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The Effects of Task Autonomy and Task Interest on Goal-Setting Behavior and Task Performance

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THE EFFECTS OF TASK AUTONOMY AND TASK INTEREST ON GOAL-

SETTING BEHAVIOR AND TASK PERFORMANCE

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ABSTRACT

Task autonomy and task interest have been studied in the organizational literature as main effects, demonstrating positive effects on productive work behavior and goal-setting behavior. Providing high task autonomy or an interesting task may stimulate goal setting, but the interaction of these two variables may significantly increase goal level and consequently task performance. Yet, little research has examined this interaction on individuals' goal-setting behavior, when given the opportunity to self-set goals. The purpose of this research is to discover whether the effects of task autonomy on self-set goals are stronger for tasks that are more interesting. Furthermore, I assessed the relationship between goal difficulty and task performance to determine whether goal difficulty mediates the relationship between the interaction and performance. In this study, I created four separate conditions by verbally manipulating task autonomy (high, low) and task interest (interesting, uninteresting). Participants were asked to complete an assembly-type task and set a goal based on how many objects they felt they could construct in 20 minutes. Following the experiment, participants completed a six-item task questionnaire and I assessed their quantitative and qualitative performance on the task. Results contribute to the motivational and organizational literature, and the understanding of worker productivity.

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CHAPTER I

INTRODUCTION

Organizations are constantly attending to productivity to maintain a competitive

advantage and draw a better return on capital investment. Whether efforts are directed

towards an entire organization or the individual employees who make up a company,

increasing productivity is amongst all employers' objectives. The mere existence and

survival of a business depends on the productivity of its incumbents. Since employee

productivity is the result of one's ability and motivation (Story, Hart, Stasson, &

Mahoney, 2008), management can influence employee productivity if they understand

the aspects of one's job that motivate individuals to achieve high performance. The

motivational literature suggests that setting goals motivates productive work behavior and

that difficult goals lead to higher performances than easy goals (Locke, 1968).

Furthermore, when individuals are able to self-set goals, they tend to set more difficult

goals than those set by supervisors (Latham & Saari, 1979). Yet, little is known about the factors that make people set more difficult goals when they are given the opportunity to self-set performance goals.

Some situational factors encourage individuals to set difficult goals. Providing a degree of autonomy within one's job has been shown to lead to increases in self-efficacy, motivation and work effectiveness (Langfred & Moye, 2004). Typically people prefer to have control of how they perform certain tasks within their jobs, compared to having management direct and regulate their work tasks. If individuals have more freedom and control over aspects of their jobs, it seems likely that these types of high autonomy tasks would motivate individuals to set difficult goals. This might not be the case for all tasks. We know that when tasks are interesting people tend to perform willingly and experience enjoyment from the task itself. Tasks that are inherently satisfying may encourage a person to set more difficult goals than tasks that are considered uninteresting and that need an external regulator to motivate desired behavior. While some high autonomy tasks may be interesting, enjoyable, and challenging, others may be boring, repetitive, and need an incentive to induce productive behavior. It is important to go beyond understanding the sum of the individual effects of task autonomy and task interest, and understand the interaction between these task autonomy and task interest to promote the highest amount of employee productivity. Considering task autonomy and task interest separately stimulate goal setting, it is possible that the interaction of these variables may produce even greater goals to be set, and consequently promote greater performances. These findings would help organizations understand when it is important to incorporate interesting tasks, depending on the degree of task autonomy provided. The present study

adds to the organizational literature by exploring the interaction between these variables, and their effects on goal difficulty, by integrating elements of three motivational theories.

Below, I will first explain the motivating proponents of goal setting theory on work behavior, followed by support for task autonomy and task interest within job enrichment theory and self-determination theory. Then, I will explain the implications for understanding the interaction between task autonomy and task interest, in order to incorporate these variables appropriately into a job design. Lastly, I will discuss my hypotheses and the procedures of the present study.

1.1   Goal Setting Theory

Given today's unstable economy, management look for ways to motivate employees without having to expend additional organizational resources. As mentioned, one feasible technique that can increase employee performance is to use goal setting. From the motivational perspective, goal setting is an action plan that influences the direction, amount of effort as well as the persistence of a certain action. An individual's intentions will affect not only the level of performance attained, but also the level of effort exerted and the engagement of certain behaviors to complete a task. From the cognitive perspective, goal setting influences the process by which individuals indirectly develop strategies to reach a goal (Buller & Bell, 2009). The empirical work of Locke and his colleagues in the late 1960s consistently confirmed the importance of goal setting on performance and that an individual's performance is directly influenced by one's conscious objective of a given task (Locke, 1968). The act of setting goals serves as an immediate regulator of human behavior that establishes expectations for employees, where they are able to identify what is important from what is not and can develop

strategies and identify procedures necessary to reach the goal. If goals are specific, measurable, attainable, realistic, and timed (Bovend'Eerdt, Botell, & Wade, 2009), goal setting can positively affect performance. Setting goals has been shown to increase performances in educational settings (Bryan & Locke, 1967), rehabilitation practices (Bovend'Eerdt et al., 2009), sports settings (Bueno, Weinberg, Fernando-Castro, & Capdevila, 2008) and business settings (Latham & Steele, 1983), and has been said to be one of the most effective motivational strategies and behavioral modification tools used in organizations to date (Bueno et al., 2008).

Locke's major finding was that performance was regulated not only by the presence of a goal, but by the goal level, in that higher, more difficult goals led to greater performances. Simply put, specific hard goals result in a higher performance compared to easy or generalized goals. For decades, goal-setting research has supported the notion that difficult, specific, performance goals lead to greater performances, compared to no goals or general goals, such as "do your best," across a variety of domains (Bovend'Eerdt et al., 2009; Latham & Saari, 1979; Latham & Steele, 1983; Latham & Yukl, 1975). Blumenfeld and Leidy (1969) found that servicemen employees who were assigned hard goals checked more vending machines than those employees who were assigned easy goals. Latham and Brown (2006) found that first year MBA students who set high difficult performance goals had a significantly higher grade point average at the end of an academic term than students who were told to do their best. Difficult goals, compared to easy goals, lead to positive outcomes that promote productive work behavior, such as strategy development, increased levels of arousal, and persistence and effort towards reaching a goal (Locke, Shaw, Saari, & Latham, 1981). Again, little research has

explored the natural processes of goal setting, to discover the situations that lead people to set specific, difficult goals.

Although goals that are used in organizations typically refer to goals assigned externally, where managers and supervisors assign employees goals, in some situations employees are left to self-set goals. Allowing individuals to self-set goals may promote more difficult goals to be set than those goals set by an authority figure. When individuals are given the opportunity to make their own decisions by setting their own goals, they usually set higher goals than if they were given no decision (Latham & Saari, 1979). For example, when uninformed loggers were able to set their own weekly production goal, the goal was higher and attained significantly more frequently than those assigned a goal (Latham & Yukl, 1975). Additionally, when employees set goals for themselves, they performed better on their goals in comparison to those integrated in a low participation work setting (French, Kay, & Meyer, 1966). Self-setting goals increases employee goal acceptance and commitment, and consequently individuals will work harder to achieve the specific goal (Latham & Saari, 1979). Self-set goals may have a greater impact on performance than assigned goals, to the extent that self-set goals lead to more difficult goals (Latham & Yukl, 1975), and as goal setting theory asserts, there is a linear relationship between goal level and performance. Thus, designing a job that promotes individuals to set difficult goals would positively impact employee productivity.

Along with promoting goal setting within one's job, it is important to understand that different people may perform better on certain tasks. That is, depending on the task, individual differences may exist that affect task performance. For example, men may

perform better on tasks that require more physical strength, whereas women may perform better on tasks requiring fine detail and smaller hands. In fact, previous research has found that females perform better than males on fine motor activities because of females' smaller finger size (Peters, Servos, & Day, 1990). Additionally, some people may do better on tasks that deal with material drawn from their previous experiences. Research suggests that men may be better at tasks requiring mechanical objects and science (Johnson, 1987), while women may be better at tasks requiring certain cognitive abilities, such as spatial ability (Linn, Benedictis, Delucchi, Harris, & Stage, 1987). Also, different races tend to prefer different recreational activities (Floyd, McGuire, Noe, & Shinew, 1994), and because of this, people may have more or less previous experience with certain tasks leading to variations in performance. Being aware of gender and racial differences may help management design or redesign jobs to promote productivity.

