. There may be good reasons for generating slogans but personally I don't see any	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Because I enjoyed generating slogans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Because generating slogans is a good learning experience for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Because I had to generate slogans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I created slogans but I am not sure if it was worth it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Because thinking up slogans is fun	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Because I personally decided to do this task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Because I did not have any choice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I don't know; I don't see what generating slogans brings me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Because I felt good while creating slogans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Because creating slogans was important for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. because I felt obliged to do this task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I did this task, but I am not sure if I would do it again in the future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Next

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Address http://mis.concordia.ca/projects/jmsbsloganexperiment/index.d/method=jmsbslogan.questionnaire2&CFID=130438&CFTOKEN=40042087

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Promoting the JMSB International Case Competition

Promoting the JMSB International Case Competition

We would like to know how you felt while trying to generate slogans. For each of the following statements, please indicate how true it is for you, using the following scale

	1	2	3	4	5	6	7
	not at all true	very little	a little	moderately true	strongly	very strongly	completely true
						1 2 3 4 5 6 7	
1. I felt anxious						<input type="radio"/>	<input type="radio"/>
2. This activity was fun do to						<input type="radio"/>	<input type="radio"/>
3. I felt I had control over how to generate slogans						<input type="radio"/>	<input type="radio"/>
4. I had choice about doing this task or not						<input type="radio"/>	<input type="radio"/>
5. I think I did pretty well at this activity						<input type="radio"/>	<input type="radio"/>

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Address: http://ms.concordia.ca/projects/jasbsloganexperiment/index.cfm?method=jasbslogan.questionnaire&CFID=130438&CFTOKEN=40042087

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	1	2	3	4	5	6	7
	not at all true	very little	a little	moderately true	strongly	very strongly	completely true
						1	2
						3	4
						5	6
						7	
1. I felt anxious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. This activity was fun do to	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I felt I had control over how to generate slogans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I had choice about doing this task or not	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I think I did pretty well at this activity compared to other students	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I felt a relaxed sense of personal freedom	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I felt I was doing what the supervisor wanted me to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I felt tense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I thought this was a boring activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I felt I was pursuing goals that were my own	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I enjoyed generating slogans very much	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I felt nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I believe I had a choice over trying different strategies to generate slogans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I think I am pretty good at generating slogans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I am satisfied with my performance at this task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Address http://jis.concordia.ca/projects/jmsbsloganexperiment/index.cfm?method=jmsbslogan.secondTaskQuestion&CFID=130436&CFTOKEN=40042087

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Promoting the JMSB International Case Competition

Promoting the JMSB International Case Competition

- We would like to ask you to participate in a second task that consists of providing suggestions to JMSB. The JMSB is currently altering their strategic plan and would appreciate input from students.
- For this optional task I would like you to provide some thoughts on what we, here at the John Molson School of Business can do to best serve university students. Your participation in this task is voluntary. You are not obliged to do it.
- Unfortunately we cannot compensate you for participating. Your participation will help us build a strategic plan that will better serve the needs of JMSB students.

Select Yes or No and press on the Submit button to continue.

Yes
 No

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Address http://jms.concordia.ca/projects/jmsbsloganexperiment/index.cfm?method=jmsbslogen.secondTask&CFID=130438&CFTOKEN=40042087

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Ecole de Gestion John-Molson John Molson School of Business

Promoting the JMSB International Case Competition

Suggestions on how to best serve JMSB students...

- When you have completed this task press the "submit" button and proceed to the final screen.

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Address http://ms.concordia.ca/projects/jmsbslogonexperiment/index.cfm?method=jmsbslogon.theEnd&CFID=130438&CFTOKEN=40042087

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École de Gestion John-Molson
The John-Molson School of Business

Promoting the JMSB International Case Competition

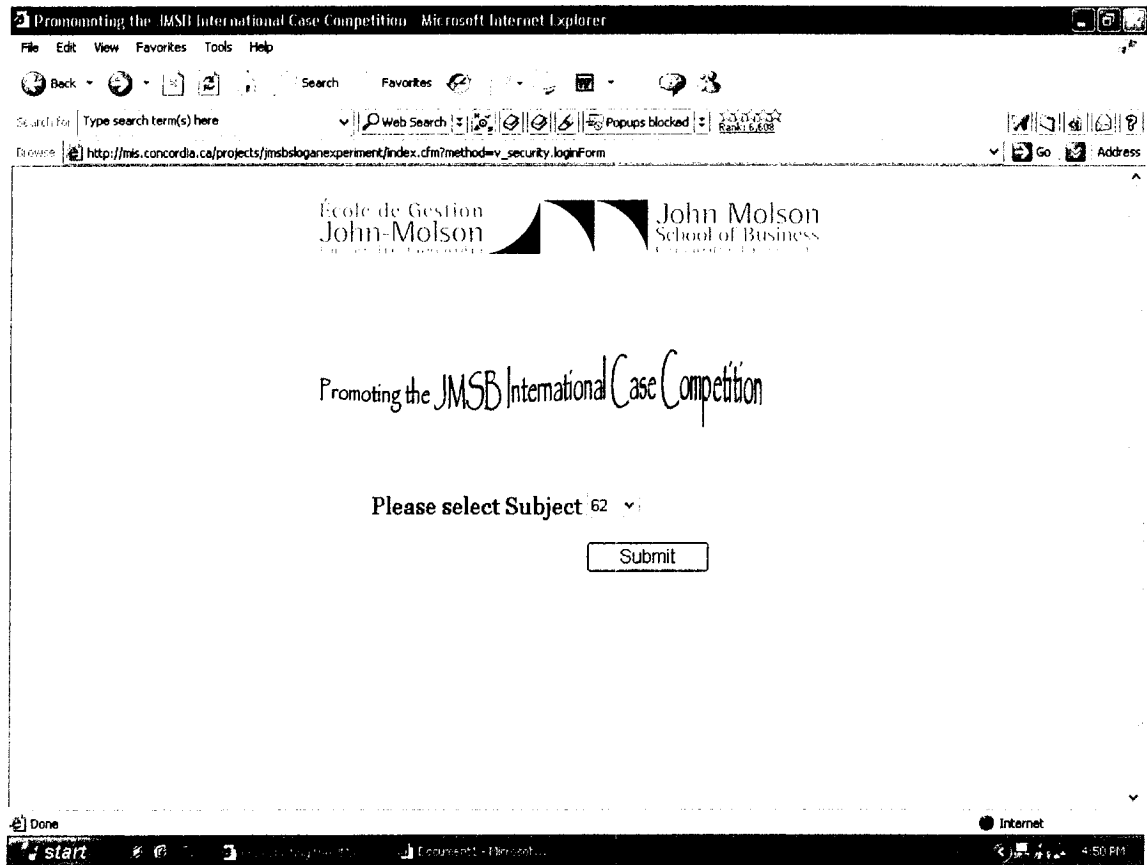
Thank you for your participation. The End

