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THREE STUDIES EXAMINING THE EFFECTS OF INFORMAL MANAGEMENT
CONTROL SYSTEMS AND INCENTIVE COMPENSATION SCHEMES ON EMPLOYEES'
PERFORMANCE

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in the Kenneth G. Dixon School of Accounting
in the College of Business Administration
at the University of Central Florida
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ABSTRACT

This dissertation is comprised of three studies investigating the effects of informal management control systems (MCS) and different types of incentive compensation schemes on employees' performance. Prior research describes informal MCS as implicit sets of structures that management adopts to encourage employees to act in a way that aligns with overall organizational goals (Berry et al. 2009). Management usually puts informal MCS in place to inspire self-regulation behaviors among employees; hence, management may not reward or penalize employee behavior that is consistent or inconsistent with this informal MCS (Berry et al. 2009; Christ et al. 2008). Informal controls are implied by social pressures, such as employees' feedback, and management communication, such as a value statement or the organizational culture, where no explicit enforcement measures exist (Berry et al. 2009; Kachelmeier, Thornock and Williamson 2015). The first study examines whether the presence of a value statement (an informal MCS) can be used to motivate employees to perform important, but uncompensated subsequent tasks. The second study extends the first study by examining whether the interactive method of delivery of a value statement (informal MCS) can be used in conjunction with an incentive scheme to improve employees' performance. Lastly, the third study investigates the impact of an important aspect of organizational context, specifically organizational culture (informal MCS), and different types of incentive compensation schemes on strategy surrogation.

The first study investigates whether the presence of a value statement (an informal MCS) can be used to motivate employees to perform important, but uncompensated tasks. Additionally, this study seeks to examine the type of incentive scheme that will result in the highest subsequent uncompensated task performance in the presence of an organizational value statement.

Considering that incentive contracts cannot completely govern all the employees' responsibilities (Christ, Emett, Summers and Wood 2012), this study investigates how employees will perform their important but uncompensated tasks. The study shows that under fixed pay compensation, the presence of a value statement improves the performance of employees compared to the absence of a value statement. Conversely, under a piece rate incentive compensation, the presence of a value statement negatively influences the performance of employees in the important but uncompensated task. The study also shows that the intrinsic motivation of employees operating under piece rate compensation is more likely to be crowded out by their incentive pay relative to employees operating under a fixed wage.

The second study examines whether the interactive method of delivery of a value statement (informal MCS) through electronic integration can be used in conjunction with an incentive scheme to improve employees' performance. Prior research shows that effectiveness of incentive systems is influenced by the presence or absence of a nonbinding value statement in the organization. A value statement is a declaration that communicates an organization's priorities and core beliefs to its customers and employees. Drawing upon the mere-exposure effect, the results of the study show that the employees who experience the interactive delivery of a value statement do not perform significantly better than employees who experience the passive delivery of a value statement. However, employees who receive a piece-rate incentive perform significantly better than employees who receive a fixed pay incentive. As predicted, the method of delivery of an organizational value statement moderates the effectiveness of a fixed pay incentive scheme.

The third study draws upon the theory of inattentional blindness to investigate whether different types of organizational culture, control dominant or flexibility dominant, impacts strategy surrogation. Strategy surrogation occurs when managers focus on the measures in the SPMS on

which they are compensated and completely or partially lose focus on the overall strategic objectives of the organization (Choi et al. 2012, 2013). Organizational culture is defined as a set of dominant values, beliefs, and assumptions that governs how people behave in organizations (Henri 2006). The results of the study show that there is no significant difference between employees operating under a control-dominant culture and employees operating under a flexibility-dominant culture. Similarly, the type of organizational culture does not moderate the relationship between incentive systems and strategy surrogation. However, employees operating under a pay-for-performance compensation scheme significantly surrogate more than employees operating under a fixed pay compensation scheme.