1.2   Job Characteristic Theory

Job design is the way that an entire job, or a set of work tasks, is organized. It is beneficial for employers to design or redesign a job with characteristics that promote productivity. Organizations use job redesign to satisfy the personal and social requirements of the employees, while also attending to technological and organizational conditions (Gallagher & Einhorn, 1976). By focusing on modifying specific methods and content within a job, job design can increase organizational productivity, as well as improve employees' motivation and quality of work (Hackman, 1980). To achieve these benefits, an employer can implement programs that involve job enlargement, job extension, and job rotation, or can use a job design that grants increased responsibility to employees. Job enlargement entails giving employees task variety by expanding their

duties to cover other tasks related to their job. Adding duties to an employee's central job, and "extending" one's job, can help reduce employment boredom, which in turn may decrease employee dissatisfaction, absenteeism, and turnover rates (Kass, Vodanovich, & Callender, 2001). Additionally, employers can give employees a broad perspective of their job by rotating them through departments and branches relevant to their core job. Jobs that are perceived as being more varied are considered more interesting, which increases worker motivation (Gallagher & Einhorn, 1976), and ultimately increases employee productivity (Latham & Yukl, 1975).

A practical way to redesign jobs is to use job enrichment, which is a design that provides employees the opportunity to plan work objectives and control aspects of their jobs. This design intends to reverse the effects of monotonous, repetitive tasks by giving employees responsibility and control over how they perform tasks within their jobs. According to Hackman and Oldham's (1976) job characteristic theory, there are five core work dimensions (i.e., skill variety, task variety, task significance, feedback, and autonomy) that make a job motivating. When a job is designed to include or increase these characteristics, it is predicted to have positive effects on employee motivation, satisfaction and performance (Hackman, 1980). Because many jobs in organizations lack these core dimensions necessary for employee motivation, job enrichment can be used to redesign jobs to incorporate some of these characteristics. Specifically, one way to enrich one's job is to provide employees with a degree of autonomy, and of the five dimensions, autonomy has been consistently identified as having motivating potential to increase employee effectiveness and promote a variety of productive work behaviors (Langfred & Moye, 2004).

1.3　Self-Determination Theory

Autonomy

Self-Determination Theory (SDT) is a theory of human motivation that explains the importance of satisfying one's need for autonomy. When one's self-determined behavior reflects personal values and is freely chosen, one is in turn more motivated. SDT states autonomy is a fundamental nutriment that is pertinent for optimal human development and human motivation. Satisfying the need for autonomy is considered essential for the regulation and value of a behavior to be internalized, that is, in order for the individual to perceive subsequent behavior as being autonomous (Gagne & Deci, 2005). Perceiving behavior as autonomous, compared to perceiving behavior as controlled, is beneficial for motivating job-related behaviors. SDT highlights the differences between autonomous and controlled behavior, indicating that autonomous behavior is self-sustained and feels freely chosen, whereas controlled behavior feels controlled and consequently creates a sense of pressure where action feels obligated. Feeling controlled can lead to decreases in productive work behavior, while providing autonomy can have positive effects on job behavior (Deci & Ryan, 2011).

Incorporating autonomy into one's job design can be used as a motivational technique to increase employee productivity. Autonomy has become a modern phenomenon, where more than 90% of Fortune 1000 companies have used variations of autonomy to increase satisfaction, performance, and motivation (Lawler, Mohrman, & Ledford, 1995). The concept of autonomy implies that one's actions emanate from oneself, where individuals act with a sense of volition and freedom. The positive motivational effects of autonomy have been well documented in the organizational

literature (Garcia & Pintrich, 1996; Langfred & Moye, 2004; Lee, Sheldon, & Turban, 2003; Zhou, 1998), suggesting that perceptions of autonomy can lead to many productive work behaviors, such as higher job attitudes and wellbeing (Chung-Yan, 2010), organizational commitment, job performance, job satisfaction, and job involvement, as well as lower emotional distress, turnover, and absenteeism (Spector, 1986). Because certain situations or activities satisfy this need for autonomy, and subsequently affect behavior positively, designing a person's job that incorporates high task autonomy is valuable.

Task Autonomy

Considering a person's job usually involves a variety of tasks that differ by nature, it may be difficult to give employees *full* discretion over their job, but rather organizations can satisfy an individual's need for autonomy by providing tasks with high autonomy. A main focus of the current study is task autonomy, which is more specific than job autonomy. Job autonomy provides substantial discretion, freedom, and independence to a person, in determining the procedures used to carry out work (Hackman & Oldham, 1976), and is comprised of multiple tasks that have various degrees of autonomy within each task. Task autonomy also gives individuals discretion over important job decisions, but it is the variation at the level of the task that is most important. Task autonomy gives individuals control over the process of completing *a* particular task, including the freedom to choose the methods and strategies necessary to reach a goal. For instance, some tasks are provided with instruction as to how to carry out a task in order to reach a goal, while other tasks allow employees to determine the best strategy as to how to perform a task to reach a goal. Task autonomy also differs from

participation (Langfred & Moye, 2004), which refers to a decision-making process that usually includes more than one person (e.g., an incumbent and a supervisor). The end result of participation is typically a joint decision, whereas task autonomy is an *individual* decision.

When individuals are given task autonomy, this independence in determining the scheduling of work, how to perform work, and the setting of performance goals can positively affect work behaviors. When employees are given discretion within their jobs, they are able to eliminate unnecessary tasks, discover and utilize shortcuts (Locke, Sirota, & Wolfson, 1976), which ultimately can make employees more efficient. Task autonomy has also been shown to promote high task performances (Joo, Jeung, & Yoon, 2010; Deci & Ryan, 2011), reduce absenteeism (Locke et al., 1976), and has been related to levels of perceived competence and perceptions of control (Garcia & Pintrich, 1996). A feeling of control creates a sense of goal ownership and dedication, which consequently increases one's commitment to reach the goal (Latham & Yukl, 1975). As mentioned in goal setting theory, having high goal commitment is important for goal attainment, especially difficult goals, because these goals take longer to achieve and are harder to reach. Also, when a goal is perceived to be under a person's control, the goal is more likely to be accepted, and more effort and persistence is expended toward reaching the goal leading to higher rates of goal attainment and higher performances (Erez & Kanfer, 1983; Latham & Yukl, 1975). On the other hand, when individuals are *not* given the control to develop the methods and processes to achieve a goal, these controlling strategies can reduce an individual's sense of control over the initiation and regulation of activities. Being controlled establishes the idea of *having* to engage in certain behavior and creates a sense

of pressure, and situations that appear controlling (e.g., classrooms or business settings) can result in decreased learning and poorer attitudes (Flowerday & Schraw, 2003). To avoid negative work outcomes it is important to have an environment that promotes perceptions of individual control and choice.

Task autonomy gives individuals the opportunity to choose how to complete a task (Flowerday & Schraw, 2003). Experiencing a sense of choice is an important element in autonomous behavior, but as Deci and Ryan (1987) emphasize, the term *choice* is not referred to as a cognitive concept, where one is choosing among behavioral options, but rather refers to the intrapersonal or interpersonal forces that give one a sense of integrated functioning. Cordova and Lepper (1996) found that compared to no choice, allowing people to choose how to complete an activity led to greater liking of the task and higher levels of perceived competence. This provision of choice produced substantial increases in participants' motivation, level of aspiration, engagement in learning, self-determination and sense of control, and also led to participants preferring more difficult tasks. Situations that provide task autonomy encourage individuals to engage in self-determined behavior (Deci & Ryan, 2011), which has been related to positive outcomes, such as increases in creativity, achievement, flexibility, and comprehension (Zhou, 1998). Researchers look for ways to best design individual jobs to exploit the benefits of high task autonomy, understanding that other task characteristics may influence the effects of task autonomy on performance.

Intrinsic and Extrinsic Motivation

Motivation is intrinsic if it is self-sustained and satisfaction originates from the enjoyment of one's action. Intrinsic motivation has been highlighted in the organizational

literature as being a constructive form of motivation, shown to positively affect work

behavior and job performance (Finkelstein, 2009). Yet the most common form of

motivation found in organizational settings is extrinsic motivation, where employees

engage in work tasks reluctantly and perform to gain some sort of separable outcome

(e.g., income, bonuses, etc). Understanding these forms of motivations can help us to

understand what motivates individuals to set difficult goals.

      SDT differentiates between intrinsic and extrinsic motivation by aligning them

along a single continuum ranging from low to high levels of self-determination (Ryan &

Deci, 2000), rather than considering these constructs to be dichotomous. On the low end

of the continuum exists motivation that lacks self-determination (amotivation), and on the

high end exists behavior that is invariantly self-determined (intrinsic motivation).

Between these motivations are forms of extrinsic motivation that vary in the degree to

which the motivation is considered controlled or autonomous (Tremblay, Blanchard,

Taylor, Pelletier, & Villeneuve, 2009). Extrinsic motivation can reflect a desire to be

external, compliant and avoid punishment (external regulation), somewhat external, avoid

feelings of guilt and ego boosting (introjection), somewhat internal and to attain a valued

personal goal (identification), and lastly, extrinisic motivation can be somewhat internal

and self-valued, but still motivated by instrumental value (integration). According to

SDT, introjection and external regulation involve external influence that lead to negative

outcomes, while integration and identification are considered forms of autonomous

regulation, which lead to more positive outcomes. Additionally, amotivation has been

shown to lead to the most negative outcomes, while intrinsic motivation leads to the most

positive consequences (Meyer & Gagne, 2008). Finding factors that increase motivation

is important for employee productivity, but finding factors that foster *intrinsic* motivation can be even more beneficial.