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APPENDIX C

Sample of Computer Simulation: Study 2

Condition 1 – Piece-Rate/Creative Instructions



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Search for: Type search term(s) here Web Search Popups blocked

Address: http://mis.concordia.ca/projects/jmsbloganexperiment/index.cfm?method=jmsblogan.instructionwarning&CFID=10841&CFTOKEN=84175066

Promoting the JMSB International Case Competition

You will be given instructions on the next page (when you click the Next button). Please read them carefully. You will be quizzed on your understanding of these instructions. If you fail the quiz, you will not be allowed to do the computer simulation.

[Next](#)

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start Document1 - Microsoft...

4:52 PM

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Search: Type search term(s) here

Web Search Popups blocked Rank 15,608

Address: <http://ms.concordia.ca/projects/jmsbloganexperiment/index.cfm?method=jmsblogan.instruction&CFID=10841&CFTOKEN=84175066>

Promoting the JMSB International Case Competition

**READ ALL INSTRUCTIONS
VERY CAREFULLY. YOU
WILL BE QUIZZED ON
THESE INSTRUCTIONS**

- Thank you for agreeing to work on behalf of the John Molson School of Business
- In addition to receiving one point toward your final grade, you will be paid cash upon completion of this experiment.

Done Internet

start motivation - study 2 ... 4:52 PM

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Search for: Type search term(s) here Web Search Popups blocked Rank: 5,608

Go Address

http://mis.concordia.ca/projects/jmsbsloganexperiment/index.cfm?method=jmsbslogan.taskSummary

Promoting the JMSB International Case Competition

Highlights

- CREATE MARKETING SLOGANS FOR THE JOHN MOLSON MBA INTERNATIONAL CASE COMPETITION
- BE AS CREATIVE AS POSSIBLE
- PAID \$2 PER CREATIVE SLOGAN

Done Internet

start motivation - study 2 ... 4:54 PM

Promoting the IMSB International Case Competition Microsoft Internet Explorer

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Search for: Type search term(s) here Web Search Popups blocked

Address: http://mis.concordia.ca/projects/jmsbsloganexperiment/index.cfm?method=jmsbslogan.taskSummary

• PAID \$2 PER CREATIVE SLOGAN

MAKE SURE YOU CLEARLY UNDERSTAND ALL OF THE INSTRUCTIONS. THE FOLLOWING PAGE WILL QUIZ YOU ON THESE INSTRUCTIONS

Done Internet

start notification - study 2... 4:54 PM

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Search: Type search term(s) here Web Search Popups blocked

Address: http://mis.concordia.ca/projects/jmsbsloganexperiment/index.cfm?method=jmsbslogan.manCheck&CFID=108418&CFTOKEN=84175066

Promoting the JMSB International Case Competition

Manipulation Check

1. What did the instructions indicate that you should focus on during this activity?

- Creativity of slogans
- Quantity of slogans

2. How will you be paid for this activity?

- No pay
- Paid \$2 per creative slogan
- Paid \$2 per usable slogan
- Paid \$10 for your time

Next

Done Internet

start ... Promoting the JMSB International Case Competition - Study 2 ... 4:54 PM

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Promoting the JMSB International Case Competition

- CREATE MARKETING SLOGANS FOR THE JOHN MOLSON MBA INTERNATIONAL CASE COMPETITION
- BE AS CREATIVE AS POSSIBLE
- PAID \$2 PER CREATIVE SLOGAN

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APPENDIX D**INSTRUCTIONS:**

On the following pages, Concordia students have provided a number of slogans to help promote the JMSB MBA International Case Competition. We ask you to carefully read each slogan and rate each one on a scale between 1 (not creative) and 10 (very creative).

You can provide this number in the empty box next to each slogan. The rating you provide is subjective and based entirely on your own personal definition of creativity.

NOT CREATIVE**VERY CREATIVE**

1 2 3 4 5 6 7 8 9 10

To do this, please **EDIT** and **SELECT ALL** of this document, then **COPY** and **PASTE** it into a new word document. You can then write your rating (1-10) in the empty box provided next to each slogan. **SAVE** the new document with the ratings included and **SEND** this file back to Nicola Robertson's First Class Account. Thank you.