Collectively these studies contribute to management accounting research by examining how different types of informal MCS such as organizational value statement and organizational culture interact with incentive compensation scheme. Specifically, these three studies highlight how and when we can use informal MCS to improve employees' performance as well as their decision making in the organization. Study one contributes to research and practice by highlighting situations where a pay-for-performance incentive scheme may result in unintended consequences. Study two contributes to the management control literature by demonstrating how utilizing technology can enhance the delivery of an organization's value statement and ultimately improve employees' performance. Study three contributes to the incentives and organizational culture literature as well as strategy surrogation research by examining institutional factors that may inhibit or exacerbate surrogation.

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TABLE OF CONTENTS

LIST OF FIGURES	xii
LIST OF TABLES	xiii
GENERAL INTRODUCTION.....	1
Study One: The Effects of Organizational Value Statement and Economic Incentives on Employees’ Performance	2
Study Two: The Impact of Incentive Systems and Organizational Value Statement Delivery on Employees’ Performance	5
Study Three: The Effects of the Incentive Systems and Organizational Culture on Strategy Surrogation.....	6
Overall Contribution	7
References.....	8
STUDY ONE: THE EFFECTS OF ORGANIZATIONAL VALUE STATEMENT AND ECONOMIC INCENTIVES ON EMPLOYEES’ PERFORMANCE	11
Introduction.....	11
Background and Hypotheses Development	18
Formal and Informal MCS and Employee’s Behavior	18
Organizational Value Statement	20
Incentive Scheme and Employees’ Decisions	22
Research Method	27
Experimental Design and Task	27
Independent Variables	30
Dependent Variable	30

Participants.....	31
Result	32
Descriptive Statistics.....	32
Test of Hypotheses.....	32
Manipulation and Comprehension Checks	35
Conclusion	36
Reference	39
STUDY TWO: THE IMPACT OF INCENTIVE SYSTEMS AND ORGANIZATIONAL VALUE STATEMENT DELIVERY ON EMPLOYEES' PERFORMANCE	45
Introduction.....	45
Theory and Hypotheses Development	51
Background.....	51
Method of Delivery of Value Statement and Employees Performance	54
Incentive Systems, Value Statement, and Employees' Performance	59
Research Method	63
Experimental Design and Task	63
Independent Variables	65
Dependent Variable	66
Participants.....	66
Results.....	67
Descriptive Statistics.....	67

Test of Hypotheses.....	67
Additional Analysis	69
Conclusion	69
Reference	71
STUDY THREE: THE EFFECTS OF THE INCENTIVE SYSTEMS AND ORGANIZATIONAL CULTURE ON STRATEGY SURROGATION	78
Introduction.....	78
Background and Hypotheses Development.....	83
Surrogation.....	83
Strategy Surrogation	83
Organizational Culture.....	85
Incentive Systems, Performance Measurement and Strategy Surrogation	90
Experimental Method and Design	94
Experimental Design and Task	94
Independent Variables	96
Dependent Variable	97
Participants.....	98
Results.....	98
Manipulation and Comprehension Checks	98
Descriptive Statistics.....	99
Test of Hypotheses.....	100

Conclusion	101
References.....	103
GENERAL CONCLUSION	109
References.....	114
APPENDIX A: STUDY 1 FIGURES.....	116
APPENDIX B: STUDY 1 TABLES.....	121
APPENDIX C: STUDY 1 EXPERIMENTAL MATERIALS	125
APPENDIX D: STUDY 2 FIGURES.....	138
APPENDIX E: STUDY 2 TABLES.....	143
APPENDIX F: STUDY 2 EXPERIMENTAL MATERIALS.....	147
APPENDIX G: STUDY 3 FIGURES.....	163
APPENDIX H: STUDY 3 TABLES	165
APPENDIX I: STUDY 3 EXPERIMENTAL MATERIALS	170
APPENDIX J: IRB APPROVALS	189