As defined earlier, two elements of intrinsic motivation arise that can significantly impact human behavior. Firstly, intrinsic motivation reflects behavior that is self-governed. Within the literature, intrinsic motivation is sometimes referred to as autonomous motivation (Gagne & Deci, 2005) because when intrinsically motivated, individuals experience a sense of freedom and volition. This aspect of intrinsic motivation has been found to have a positive relationship with performance in educational (Lin, McKeachie, & Kim, 2003), sports (Catley & Duda, 1997), and organizational (Gagne & Deci, 2005) settings. Specifically, it has been shown to lead to better conceptual understanding and quicker learning (compared to other types of motivation) (Osterloh & Frey, 2000), and influences individuals to seek more difficult goals (Csikszentmihalyi, 1990). Although this aspect of intrinsic motivation stimulates goal setting (Deci & Ryan, 2011), the other component of intrinsic motivation may be just as stimulating.

Task Interest

The other element of intrinsic motivation, and the second focus of the current study, refers to the engagement in an activity for the inherent satisfaction of the task, where an individual is energized and attracted to the task itself. Csikszentmihalyi (1990) defined a pure form of intrinsic motivation (he termed "flow") where an individual becomes fully absorbed in an activity because of the pure *pleasure* posed by the activity. The lay term for this element of intrinsic motivation is interest, which has two different conceptions throughout the literature: individual and situational interest. Individual

interest pertains to one's preference for certain activities, which incorporates the relevance of a task as well as one's feelings toward the task (Horvath, Herleman, & McKie, 2006), whereas situational interest refers to the emotional state produced by an activity, which includes the characteristics of a task that stimulate interest (Schiefele, 1991). Deci and Ryan (1985) suggest situational interest has a significant, directive role in intrinsically motivated behavior because people tend to naturally/willingly approach activities that are interesting.

What characteristics make a task or activity interesting, enjoyable, or fun to complete? Besides the task providing satisfaction within itself, interesting tasks have been described as captivating and appealing (Malone, 1981), where the task excites and awakens the immediate needs of the individual (Durik & Harackiewicz, 2007). The adaptive design of the human organism seeks to engage in these sorts of activities that are appealing, and sees engagement as enjoyable, which in turn can lead to constructive work behavior and positive work outcomes (Lin, 2007). Task interest has been linked to increases in cognitive functioning, learning strategies, affective involvement, and persistence (Hidi, 2001), and research suggests employees willingly put forth the necessary effort to perform and complete an interesting task without expending additional organizational resources, such as requiring constant monitoring, supervision, etc. (Joo et al., 2010). Csikszentmihalyi (1990) believes that when tasks are perceived as interesting there will be increased concentration and full engagement, which leads to furthering skills in a domain and motivates individuals to seek more difficult challenges. When a task is interesting, one may be more likely to continue to exhibit productive behavior without an external motivator present (Deci & Ryan, 1985). This is not necessarily the

case for uninteresting tasks, where external regulators are typically used to induce productive behavior. Lastly, interesting tasks may stimulate goal setting because of the increased persistence and cognitive functioning produced by interest. Because some organizational activities are not always interesting, but rather uninteresting, organizations may use extrinsic regulators to motivate employees with uninteresting tasks.

Tasks that are uninteresting are usually seen as repetitive, monotonous, and boring. When a task is uninteresting, organizations may have to promote extrinsic motivation, and motivate employees with external rewards or separable outcomes outside of the activity. Extrinsic motivation is usually the predominant form of motivation found in organizations, where organizations use tangible external rewards such as financial incentives, base pay, flexible hours, bonuses, or other benefits to motivate employees to perform accordingly. An incentive is an event or object external to the individual, which can be offered to increase productivity and enable greater action that otherwise may not occur (Tolchinsky & King, 1980). Money is typically used as an incentive in organizations, but external rewards can also be intangible, such as recognition from supervisors, social approval, or a sense of worthiness. Although we live in a society that desires recognition and praise, it is important to realize that external rewards are not always constructive.

By nature, extrinsic motivation pays little attention to the *process* of reaching a goal and focuses on the *results* of reaching the goal. When a task is presented as uninteresting and incentives are used to motivate behavior, a person is made aware of external rewards and is forced to measure outputs. For example, if an employee's performance is motivated by a financial incentive, the individual will focus on obtaining

the financial reward and alter behavior accordingly, with little regard to the amount of hard work and effort put into the task. Rewards have an underlying function of control, which may restrict self-determination because rewards are external motivators that induce people to engage in behavior they typically would not freely choose to (Gagne & Deci, 2005). This can cause a person to attribute work behavior to external reasons, which leads to individuals feeling less willing to perform an activity and less interested, especially once a reward is removed, compared to individuals performing an activity without a reward present (Deci & Ryan, 1987). Research indicates that extrinsic rewards may decrease an individual's sense of control and competence (Deci, 1975), decrease cognitive flexibility in problem solving (McGraw & McCullers, 1979), and promote less creativity (Deci & Ryan, 1985). When performing a task for extrinsic reasons, an individual may attribute one's behavior to the extrinsic contingency, rather than the interest of the task, consequently exhibiting less motivated behavior and considering the task uninteresting (Lepper, Greene, & Nisbett, 1973).

1.4   The Present Study and Hypotheses

As the economy continues to recover, it is valuable for organizations to find inexpensive and efficient ways to improve employee performance without having to use financial incentives. Since higher goals have been shown to lead to higher performances (Locke, 1968), understanding what work situations cause individuals to set higher goals is imperative. Research dating back to the 1960s suggests that the motivational effects of autonomy are associated with goal setting, in that, when goal setting and goal level are held constant, autonomous decision-making had no effect on performance (Meyer, Kay, & French, 1965). Setting and reaching goals is a huge part of organizational success, yet

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the current research pays little attention to the effects of goal setting in the task autonomy-performance relationship. Considering individuals set goals based on their perceived ability to reach the goal, being able to determine the means of reaching the goal (having high task autonomy) should affect the level of goal a person sets.

Hypothesis 1: High task autonomy will lead to more difficult self-set goals than low task autonomy.

As the difficulty of a goal increases, undoubtedly the probability of reaching the goal decreases because easy goals require less effort and can be achieved more quickly, whereas difficult goals require more effort and commitment. One's task performance is regulated directly by the conscious goals they are trying to achieve on a given task, and when difficult goals are attained they lead to higher performances than easy goals (Locke, 1968). When individuals are given choice in setting their own goals, they tend to set higher goals than goals set by authority, and consequently, these higher goals lead to higher performances (Latham & Saari, 1979). Consistent with goal setting theory, higher goals are expected to lead to higher performances.

Hypothesis 2: Goal difficulty will be positively related to task performance, in that, more difficult goals will lead to higher performances than easy goals.

Although Hypotheses 1 and 2 suggest that all individuals will set higher goals in high autonomy tasks, and that those goals will lead to higher performances, certain types of tasks can potentially alter this relationship. Few other task characteristics have been considered in combination with high autonomy tasks for having motivating capabilities that could potentially lead to higher goal levels. Considering not all tasks found in the workplace are the same, depending on whether a task is interesting or uninteresting may

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influence the relationship between task autonomy and goal difficulty. That is, some high autonomy tasks that are perceived as interesting and enjoyable may lead to more difficult goals being set than other high autonomy tasks that are performed for rewards and are less interesting. While both of these variables have main effects, individually their effects may be limited unless one considers the other as a facilitating factor. For instance, task autonomy may be motivating, but if the task is uninteresting task autonomy may not show much of an effect. Similarly, tasks perceived as interesting may be somewhat motivating, but if choice is taken away, interest might not significantly influence goal-setting behavior. It would seem as though the interaction of task autonomy and task interest would give a uniquely high level of goal setting, which has not been studied in the literature.

One implication of this is that organizations should not simply focus on task autonomy or task interest. Instead, management may have to consider offering interesting tasks in high task autonomy situations to achieve the utmost productivity they desire from their employees. In jobs with high task autonomy, tasks that are interesting may lead employees to set higher goals, simply because employees look at what they are doing as enjoyable, compared to tasks that are considered less interesting, which may require a performance-contingent incentive for employees to want to perform. This interaction may be ideal for productivity, but other implications follow from examining the role of task autonomy and task interest. For instance, some situations may exist in which organizations may not be able to change a certain aspect of their design. If a task is inherently uninteresting, organizations may not need to bother redesigning the task with high task autonomy, because it would be ineffective. Similarly, if an organization has a

controlling environment with low task autonomy, making the task more interesting may not produce significant increases in productivity.

According to Gagne and Deci (2005), high autonomy tasks, relative to low task autonomy, tend to produce better performances when tasks are interesting, but if the tasks are perceived as mundane or uninteresting, these high autonomy tasks will not positively affect performance. As long as tasks are perceived as interesting, goal setting may be stimulated and positively affected, yet goal level may mediate the relationship between the interaction and performance. Vansteenkiste, Simons, Lens, Sheldon and Deci (2004) found that presenting a mundane task as serving the attainment of an extrinsic goal, compared with framing the goal as inherently interesting, undermined academic achievement, persistence, and the deep processing of learning. Since difficult goals require persistence, because they typically take longer to achieve, having interesting tasks within a high task autonomy situation is beneficial. Task autonomy and interesting tasks both produce a sense of competence and mastery (Puca & Schmalt, 1999), and when individuals experience feelings of competence while performing an activity, believing they can influence their thoughts and behavior can positively affect goal-setting behavior (Story et al., 2008). When individuals are motivated by a task, they choose more difficult, challenging problems than those individuals who are less intrinsically motivated (Story et al., 2008). Since task interest is verbally manipulated in this study, I predict a two-way interaction between task autonomy and task interest. Task interest will be important for tasks with high autonomy, but the motivating qualities of a task will not influence goal difficulty in low autonomy tasks.

Hypothesis 3: There will be an interaction between the degree of task autonomy and the motivational nature of task, in that, when given a task with high autonomy, interesting tasks will lead to higher self-set goals than uninteresting tasks. Additionally, when given a task with low autonomy, there will be no difference in goal difficulty for interesting and uninteresting tasks.

The effects of task autonomy on task performance have been examined in the organizational literature, and certain causal mechanisms have been identified that mediate this relationship, including motivational, informational, and structural mechanisms (Langfred & Moye, 2004). That is, that task autonomy leads to greater performances through these mechanisms. Previous research lacks the recognition of any other mechanisms that affect the impact of task autonomy on performance. Additionally, on the basis of the above arguments, the current study should contribute an additional mediator to the autonomy-performance relationship, suggesting that high task autonomy leads to higher performances by increasing goal difficulty. Again, in accordance with goal-setting theory, one's goal difficulty set from the interaction of task autonomy and task interest will lead to higher performances

Hypothesis 4: Goal difficulty will mediate the relationship between the interaction of task autonomy and task interest on task performance.

In a struggling economy it is imperative for organizations to find ways to increase employee productivity without expending additional resources. Because difficult goals lead to higher performances (Locke, 1968), it is advantageous to stimulate high goal setting. Previous research has found that task autonomy has been linked to higher goals (Cordova & Lepper, 1996), and task interest has been linked to difficult goals (Hidi,

2001). Thus I wanted to study the interaction of task autonomy and task interest to test whether the combination of high task autonomy and interesting tasks would produce the *highest* goals, and that when given low task autonomy, task interest would not matter. This interaction has never been studied before in the literature and understanding this interaction would allow organizations to know when and if to utilize autonomy or interest initiatives to promote productivity. If this interaction were significant, organizations could incorporate both task autonomy and task interest in tandem to promote motivation and performance. That is, in jobs that offer high task autonomy, management would know whether to promote task interest, and in jobs considered interesting, management would know whether to promote task autonomy. Below, I describe a study that tests this interaction, as well as the relationships between task autonomy and goal difficulty, goal difficulty and task performance, and the role of goal difficulty in the relationship between the interaction and performance. In addition, because previous research has demonstrated potential gender and racial differences in performances (Floyd et al., 1994; Johnson, 1987; Linn et al., 1987; Peters et al., 1990), I will explore and control for these factors.

CHAPTER II

METHODS

2.1   Participants and Design

Participants included 80 undergraduate students, both male and female, enrolled

in at least one psychology course at Cleveland State University. Participants' ages ranged

from 18 to 57 and represented a wide range of demographics. Participants were recruited

through Psychology courses and Sona Systems, and earned one credit of research

participation for 45 minutes of their time. They were randomly assigned to 1 of 4

conditions; 40 participants in high task autonomy, 40 participants in low task autonomy.

Two independent variables (task autonomy and task interest) were manipulated in a

laboratory experiment with a 2 (high vs. low task autonomy) × 2 (interesting vs.

uninteresting task) between-participants design. [1]

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[1] In the low task autonomy condition, half of the participants were told to construct ducks
in "steps", the other half were told to construct "whole" ducks, to control for the effects
of method. I wanted to make sure that making the ducks in steps was not more difficult
than making whole ducks (and vice versa). The method had no effect on participants'
goal setting or participants' task performance.

2.2   Materials

Task

The task in both conditions was the same, but the way in which the task was presented to the participants (i.e., interesting or uninteresting) was verbally manipulated. The participants independently constructed a duck made out of white and orange pipe cleaners. Specifically, one duck required four white pipe cleaners and one orange pipe cleaner, and participants needed a pencil for design purposes. Participants received a colorful handout pictorially and descriptively explaining how to construct the duck in six steps (see Appendix A). The task had multiple steps using wires, which could be relevant for electrical, construction, and assembly-type jobs.

Task Questionnaire

The task questionnaire was comprised of six manipulation check items, referring to task autonomy and task interest. To ensure that the manipulations of task autonomy and task interest actually caused a change in participants' perceived task autonomy and task interest, six questions were posed. Three questions referred to whether participants had a choice in completing the task, an example item including, "I felt that I had control in the way I was able to make pipe cleaner ducks." Additionally, three questions referred to whether or not participants thought the task was interesting, an example item including, "I felt that making pipe cleaner ducks was boring." The questionnaire also inquired demographic information.

Camera

An Olympus digital camera was used to take a picture of each participant's completed ducks. Following the entire experiment, another person and I individually examined the pictures to assess the quality of the ducks.

2.3   Procedure

Each participant was run individually in a laboratory setting, where I collected all data. The participants received a consent form explaining their right to withdraw from the experiment at any time, without penalty, and that his or her identity would be kept confidential. After participants signed the consent form, the participant was told that the experiment entailed completing a task of making pipe cleaner ducks. At this time, I presented the task to the participant using the task interest manipulation (interesting or uninteresting). Participants also received three handwritten statements, written by allegedly previous participants, asserting that the task was in fact either interesting or uninteresting to complete. I took back the handwritten statements in exchange for a step-by-step handout, explicitly showing participants how to make the duck out of pipe cleaners in six steps. Materials needed for making the duck were organized into neat piles for ease of construction (i.e., all of the white pipe cleaners in one pile, all of the orange pipe cleaners in one pile, and all of the shorter white pipe cleaners in another). Participants were then given a trial period to practice the task, during which I provided assistance to ensure that the participant could successfully assemble an entire duck.

After the trial period, I explained that for the actual experiment the participant would be making sets of three ducks, and that after each set of ducks was completed they must place the set aside before making the next set of three ducks and so forth. All

participants were informed of possible methods to use to construct the ducks (i.e., make an entire duck before making the next duck, or make all steps three times before assembling whole ducks). After participants understood the different methods of completing the task, the instructions further included the task autonomy manipulation, where participants were told whether or not they had control over choosing how to make the set of three ducks at a time. Once participants understood what was expected of them (whether or not they could choose the method), I then asked the participants how many ducks they felt they could construct in 20 minutes, which was a direct indication of goal-setting difficulty. I recorded this number on a piece of paper. Once participants set their goals, they were given 20 minutes to work on the task and construct as many ducks as possible. During the experiment, participants were reminded when they had 10 minutes and five minutes remaining in the experiment. Following the 20-minute experiment, participants completed a 6-item and filled out minimal demographic information. After the participant left the laboratory, I recorded the number of sets, ducks, and duck parts each participant completed, and took a picture of the ducks to later send to another person to rate the quality of participants' ducks.

2.4   Manipulations

Task Interest

The task was presented as either interesting or uninteresting. When the task was introduced as interesting, participants were told:

> "The task you are about to complete has been described by previous students as enjoyable, interesting, and fun. Overall, people typically take pleasure in completing this task and would choose to perform this task outside of the lab."

To strengthen the task interest manipulation, along with the verbal manipulation participants received three allegedly previous participants' comments, asserting that the task was in fact interesting (e.g., "The task was interesting and I thought making pipe cleaner ducks was enjoyable and appealing") (see Appendix C). When the task was introduced as uninteresting, participants were told:

> "The task you are about to complete has been described by previous students as uninteresting and not very enjoyable due to the repetitiveness of the task. Typically students would not choose to perform this task outside of the lab unless they were going to be receiving a reward."

Participants also received three allegedly previous participants' comments affirming that the task was uninteresting (e.g., "I thought the task was uninteresting and repetitive. I would not choose to do this task outside of the experiment without some sort of incentive").