LIST OF FIGURES

Figure 1 Diagram of z-Tree Experimental Procedure.....	117
Figure 2 Diagram of Qualtrics Experimental Procedure	118
Figure 3 Slider Task.....	118
Figure 4 Decoding Task.....	119
Figure 5 H1 Result	119
Figure 6 H1 a, b, c Results.....	120
Figure 7 H2, H3 and RQ.....	120
Figure 8 Diagram of Experimental Procedure	139
Figure 9 Screenshot of Decoding Task Interface.....	140
Figure 10 Interactive Value Statement Delivery	141
Figure 11 Graphical Representation of the Results	142
Figure 12 H3 Actual Interaction Result	164

LIST OF TABLES

Table 1 Demographics	122
Table 2 Main Result - Uncompensated Subsequent Task Performance	123
Table 3 H2, H3 and RQ	124
Table 4 Demographics	144
Table 5 Main Result - Performance	145
Table 6 ANCOVA with gender as covariate	146
Table 7 Demographics	166
Table 8 Organizational Culture Manipulations Descriptive Statistics and Test of Differences .	168
Table 9 Main Results –Alternative Decisions	169

GENERAL INTRODUCTION

This dissertation is comprised of three studies investigating the effects of informal management control systems (MCS) and different types of incentive compensation schemes on employees' performance. Prior research describes informal MCS as implicit sets of structures that management adopts to encourage employees to act in a way that aligns with overall organizational goals (Berry et al. 2009). Management usually puts informal MCS in place to inspire self-regulation behaviors among employees; hence, management may not reward or penalize employee behavior that is consistent or inconsistent with this informal MCS (Berry et al. 2009; Christ et al. 2008).

Informal management controls are important to organizations because they are expected to encourage innovation (Bisbe and Otley 2004). Informal controls are also known as organic communication because they inspire a free flow of information throughout the organization, and promote a flexible organizational culture that stimulates an adaptive decision making work environment (Chenhall and Morris 1995). Informal controls are implied by social pressures, such as feedback, and management communication, such as a value statement or the organizational culture, where no explicit enforcement measures exist (Berry et al. 2009; Kachelmeier, Thornock and Williamson 2015). Considering the importance of informal management controls highlighted above, studies examining the effects of informal MCS and different types of incentive compensation schemes contribute to our understanding of how and when to implement informal MCS in order to improve employees' performance. Examples of informal MCS that have been examined in prior accounting studies are vicarious learning (Choi et al. 2016), employees'

feedback (Christ et al. 2016), organizational culture (Chow et al. 2002; Dent 1991; Henri 2006; Pratt and Beaulieu 1992) and organizational value statements (Kachelmeier et al. 2015).

This research comprises of three separate experimental studies, all centered on the interaction between informal MCS and incentive compensation schemes on employees' performance. The first study examines whether the presence of a value statement (an informal MCS) can be used to motivate employees to perform important but uncompensated subsequent tasks. Additionally, this study examines the type of incentive scheme that will result in the highest subsequent uncompensated task performance in the presence of an organizational value statement. The second study extends the first study by examining whether the interactive method of delivery of a value statement (informal MCS) can be used in conjunction with an incentive scheme to improve employees' performance. Lastly, the third study investigates the impact of an important aspect of organizational context, specifically organizational culture (informal MCS), and different types of incentive compensation schemes on strategy surrogation. Strategy surrogation occurs when managers focus on the measures of the strategic performance measurement systems (SPMS) on which they are compensated and completely or partially lose focus on the overall strategic objectives of the organization (Choi, Hecht, & Tayler, 2012, 2013). The following subsections describe the manner in which each study approaches the investigation of the effect of informal MCS and the incentive compensation schemes on employees' performance. The final subsection contains the overall contribution of this dissertation.