Task Autonomy

For participants in the high or low task autonomy conditions, I verbally manipulated the level of task autonomy. In the high task autonomy condition, I explained different methods the participant could use to make each set of three ducks (e.g., assemble each duck entirely before moving onto the next duck, or make all of the bodies first, then all of the heads, then all of the wings before assembling complete ducks etc.), and participants were able to freely choose how to assemble the ducks. In both low task autonomy conditions, I also explained the different methods the participant could use to make each set of three ducks, but depending on which low task autonomy condition, told

participants they were not allowed to choose the method and that they were limited to building the ducks as:

> "You must assemble all body parts for each "step" before assembling a complete duck. That is, you must do Step 1 three times, then Step 2 three times, then Step 3 three times, and so forth, before putting a complete duck together," or, "You must assemble an entire duck before making the next duck. That is, you must make a complete duck with all 6 steps, before you make your next duck and so forth."

2.5   Dependent Variables

Goal difficulty was measured by the goals set by the participants, that is, the number of ducks participants stated they could make in 20 minutes. Task performance was determined by the quantity of ducks participants ended up constructing in the 20 minutes. The quality of ducks was also taken into consideration.

CHAPTER III

RESULTS

Prior to performing analyses it is important to run descriptive statistics to understand the relationships and correlations that exist amongst all the variables in the data set. Bivariate correlations were performed on all of the variables to easily identify any significant relationships (see Table 1). I then explored relationships between demographic variables and both quantity and quality performances. I found two significant results which I interpreted using t-tests. Results suggest group differences between race and quality in that White participants (M=2.95, SD=.94) made better quality ducks than non-white participants (M = 2.5, SD =.90), t(78)=-2.13, p=.04. I also performed a t-test on sex and quantity performance, and found that female participants (M=8.4, SD=2.64) made significantly more ducks than male participants (M=6.97, SD=3.05), t(78)=2.22, p=.03. Because these relationships existed, these variables were controlled for and the hypothesis tests were re-evaluated. Controlling for gender and race had no effect on the hypothesis tests.

Before drawing conclusions from the data, it is essential to check the validity and reliability of the manipulations and scales used in this study. Since the variables within my experiment were verbally manipulated, I wanted to see whether task autonomy and task interest were actually manipulated. A common factor analysis was performed to ensure the task questionnaire items representing task autonomy and task interest correctly loaded on separate factors. Specifically, a VARIMAX rotation was used. The appropriate assumptions were met in that each scale had minimal multicollinearity and there were no partial correlations above .7. Also, Bartlett's test of sphericity was significant and the Kaiser-Meyer-Olkin measure was above .5.

Certain steps were taken to determine the number of factors extracted from each scale, beginning with looking at the eigenvalues. Eigenvalues help one to understand the number of significant factors to take into account and eigenvalues greater than 1 are usually considered for the analysis. The rotated component matrix was then assessed to see which items loaded on which factor. If items had a loading of at least .400, they were considered as loading on that factor. An examination of the rotated component matrix showed that the items loaded on a respected factor with loadings higher than .5. Results indicated the task interest items "I thought that making pipe cleaner ducks was interesting," "I felt that making pipe cleaner ducks was boring (reverse coded)," and "I felt that making pipe cleaner ducks was uninteresting (reverse coded)," loaded on Factor 1 and the task autonomy items, "I felt that I had choice in how to make pipe cleaner ducks," "I felt restricted in the way I was able to make pipe cleaner ducks (reverse

coded)," and I felt that I had control in the way I was able to make pipe cleaner ducks,"

loaded on Factor 2 (see Table 2).

A reliability analysis was then performed for both the task autonomy scales and task interest scales. According to the reliability analyses, the three task autonomy items have high internal consistency (α=.816) as do the three task interest items (α=.828), indicating these scales are in fact reliable and can be used in experimentation. Alpha scores of .7 or higher are usually desirable and acceptable in most sciences (Cortina, 1993).

To check the task autonomy and task interest manipulations, I reverse coded the appropriate items and used the average score of the items referring to autonomy and the average score of the items gauging interest. I performed t-tests on the manipulations of the variables and the corresponding manipulation checks. Individuals given high task autonomy felt they had more choice and control over their task than individuals given low task autonomy, t(78)=-5.38, p<.01 (see Table 3). Additionally, individuals who were told the task was interesting indeed found the task to be more interesting than those individuals told it was uninteresting, t(78)=-4.7, p<.01 (see Table 4). These results indicate that the task autonomy and task interest manipulations were successful.

Tests of Hypothesis 1: Task Autonomy

To test Hypothesis 1, and examine whether high task autonomy leads to higher, more difficult goals than low task autonomy, I performed a t-test. By using the manipulation of task autonomy, designated by conditions, there was a significant relationship between task autonomy and goal-setting behavior. Individuals who were given choice and control over the task set significantly higher goals than individuals

given no choice and control, $t(78)=-2.19$, $p=.03$ (see Table 3). For exploratory reasons, another t-test was run to test the relationship between task interest and goal difficulty. According to the data, task interest had no effect on goal-setting behavior, $t(78)=.81$, $p=.42$ (see Table 4). Individuals told that the task was interesting did not set higher goals than those individuals told the task was uninteresting.

Interaction on Goal Difficulty

A multiple regression analysis was performed to examine Hypothesis 3, which examined whether there was an interaction between task autonomy and task interest on goal-setting behavior. An interaction term was created, combining task autonomy and task interest. The main effects of task interest and autonomy were entered simultaneously in the first step of the hierarchical regression. The overall regression was not significant, $F(2,77)=2.73$, $p=.07$, $R^2=.07$, although the main effect for autonomy was significant, $b=2.10$, $p=.03$. In the next step of the hierarchical regression, I entered the interaction term. This regression was also not significant, $F(3,76)=1.87$, $p=14$, $R^2=.07$ (see Table 5). Furthermore, adding the interaction term did not significantly improve the model, $\Delta R^2=.003$, $p=.64$. When individuals were given high or low task autonomy, presenting the task as interesting or uninteresting had no effect on goal difficulty. Because the interaction of task autonomy and task interest did not significantly affect goal difficulty, I performed another hierarchical regression using the manipulation checks of task autonomy and task interest. In the first step of the regression, the main effects of the task autonomy manipulation check and the task interest manipulation check were entered simultaneously. The overall regression was not significant, $F(2,77)=1.30$, $p=.28$, $R^2=.03$. In the next step, I entered the interaction term of the manipulation checks. This regression

was also not significant, $F(3,76)=1.36$, $p=.26$, $R^2=.034$. Furthermore, adding the interaction term did not significantly improve the model, $\Delta R^2=.02$, $p=.23$.

Task Performance

Although the quality of ducks was considered for participants' overall performance, the main criteria of performance for the current study were the quantity of ducks produced. Above, I discussed Hypotheses 1 and 3 together because they involved the same dependent variables (goals). Hypothesis 2 dealt with the effects of goals, so it is appropriate to discuss it here, after the predictors of goals have been established. To move in a linear pathway, I first wanted to understand how task autonomy and task interest affected goal difficulty, before testing the relationship between goal difficulty and performance. To test Hypothesis 2, a Pearson's Correlation was performed to test whether the level of goal difficulty predicted task performance in terms of quantity. Results indicated that higher goals led to higher performances, in that more difficult goals led to significantly more ducks being made than lower set goals, $r=.22$, $p=.046$. The number of ducks participants stated they could make in 20 minutes was directly related to the number of ducks participants actually made in 20 minutes.

Although Hypothesis 2 looked at task performance in terms of quantity, it is also important to examine task performance in terms of quality. The quality of ducks was assessed to see whether quality performance was predicted by higher goals. To rate quality I examined two-dimensional photos of the participants' completed ducks and assessed the quality on a 5-point Likert-type scale (1=Very poor; 5=Excellent). For reliability purposes, I had another person evaluate the ducks quality using the same measurement. A Pearson's Correlation was performed, supporting high inter-rater

reliability of duck quality ratings, r=.699; p<.01. Another Pearson's Correlation was performed to test whether goal difficulty was related to the quality of ducks. Results suggest that a higher goal had no effect on quality performance, r=.01, p=.93.

The analyses reported above operationalized performance in terms of the number of ducks participants actually completed. However, at the conclusion of the task, some participants had completed parts of ducks. These parts were not counted in the original operationalization, which as a result might have ignored potentially important variability in performance. Therefore, I also used the number of duck parts participants completed as a dependent variable. To see whether the manipulation of task autonomy affected duck part performance I performed a t-test. Results suggest there is no significant relationship between task autonomy and number of duck parts, in that participants who were given control over the task (M=65.85, SD=19.85) did not make more duck parts than those participants who were not given control over the task (M=67.43, SD=20.68), t(78)=.35, p=.73. I also performed a t-test on task interest and number of parts and found no significant relationship. Participants told that the task was interesting (M=64.28, SD=19.28) did not make more duck parts than those participants that were told the task was uninteresting (M=69.00, SD=20.97), t(78)=1.05 p=.30. I also performed a Pearson's Correlation between goal difficulty and the number of duck parts participants completed. Results further support Hypothesis 2, that goal difficulty is related to task performance. Results suggest there is a significant positive relationship between goal difficulty and the number of duck parts completed, r=.40, p=.00. Lastly, I performed a multiple regression to test the interaction between task autonomy and task interest on the number of completed ducks parts. The main effects of task interest and task autonomy were entered

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simultaneously in the first step of the hierarchical regression. The overall regression was not significant, $F(2,77)=.60$, $p=.55$, $R^2=.02$. In the next step of the hierarchical regression, I entered the interaction term, which was also not significant, $F(3,76)=.64$, $p=.59$, $R^2=.03$. Furthermore, adding the interaction term did not significantly improve the model, $\Delta R^2=.01$, $p=.40$.

Goal Difficulty as Mediator

Because the interaction did not predict goal difficulty, goal difficulty could not be a mediator of the interaction and performance. I then chose to examine whether goal difficulty mediated the relationship between task autonomy and task performance, which in order to show certain pathways needed to be tested and deemed significant. The present study used Baron and Kenny's (1986) causal step approach to establishing mediation, which involved four steps. Firstly, I needed to show that the initial variable was related to the outcome (i.e., that task autonomy was related to task performance), next I needed to show that the initial variable was related to the mediator (i.e., that task autonomy was related to goal difficulty), then I needed to show that the mediator affected the outcome variable (i.e., that goal difficulty was related to task performance), and lastly, to establish mediation, I needed to control for the mediator and find that the relationship between the initial variable and the outcome variable was zero. Thus, I used a *t*-test to assess whether task autonomy influenced task performance. Results suggest that providing task autonomy did not affect task performance, $t(78)=.77$, $p=.44$ (see Table 3). Since this relationship was insignificant and was not supported by Baron and Kenny's (1986) method, it is concluded that goal difficulty did not mediate the relationship between task autonomy and task performance.

CHAPTER IV

DISCUSSION

The primary aim of the current study was to test the hypothesis that providing

high task autonomy and task interest would lead to higher goals and ultimately increase

one's task performance. That is, without high task autonomy and an interesting task, both

goals and performances would be lower. Existing studies of task autonomy have not

addressed this interaction, nor have they tested whether goal difficulty is a mediator of

this interaction. A second aim of the study was to examine whether goal difficulty

mediated the relationship between task autonomy and task interest, and performance. The

findings of the present study offer some support for the hypothesized relationships

between task autonomy, task interest, goal-setting behavior, and task performance.

4.1   Hypotheses Explained

It has been previously established that when individuals are given the opportunity

to self-set goals, they tend to set more difficult goals than the goals set by authoritative

figures (Latham & Yukl, 1975). The current study took this one step further by providing individuals with additional task autonomy, to examine differences between varying degrees of autonomy. Results suggest that giving individuals high task autonomy positively influences their goal-setting behavior, leading to higher self-set goals than those individuals given low task autonomy. That is, the amount of task autonomy (high or low) was an underlying indicator of an individual's goal level.

This finding is compelling for a couple reasons. Even though participants could all set goals, the additional degree of autonomy is what influenced goal-setting behavior. Also, task autonomy was verbally manipulated and participants ended up constructing the ducks similarly. In the instructions, all participants were informed of two methods to complete the task, and consequently ended up choosing one of two ways to construct the ducks. In other words, no matter the condition, the researcher noted that participants either completed an entire duck before making the next duck, or completed each step three times before assembling complete ducks. So, while participants in one condition were instructed to construct ducks a certain way, participants in other conditions were making ducks the exact same way. The only difference was that participants in the high task autonomy conditions were given choice over which method to use. This observation was important for assessing task performance, which I explain later.

If organizations *do* provide high task autonomy, the present study found that the nature of the task, being interesting or uninteresting, is insignificant to goal-setting behavior. When task autonomy is combined with task interest, individuals' goal difficulty is no greater than when provided high task autonomy alone. This interaction did not lead to the highest performance goals as hypothesized. This interaction may not have been

significant because the task interest manipulation was implemented towards the beginning of the instructions, while the task autonomy manipulation was used right before participants set their goals. After participants were notified of the task interest manipulation, they had a trial period and were explained additional instructions that took roughly five minutes. Thus, when participants went to set their goals, they might not have been thinking about whether the task was interesting or not, but rather focused on the most recent information, the task autonomy manipulation. As a result, task autonomy may have had a stronger impact on goal difficulty than task interest.

Another potential reason that the interaction was insignificant was because the manipulations of task autonomy did not affect task performance, nor did the manipulation of task interest affect goal difficulty. Task performance can be measured multiple ways. The present study emphasized the importance of quantity performance, which was measured by the number of ducks participants made in 20 minutes. Even though task autonomy influenced goal difficulty, task autonomy had no direct relationship with the number of total duck parts, or total ducks, a participant made. Task autonomy may not have affected task performance because the way of which performance was measured. Rather than just assessing how many ducks participants made, it may be important to assess participants' success rate, and whether or not participants reached their goals. In addition, task interest had no effect on goal difficulty. Perhaps even more important is that task interest had no impact on goal-setting behavior, even though the task interest manipulation was sound. That is, those participants in the interesting condition indeed found the task to be more interesting than those participants in the uninteresting condition, even though the task was the same in all conditions. According to Ryan and

Deci (2000) presenting tasks in a way that stimulates interest and satisfies basic psychological needs (through either the context or content of the task) positively affected work-related behavior. Yet, as the results suggest, if an individuals finds a task interesting does not imply that that interest will transfer into higher goals. The compelling finding to take away from these results is that simply telling people that a task was interesting, or presenting a task as interesting, significantly influenced their perceptions of task interest. Although this task interest did not transfer into higher goals, task interest has been shown to promote other work-related behaviors such as achievement motivation and intrinsic motivation (Puca & Schmalt, 1999). From this, it wouldn't hurt for organizations to emphasize the interesting aspects of a task, or present work tasks in a way that might spark interest in employees.

Performance can be defined by both quantity and quality, yet in many organizational contexts, performance is typically gauged by quantity. Thus, the current study focused on the number of ducks each participant produced rather than the quality, which was appropriate considering goal difficulty did not predict the quality of the ducks. Findings suggest that the number of ducks participants stated they could make in 20 minutes was directly related to how many ducks they actually made. When participants set high goals, they produced more pipe cleaner ducks than those who set lower goals. This agrees with Locke's Goal Setting theory which states higher, more difficult goals lead to higher performances (Locke, 1968). It is important for organizations to stimulate goal-setting behavior because difficult goals lead to an array of positive work behaviors (Locke et al., 1981), task performance being one of them.

Participants' quantitative task performances varied, even though they chose one of two ways to construct the ducks. Going back to the earlier observation, that participants constructed the ducks similarly, it is noteworthy that the *exact same* method of duck construction might have produced different task performances. The only difference was the degree of task autonomy. This finding is pertinent to the organizational literature because one's perception of autonomy had such significant effects on goal difficulty and all it took was providing participants with two examples of task completion and then stating "you *have* to complete it this way" versus "you can *choose* which way you construct it." From this, when assigning tasks, it may be beneficial for organizations to provide just enough task autonomy to employees, while still having authority. For instance, if organizations wanted tasks to be completed in certain ways, presenting the desired ways (either would get the job done) of task completion to employees and allowing employees to choose which method they prefer, may have positive effects on goal-setting behavior.

It was found that goal difficulty did not mediate the relationship between the interaction of task autonomy and task interest, and performance. Because Hypothesis 3 was not supported, and the interaction did not lead to higher goals, I tested to see whether goal difficulty mediated the relationship between task autonomy and performance. I used Baron and Kenny's (1986) approach, and even though task autonomy led to more difficult goals and difficult goals led to greater performances (satisfying two of the four steps), task autonomy did not lead to high task performances. Because Step 1 was not satisfied, goal difficulty was not deemed a mediator. Task autonomy may not have led to higher performances because giving control over a task may only affect one's perception

of goal attainment. When people have control over how to perform a task, they may feel more control over reaching their goal. Thus, task autonomy may only affect one's self-set goal rather than actual performance. Unfortunately, task autonomy was not related to task performance even though previous research suggests the effect size of the relationship between task autonomy and performance to be modest, ($r = .26$) (Spector, 1986). More research needs to be done to understand the relationship between task autonomy and task performance.