Study One: The Effects of Organizational Value Statement and Economic Incentives on Employees' Performance

The first study examines whether the presence of a value statement (an informal MCS) can be used to motivate employees to perform important, but uncompensated tasks. Additionally, this

study examines the type of incentive scheme that results in the highest subsequent uncompensated task performance in the presence of an organizational value statement. Using an economic incentive contract to explicitly stimulate expected behavior from employees is desirable but often difficult to achieve (Choi, Hecht, Tafkov and Towry 2016). Considering that incentive contracts cannot completely govern all the employees' responsibilities (Christ, Emett, Summers and Wood 2012), this study investigates how employees perform important but uncompensated tasks, and the decisions employees make when economic incentives are no longer available. Specifically, it examines whether the presence of an organizational value statement can be used to drive employees' uncompensated subsequent task performance. The effect of extrinsic rewards, such as incentive compensation, on intrinsic motivation, especially with respect to employees' subsequent attitude toward, or their willingness to engage in, the assigned task in the absence of contingency-based extrinsic reward is unknown (Lepper and Greene 1978).

Drawing upon goal regulation theory, this study proposes that the presence of an organizational value statement will motivate employees to better perform important but uncompensated tasks. Goal regulation refers to a motivational mindset reflecting the reasons for, and purpose of, a course of action (Meyer, Becker and Vandenberghe 2004). Goal regulation theory proposes that employees who view their behavior as more internally driven by values perceive themselves as working toward the accomplishment of ideals, while individuals who view their behavior as more externally driven perceive themselves as working toward the fulfilment of obligations (Meyer et al. 2004). Additionally, drawing upon motivation crowding theory, this study hypothesizes that in the presence of a value statement, employees who are compensated under a fixed pay incentive scheme will be more productive than employees who are compensated under a piece-rate incentive scheme when completing important but uncompensated subsequent

task. It further hypothesizes that employees operating under a quota incentive scheme are likely to be more productive when performing uncompensated tasks than employees operating under a piece-rate incentive scheme. Furthermore, because I do not have a strong theoretical basis for developing a hypothesis on the motivational differences between quota and fixed pay incentives on uncompensated tasks yet these types of contracts are used regularly in practice, I pose a research question examining the effect of quota incentive and fixed pay on an uncompensated task performance in the presence of an organizational value statement.

To examine these hypotheses, an experiment is conducted which involves a hypothetical case where participants assume the role of an employee in an organization. Business student participants are recruited to participate in a 2 x 3 (value statement x incentive system) between-subjects factorial design. The value statement is manipulated as either present or absent, while incentive scheme is manipulated as fixed pay, quota, or piece-rate compensation. The result shows that under fixed pay compensation, the presence of a value statement improves the performance of employees compared to the absence of a value statement. Conversely, under a piece-rate incentive compensation, the presence of a value statement negatively influences the performance of the employees in important but uncompensated task. This result indicates that the intrinsic motivation of employees operating under piece-rate compensation is more likely to be crowded out by their incentive pay relative to employees operating under a fixed pay. As predicted, in the presence of an organizational value statement, participants operating under fixed pay compensation perform significantly better than participants operating under piece-rate compensation. The result supports the proposition that employees' intrinsic motivation under piece-rate compensation is more likely to be crowded out by the incentive scheme. Similarly, participants under fixed pay compensation are more productive in the uncompensated task than

under quota compensation. There is no significant difference between uncompensated subsequent task performance of employees operating under piece-rate and quota compensation.

Study Two: The Impact of Incentive Systems and Organizational Value Statement Delivery on Employees' Performance

The second study examines whether the interactive method of delivery of a value statement (informal MCS) through electronic integration can be used in conjunction with an incentive scheme to improve employee's performance. Prior research shows that effectiveness of incentive systems is influenced by the presence or absence of a nonbinding value statement in the organization. A value statement is a declaration that communicates an organization's priorities and core beliefs to its customers and employees. Drawing upon the mere-exposure effect, I hypothesize that the interactive delivery of a value statement will motivate employees to be more productive than the passive delivery of a value statement. I also hypothesize that employees operating under a piece-rate incentive scheme will be more productive than employees operating under a fixed pay incentive scheme. Further, I propose that the method of delivery of an organization value statement will moderate the effectiveness of the compensation scheme such that employees operating under fixed pay with interactive delivery will perform more like employees operating under piece-rate compensation. However, employees operating under fixed pay with passive delivery will be less productive than any of the other three conditions.

To examine these hypotheses, I conduct an experiment which involves a 2 (method of delivery: interactive vs passive) x 2 (incentive structure: fixed pay vs piece-rate) between subject design. I recruit seventy-seven undergraduate business students at a large university to participate in this study. The participants are assigned to four conditions, and they are required to perform a decoding task. All participants are given eight rounds of the decoding task and have 60 seconds

per round to complete as many decoding exercises as possible. The results of the study show that the employees who experience the interactive delivery of a value statement are not significantly more productive than employees who experience the passive delivery of a value statement. However, employees who receive a piece-rate incentive are significantly more productive than employees who receive a fixed pay incentive. As predicted, the method of delivery of an organizational value statement moderates the effectiveness of a fixed pay incentive scheme such that employees who receive fixed pay with passive delivery are significantly less productive than other employees.

Study Three: The Effects of the Incentive Systems and Organizational Culture on Strategy Surrogation

The third study draws upon the theory of inattentional blindness (Simons 2000) to investigate whether different types of organizational culture, control dominant or flexibility dominant, impacts strategy surrogation. Strategy surrogation occurs when managers focus on the measures in the SPMS on which they are compensated and completely or partially lose focus on the overall strategic objectives of the organization (Choi et al., 2012, 2013). Organizational culture is defined as a set of dominant values, beliefs, and assumptions that governs how people behave in organizations (Henri 2006). According to the competing values model, organizational culture can be characterized as control-dominant, values stability and accountability, or flexibility-dominant, values invention and innovation (Quinn and McGrath, 1985; Quinn, 1988; Quinn and Rohrbaugh, 1983). In this third study, I examine the impact of each of these cultural characterizations on strategy surrogation.

I base my predictions about the effect of type of compensation scheme and the moderating effect of organizational culture on strategy surrogation on inattentional blindness theory (Simons

2000). According to this theory, when individuals concentrate on a particular object or event, they often fail to notice other relevant and distinctive objects of interest that are located outside their field of focus. I hypothesize that a control-dominant culture that values stability and accountability will result in more strategy surrogation than a flexibility-dominant culture that values invention and innovation, and that piece-rate compensation will result in more strategy surrogation than fixed pay. Furthermore, I examine whether the type of organizational culture moderates the relationship between incentive systems and strategy surrogation.

This third study involves a 2 (culture: control-dominant vs flexibility-dominant) x 2 (compensation scheme: fixed wage vs. pay-for-performance) between-subjects design. To examine these hypotheses, I conduct an online experiment using 80 Amazon Mechanical Turk (MTurk) workers as proxies for managers. The results of the study indicate that there is no significant difference between employees operating under a control-dominant culture and employees operating under a flexibility-dominant culture. Similarly, organizational culture does not moderate the relationship between incentive systems and strategy surrogation. However, employees operating under a pay-for-performance compensation scheme significantly surrogate more than employees operating under a fixed pay compensation scheme.

Overall Contribution

Collectively these studies contribute to management accounting research by examining how different types of informal MCS such as organizational value statement and organizational culture interact with incentive compensation scheme. Specifically, these three studies highlight how and when we can use informal MCS to improve employees' performance as well as their decision making in the organization. Study one contributes to research and practice by highlighting

situations where a pay-for-performance incentive scheme may result in unintended consequences (Lepper and Greene 1978). Study two contributes to the management control literature by demonstrating how utilizing technology can enhance the delivery of an organization's value statement and ultimately improve employees' performance. Study three contributes to the incentives and organizational culture literature as well as strategy surrogation research by examining institutional factors that may inhibit or exacerbate surrogation.