Gender and Racial Differences

The current study found that female participants had greater task performance than male participants. These gender differences could be a result of the task itself, because making ducks out of pipe cleaners is considered a fine motor activity. Fine motor activities, such as drawing, cooking, or sewing, might be easier for women to perform because it requires the use of smaller muscles to complete accurate tasks. As mentioned previously, Peters, Servos, and Day (1990) found that women performed better than men on fine motor tasks because of women's smaller finger size. They found that when finger size was held constant, the gender differences no longer existed. This is only one explanation for why female participants may have performed better than male participants on the current task. Another reason could be that men and women simply perform better on different tasks. For instance, for writing tasks, previous research has found that women performed better on writing compositions than men (Engelhard, Walker, Gordon, & Gabrielson, 1994). Also, for tasks involving memory for spatial locations, other research has found that women performed better than men, but when those tasks involved mental rotation, men perform better (Heller, Jones, Walk, Schnarr,

Hasara, & Litwiller, 2010). In the present study, controlling for gender had no effect on the hypothesis tests, yet it is important to understand that depending on the task, gender differences may exist and need to be controlled for.

Although the quality of one's performance was not predicted by task autonomy, task interest, or difficult goals, the present study found that White participants had significantly higher quality ducks than non-white participants. Because of this racial difference, I controlled for race and still found no effects of task autonomy, task interest, and goal difficulty on quality performance. Making pipe cleaner ducks has been established as a fine motor skill, and because of this, White participants may have more experience with this type of task and actually prefer it. Previous research has found that after controlling for socioeconomic status, non-white participants preferred fitness related leisure activities, while White participants preferred skill-oriented activities, which reflected in their performances with each (Klobus-Edwards, 1981). When people have previous experience and are more familiar with a task, they may have a better idea of what something is supposed to look like. Controlling for individuals' previous experience with a task may reduce the variation in quality performance. It may be important for organizations to be aware of these differences, to be explicit when it comes to quality expectations.

Additional Findings

Aside from which condition participants were assigned to, the manipulation checks illustrated which participants actually felt they had control, and actually thought the task was interesting. These self-reports of task autonomy and task interest were then used to predict goal-setting behavior. Unfortunately, these data were not significant,

indicating that even if people feel they have control over the way they perform a task and feel that a task is interesting, goal-setting behavior and task performance are not positively affected. It may take more than feelings of control and interest to impact one's self-set goals, but rather these feelings may have other effects on work behavior. Although goal difficulty was not predicted by participants' perceptions of control and interest, other positive work-related behaviors may result from this interaction. Previous research highlights the importance of people feeling self-control and feeling that a task is interesting, suggesting that these perceptions can lead to increases in intrinsic motivation, the ability to stay on a task, and forward-looking thinking (Isen & Reeve, 2005).

4.2   Limitations

As with any research, this study is not without limitations. Firstly, the amount of time available for research to be completed was limited, in that data were collected over the course of two months. More time would have allowed the researcher to acquire more participants to strengthen the power of the study. Also, the researcher had participants set their goals immediately following task instructions, which gave participants little time to weigh options. This impulsiveness may have created a self-report bias, where students may have experienced pressure to set an acceptable goal that would reflect highly of them.

There were a couple things during the experiment I could have done differently to acquire additional data. As mentioned previously, the exact same method of duck construction produced significantly different task performances. Unfortunately, these data were simply observed and not recorded, and further analyses could not be performed with this information. Also, I took a two-dimensional photo of the participants' completed

ducks, to later assess the quality of ducks. With a two-dimensional picture, I could only rate the ducks quality based on the front of the ducks, disregarding the quality of the tops and the backs of the ducks. Taking a three-dimensional picture would have allowed the assessment of the front, top and back of the ducks, for a more thorough assessment. Additionally, quality performance may not have been affected by task autonomy, task interest, or goal difficulty, because quality was not emphasized in the goal setting process. That is, participants were asked to set a quantity goal, not a quality goal, and as a result participants may have paid less attention to quality.

The task itself could be a limitation, because the task may be relevant to some jobs, but not all, and may lack applicability to other white-collar jobs in the business world. The task selected for this study was to make ducks out of pipe cleaners and was chosen for a few reasons. Making pipe cleaner ducks was an assembly-type task, required inexpensive materials and little time to complete, and the task was easy to manipulate. That is, there are different ways to construct the ducks that can be managed by the researcher, and with enough persuasion, the task could be considered either interesting or uninteresting. In construction-type jobs, employees are usually asked to make something out of certain materials by following a set of instructions that lead to a final product. Thus, participants were asked to make ducks out of wired pipe cleaners, and were given the needed materials along with step-by-step instructions to make a duck. Undoubtedly the task was craft-like and somewhat juvenile, which was supported by participants' comments following experimentation. Some comments were, "I'm going to buy pipe cleaners and do this task with my little sister," and "I haven't done something like that since preschool." Future research may choose to have participants construct a task that

entails similar characteristics (i.e., assembly-type task with multiple steps), but with a different final product (e.g., a model airplane, miniature house or car).

4.3   Future Research

Nevertheless, much still remains to be understood about what factors lead people to set higher goals and how task autonomy impacts organizational behavior. Understanding that people benefit from high task autonomy, it may be beneficial for organizations to give employees more discretion in how they carry out their tasks, keeping in mind task autonomy may be beneficial only to a certain degree. The present study highlights the fact that high task autonomy significantly increased goal difficulty, but it may not take high task autonomy to have these same effects. Rather, moderate levels of task autonomy may have the same results. Previous research has found that *full* and complete autonomy can potentially have weaker effects on performance. Wielenga-Meijer, Taris, Wigboldus, and Kompier (2011) suggest, from a cost-benefits viewpoint, full autonomy does not provide additional benefits for one's motivation or task performance, as compared to moderate autonomy. That is, at a certain point, more autonomy can be ineffective and can actually cause inefficient behavior. Too much task autonomy gives individuals complete control, and unremitting control can cause problems. When high demands exceed personal capabilities, too much control can lead to decreases in task performance (Warr, 2007). Providing individuals with moderate autonomy increases exploration behavior, one's motivation to learn, and task performance (Wielenga-Meijer et al., 2011). Future research may want to test additional levels of task autonomy, varying from none to full task autonomy to understand an appropriate amount of task autonomy to provide employees. Moderate levels of task

autonomy may suffice and satisfy one's need for autonomy, resulting in positive effects on work behavior.

Future studies may want to replicate the methods of the present study, in attempts to find an interaction between task autonomy and task interest on goal difficulty. The main focus of the study was to see if when individuals are given control over the methods of task completion, does presenting a task as interesting or uninteresting further effect their goal setting behavior. Unfortunately, this interaction was not supported. As mentioned previously, task interest had no effect on goal difficulty, possibly because the manipulation was implemented at the beginning of instructions, rather than right before participants set their goals. Future studies could change the point at which the task interest manipulation was used. In other words, researchers could explain that the task has been thought of as interesting or uninteresting, along with the task autonomy manipulation, right before participants set their goals. Additionally, as mentioned earlier, interest can be explained as either individual or situational interest. The present study primed situational interest, focusing on the emotional state produced by the task, emphasizing the characteristics of the task that stimulated interest. Future studies may want to look at individual interest, by assessing one's initial feelings and perception of value of a task (Horvath et al., 2006) before presenting the task. Individual interest may have a different relationship with goal setting behavior.

Additionally, goal difficulty did not mediate the relationship between task autonomy and task performance in the present study. Even though task autonomy provided choice and control to participants, leading to more difficult goals, mediation was not supported. Previous research has noted that giving employees choice and control

over work tasks can create a sense of empowerment. Structural empowerment captures the extent to which employees are given responsibility for a task, whereas psychological empowerment refers to individuals *perceiving* that they have control over their work. Organizations have implemented empowerment initiatives solely based on the premise that giving employees control increases empowerment, thus enhancing many areas of an employee's work life such as well-being, attitudes, and job performance (Maynard, Gilson, & Mathieu, 2012). Because high task autonomy did not influence performance, future research may want to investigate the two different forms of empowerment to understand which and if empowerment affects performance. Then goal difficulty could be tested as a mediator of the empowerment-performance relationship.

The present study examined the effects of autonomy on work behavior, as well as the interaction between autonomy and interest. Since task interest showed no effects on task autonomy or goal difficulty, it might be beneficial to test autonomy with another core dimension from job characteristics theory. The core features posited by job characteristics theory (i.e., skill variety, task identity, task significance, autonomy, and feedback) can drive psychological states of self-determination and meaning, positively affecting work behavior (Hackman & Oldham, 1976). People with jobs that are high on the five core dimensions are typically more productive than people with jobs low on these characteristics. Thus the interaction between task autonomy and one of the other dimensions could have significant effects on work behavior. For example, motivational feedback has been shown to lead to difficult performance goals (Locke, Cartledge, & Koeppel, 1968). The interaction of providing high task autonomy and motivational feedback could potentially produce even higher goals. Because task autonomy

significantly affected goal difficulty, and ultimately task performance, when paired with another motivating dimension from job characteristic theory, such as feedback, the result could be higher goals and greater performances.