References

- Berry, A. J., Coad, A. F., Harris, E. P., Otley, D. T., & Stringer, C. (2009). Emerging themes in management control: A review of recent literature. *British Accounting Review*, *41*(1), 2–20.
- Bisbe, J., & Otley, D. (2004). The effects of the interactive use of management control systems on product innovation. *Accounting, Organizations and Society*, *29*(8), 709–737.
- Chenhall, R., & Morris, D. (1995). Organic Decision and Communication Processes and Management Accounting Systems in Entrepreneurial and Conservative Business Organizations. *Omega*, *23*(5), 485–498.
- Choi, J., Hecht, G., Tafkov, I. D., & Towry, K. L. (2016). Vicarious learning under implicit contracts. *Accounting Review*, *91*(4), 1087–1108.
- Choi, J., Hecht, G. W., & Tayler, W. B. (2012). Lost in translation: The effects of incentive compensation on strategy surrogation. *Accounting Review*, *87*(4), 1135–1163.
- Choi, J., Hecht, G. W., & Tayler, W. B. (2013). Strategy Selection, Surrogation, and Strategic Performance Measurement Systems. *Journal of Accounting Research*, *51*(1), 105–133.

- Chow, C. W., Harrison, G. L., McKinnon, J. L., & Wu, A. (2002). The organizational culture of public accounting firms: evidence from Taiwanese local and US affiliated firms. *Accounting, Organizations and Society*, 27(4–5), 347–360.
- Christ, M. H., Emett, S. A., Tayler, W. B., & Wood, D. A. (2016). Compensation or feedback: Motivating performance in multidimensional tasks. *Accounting, Organizations and Society*, 50, 27–40.
- Christ, M. H., Sedatole, K. L., & Towry, K. L. (2012). Sticks and carrots: The effect of contract frame on effort in incomplete contracts. *Accounting Review*, 87(6), 1913–1938.
- Christ, M. H., Sedatole, K. L., Towry, K. L., & Thomas, M. A. (2008). When formal controls undermine trust and cooperation. *Strategic Finance*, January, 39–44.
- Dent, J. F. (1991). Accounting and organizational cultures: A field study of the emergence of a new organizational reality. *Accounting, Organizations and Society*, 16(8), 705–732.
- Henri, J.-F. (2006). Organizational culture and performance measurement systems. *Accounting, Organizations and Society*, 31(1), 77–103.
- Kachelmeier, S. J., Thornock, T. A., & Williamson, M. G. (2015). Communicated Values as Informal Controls: Promoting Quality While Undermining Productivity? *Contemporary Accounting Research*, XX(Xx), 1–24.
- Lepper, M., & Greene, D. (1978). *The Hidden Costs of Reward: New Perspectives on the Psychology of Human Motivation*.
- Meyer, J. P., Becker, T. E., & Vandenberghe, C. (2004). Employee commitment and motivation:

A conceptual analysis and integrative model. *Journal of Applied Psychology*, 89(6), 991–1007.

Pratt, J., & Beaulieu, P. (1992). Organizational culture in public accounting: Size, technology, rank, and functional area. *Accounting, Organizations and Society*, 17(7), 667–684.

Quinn, R. E. (1988). *Beyond rational management : mastering the paradoxes and competing demands of high performance*. (1st Ed). San Francisco: Jossey-Bass Inc Publishers.

Quinn, R. E., & McGrath, M. (1985). The Transformation of Organizational Cultures: A Competing Values Perspective. *Organizational Culture*, 315–34.

Quinn, R. E., & Rohrbaugh, J. (1983). a Spatial Model of Effectiveness Criteria: Towards a Competing Values Approach To Organizational Analysis*. *Management Science*, 29(3), 363–378.

STUDY ONE: THE EFFECTS OF ORGANIZATIONAL VALUE STATEMENT AND ECONOMIC INCENTIVES ON EMPLOYEES' PERFORMANCE

Introduction

Management control systems (MCS) are the set of processes that management implements to achieve their organization's overall goals (Otley 1994). MCS can be divided into formal and informal systems based on their purpose, design, and implementation (Bisbe and Otley 2004). For example, formal MCS usually consist of purposefully-designed, information-based, and explicit sets of structures, routines, and processes that employees must strictly follow in order to ensure organizational goals are achieved (Bisbe and Otley 2004). Alternatively, informal MCS have been described as implicit sets of structures that management adopts to encourage employees to act in a way that is aligned with overall organizational goals. Management does not necessarily penalize or reward employees whose behavior is inconsistent or consistent with informal MCS because these are mechanisms put in place to encourage, not mandate, self-regulation (Berry, Coad Harris, Otley and Stringer 2009). One such example of an informal MCS is an organizational value statement (Kachelmeier, Thornock and Williamson 2015). An organizational value statement defines the behaviors, attitudes, and character that management is trying to promote among internal stakeholders, such as an organization's employees (Highhouse, Hoffman Greve and Collins 2002; Urbany 2005; Wenstøp and Myrmel 2006).

Organizations can use informal MCS such as employee feedback (Christ, Emett, Tayler, and Wood 2016), organizational culture (Henri 2006), and value statements (Kachelmeier et al. 2015) to increase employees' performance. For example, prior research has examined the presence of incentive pay (a formal control) and employee feedback (an informal control) on employees'

performance (Christ et al. 2016). Specifically, Christ et al. (2016) highlight the benefits of complementing incentive pay with employee feedback in motivating multidimensional task performance. Furthermore, Kachelmeier et al. (2015) show that an informal MCS, such as an organizational value statement, in conjunction with incentive compensation, can be used to improve the quality of employees' performance. While Kachelmeier et al. (2015) and Christ et al. (2016) have examined the influence of informal MCS and incentive compensation on employees' performance when completing compensated tasks, it is unclear how an informal MCS and incentive compensation can be used to motivate employees to perform important but uncompensated tasks.

The purpose of this study is to examine whether the presence of a value statement (an informal MCS) can be used to motivate employees to perform important but uncompensated subsequent tasks. Additionally, this study seeks to examine the type of incentive scheme that will result in the highest subsequent uncompensated task performance in the presence of an organizational value statement. Using an economic incentive contract to explicitly stimulate expected behavior from employees is desirable but often difficult to achieve (Choi, Hecht, Tafkov and Towry 2016). Considering that incentive contracts cannot completely govern all the employees' responsibilities (Christ, Emmett, Summers and Wood 2012), this study investigates how employees will perform their important but uncompensated tasks, and the decisions employees will make when economic incentives are no longer available. Specifically, it looks at whether the presence of an organizational value statement can be used to drive employees' uncompensated task performance. The effect of extrinsic rewards, such as incentive systems, on intrinsic motivation, especially with respect to employees' subsequent attitude toward, or their willingness to engage in, the assigned task in the absence of contingency-based extrinsic reward is unknown

(Lepper and Greene 1978). Intrinsic motivation refers to doing something because it is inherently interesting or enjoyable, while extrinsic motivation refers to doing something because it leads to a separable outcome (Ryan and Deci 2000).

Goal regulation refers to a motivational mindset reflecting the reasons for, and purpose of, a course of action (Meyer, Becker and Vandenberghe 2004). Goal regulation theory proposes that employees who view their behavior as more internally driven by values perceive themselves as working toward the accomplishment of ideals, while individuals who view their behavior as more externally driven perceive themselves as working toward the fulfilment of obligations (Meyer et al. 2004). Drawing upon goal regulation theory, this study proposes that the presence of an organizational value statement will motivate employees to better perform important but uncompensated tasks.

Motivation crowding theory states that external intervention via monetary incentives may undermine (or crowd out) intrinsic motivation (Frey and Jegen 2001). Employees operating under a piece-rate incentive scheme are less likely to develop intrinsic motivation towards important but uncompensated subsequent tasks due to a crowding out effect of a piece-rate incentive scheme (Frey and Jegen 2001) compared to employees compensated using fixed pay or quota incentive schemes. Fixed pay schemes do not link pay to performance, piece-rate schemes pay a predefined amount of money for each unit, while quota schemes pay a fixed rate irrespective of performance at a certain targeted level and performance bonus thereafter (Bonner, Hastie, Sprinkle and Young 2000). I predict that in the presence of a value statement, employees who are compensated using a piece-rate incentive scheme will be less productive¹ in important but uncompensated subsequent