Additionally, because the interaction was not deemed significant, it may be valuable for future research to assess other organizational factors that would influence the relationships between task autonomy, task interest, and goal-setting behavior. Because money is not only utilized in every organization, but has also been shown to be a significant motivator for work-related behavior (Tolchinsky & King, 1980), future research should incorporate a financial incentive to see whether extrinsic motivation would undermine intrinsic motivation and impact the effects of task autonomy and task interest on goal difficulty. External rewards can undermine intrinsic motivation by conflicting with an individual's desire to perform a task for inherent interest and weakening curiosity, self-motivation, interest and persistence during learning tasks (Deci, Koestner, & Ryan, 2001; Sherman & Smith, 1984). It would be interesting to see if external rewards would decrease one's perceptions of task autonomy and/or task interest.

Employees may be asked to set both short-term and long-term goals. Participants of the current study were asked to set proximal goals - goals that can be achieved quickly and are close at hand. These goals can enhance the quality of individual performance by forcing the development of task-specific strategies in order to maximize productivity in a short period of time (Stock & Cervone, 1990). Yet, goals that are set too quickly may be subject to response biases. Alternatively, distal goals are goals that extend farther into the future and are considered long-term goals. Emphasizing task interest when faced with distal goals may encourage continued persistence towards a task a reaching a long-term

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goal. These two different types of goals may produce drastically different performances, which future studies should examine.

Lastly, future research may choose to use a different business-oriented task. Rather than having individuals complete a task found in construction-type jobs, it may be interesting to have participants complete a task found within a white-collar job (e.g., filing memos, sending emails). Because it may be easier to implement task autonomy initiatives in a white-collar job, focusing on a task found within these jobs may be more relevant. Additionally, findings may be more applicable if researchers used current employees. Future studies should consider testing actual employees at organizations, especially organizations that allow their employees to self-set goals.

4.4   Concluding Remarks

Understanding the implications of task autonomy initiatives on work behavior can help organizations discover and implement inexpensive methods to promote productivity. The current findings support the development of more effective job designs, focusing on incorporating autonomy into work environments. Organizations can promote an autonomous environment by creating situations that lead people to feeling self-directed and self-managed, as well as by providing tasks that give people a feeling of purpose. When planning and evaluating job contents, organizations should offer opportunities for individual control and incorporate degrees of task autonomy to increase productivity without additional organization expense.

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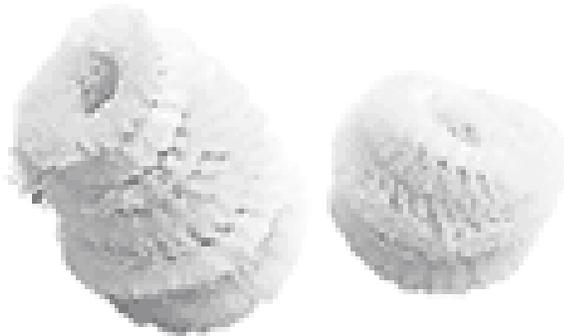Psychology, 83,* 261-276.

APPENDICES

APPENDIX A.

<u>How to Make a Pipe Cleaner Duck</u>

1. Connect two white pipe cleaners end to end.

2. Bundle the double pipe cleaner around a pencil to make the body. Bundle another white pipe cleaner to make a head.

3. Bend the orange pipe cleaner in half. Thread the folded end into the head and out through the bundle.

4. Thread the body onto the orange pipe cleaner.

5. Bend the ends of the orange pipe cleaner into V-shaped feet. For wings, bend two 3-inch sections of white pipe cleaner.

6. Insert the wings into the body.

APPENDIX B.

Task Questionnaire

Sex (please circle):   M   F

Age: _____

Race/Ethnicity: _____

Academic Major: _____

For each statement, please circle the number that reflects your degree of agreement on a 7-point scale: *1 = Completely Disagree; 2 = Mostly Disagree; 3 = Slightly Disagree; 4 = Undecided; 5 = Slightly Agree; 6 = Mostly Agree; 7 = Completely Agree*

1. I felt that I had choice in how to make pipe cleaner ducks.

    1   2   3   4   5   6   7

2. I felt restricted in the way I was able to make pipe cleaner ducks.

    1   2   3   4   5   6   7

3. I felt that I had control in the way I was able to make pipe cleaner ducks.

    1   2   3   4   5   6   7

4. I thought that making pipe cleaner ducks was interesting.

    1   2   3   4   5   6   7

5. I felt that making pipe cleaner ducks was boring.

    1   2   3   4   5   6   7

6. I felt that making pipe cleaner ducks was uninteresting.

    1   2   3   4   5   6   7

Previous Participants' Comments (handwritten)

Depending on the condition, participants will receive statements that may have been written by "previous participants" asserting that the task is either interesting or uninteresting:

[Interesting Tasks]

"I thought the task was interesting and fun. I really enjoyed making ducks out of pipe cleaners and I'll probably make more of them in my free time."

"The task was interesting and I thought making pipe cleaner ducks was enjoyable and appealing."

"I thought this task was super interesting! I'm going to make more for my friends, and I'm going to have my friends and family try making them."

[Uninteresting Tasks]

"I thought the task was uninteresting and repetitive. I would not choose to do this task outside of the experiment without some sort of incentive."

"The task was tedious, dull and uninteresting. Making multiple pipe cleaner ducks was repetitive and tiresome, and I'd only do this task again if someone paid me."

"Overall, I thought the task was monotonous and uninteresting. It seemed boring and extremely repetitive. I don't think I would choose to do this task again unless I got paid or received more course credit."

TABLE 1

Means, Standard Deviations, and Correlations Between Variables

Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Sex	.40	.49										
2. Race	.58	.50	.03									
3. Age	22.58	7.89	-.25*	-.26*								
4. Task Autonomy	.50	.50	.10	.10	-.19							
5. Task Interest	.50	.50	.00	.20	-.12	.00						
6. Goal Difficulty	7.98	4.39	-.05	.18	-.09	.24*	-.09					
7. Quality of Ducks	2.76	.94	.05	.24*	-.01	.01	.07	.01				
8. Quantity of Ducks	7.83	2.88	-.24*	.05	-.16	-.09	-.09	.22*	.17			
9. Task Autonomy Manipulation Check	4.75	1.84	.09	.00	-.18	.52**	.16	.13	-.04	-.08		
10. Task Interest Manipulation Check	4.71	1.77	.04	-.11	-.03	-.19	.47**	-.09	.11	-.08	.22*	

* $p < .05$, ** $p < .01$

Note: Sex was coded Female=0, Male=1; Race was coded Non-white=0, White=1; Task autonomy was coded Low=0, High=1; Task interest was coded Uninteresting=0, Interesting=1.

TABLE 2

Factor Loadings, Task Autonomy and Task Interest

Item	1	2
I felt that I had choice in how to make pipe cleaner ducks.	.085	.855
I felt restricted in the way I was able to make pipe cleaner ducks.	.182	.570
I felt that I had control in the way I was able to make pipe cleaner ducks.	.043	.896
I thought that making pipe cleaner ducks was interesting.	.882	.159
I felt that making pipe cleaner ducks was boring.	.844	.026
I felt that making pipe cleaner ducks was uninteresting.	.624	.140

TABLE 3

Task Autonomy, t-tests

	Task Autonomy	*M*	*SD*	*t*	*p*
Quality of Ducks	No Choice	2.75	.85	-.06	.95
	Choice	2.76	1.04		
Total Ducks	No Choice	8.08	2.63	.77	.44
	Choice	7.58	3.13		
Goal	No Choice	6.93	3.38	-2.19	.03
	Choice	9.03	5.05		
Task Autonomy	No Choice	3.80	1.76	-5.37	.00
Manipulation	Choice	5.70	1.37		
Check					

TABLE 4

Task Interest, t-tests

	Task Interest	*M*	*SD*	*t*	*p*
Quality of Ducks	Uninteresting	2.69	1.02	-.65	.52
	Interesting	2.82	.87		
Total Ducks	Uninteresting	8.07	3.08	.77	.44
	Interesting	7.58	2.69		
Goal	Uninteresting	8.38	5.20	.81	.42
	Interesting	7.58	3.43		
Task Interest	Uninteresting	3.88	1.86	-4.70	.00
Manipulation Check	Interesting	5.53	1.21		

TABLE 5

Hierarchical Multiple Regression Analysis, Predicting Goal Difficulty From Task Autonomy and Task Interest

Predictor	Goal Difficulty			
	ΔR^2	b	F	p
Step 1				
Task Autonomy	.07	2.10	2.73	.07
Task Interest		-.80		
Step 2				
Task Autonomy x Task Interest	.003	-.90	1.87	.14
Total R^2	.07			
n	80			