¹ Productivity is defined as the quantity of output in this study. Less productive implies less output while more productive implies more output.

tasks than employees who are compensated using fixed pay or quota incentive schemes. Furthermore, because I do not have a strong theoretical basis for developing a hypothesis on the motivational differences between quota and fixed pay incentives on uncompensated tasks yet these types of contracts are used regularly in practice, I pose a research question examining the effect of quota incentive and fixed pay on uncompensated task performance in the presence of an organizational value statement.

To examine these hypotheses, an experiment is conducted which involves a hypothetical case where participants assume the role of an employee in an organization. Business student participants are recruited to participate in a 2 x 3 (value statement x incentive system) between-subjects factorial design. The value statement is manipulated as either present or absent, while incentive scheme is manipulated as fixed pay, quota, or piece-rate compensation. To investigate the influence of a value statement and type of incentive schemes on subsequent employees' uncompensated task performance, an experiment is conducted in which participants complete a simplified slider task and an uncompensated computerized decoding task. I use a simplified slider task in this study because it is a form of simple computerized real effort task that overcomes many drawbacks of existing real effort tasks such as counting characters, solving anagrams, negotiating mazes and solving mathematical problems (Gill and Prowse 2011). In this experiment, I capture performance in the presence of economic incentives (simplified slider task) and when economic incentives are no longer available (uncompensated subsequent computerized decoding task). The main dependent variable is participants' performance on the uncompensated task where the CEO requests their help with the computerized decoding task and they are specifically informed that they will not be paid for completing the task. Participants are also asked at the end of the experiment to provide an explanation of their thought process while completing their tasks. The

purpose of the post experimental questions is to gain a better understanding of their decision-making process.

I do not find support for the hypothesis that employees will be more productive on uncompensated subsequent tasks in the presence of an organizational value statement as compared to the absence of an organizational value statement. However, further analysis of the impact of the different types of compensation on performance presents interesting results. Under fixed pay compensation, participants in the presence of an organizational value statement perform their important but uncompensated task better than in the absence of an organizational value statement. This result indicates that the introduction of an organizational value statement encourages participants to perform their uncompensated task better. Conversely, under piece-rate compensation, participants in the presence of an organizational value statement are less productive than in the absence of an organizational value statement. The result of the piece-rate compensation performance of the uncompensated task is similar to the findings of Kachelmeier et al. (2015), which shows that the introduction of a value statement suppresses the benefits of piece-rate compensation. The implication of this finding is that organizations should be aware that mere introduction of words to motivate employees can either increase or decrease performance depending on the type of their incentive compensation and nature of their task. Last, under quota compensation, I do not find any significant difference in uncompensated task performance depending on the presence and absence of the value statement.

As predicted, in the presence of an organizational value statement, participants operating under fixed pay compensation perform significantly better than participants operating under piece-rate compensation. The result supports the proposition that employees' intrinsic motivation under piece-rate compensation is more likely to be crowded out by the incentive scheme. Similarly,

participants under fixed pay compensation are more productive in the uncompensated task than under quota compensation. There is no significant difference between uncompensated subsequent task performance of employees operating under piece-rate and quota compensation.

This study contributes to research and practice in the following ways. First, despite the benefits of piece-rate compensation noted in prior literature (Bonner et al. 2002; Cianci et al. 2013; Libby and Lipe 1992), this study highlights a situation where a piece-rate compensation may result in unintended consequences (Lepper and Greene 1978). Specifically, it demonstrates a situation where alternative compensation (fixed pay or quota) result in better performance. The presence of an organizational value statement improves performance on uncompensated tasks when employees are compensated using fixed pay or quota compensation. The contribution is particularly relevant to organizations that pay fixed salaries, as it shows that management could implement an organizational value statement to intrinsically motivate employees and improve productivity; providing additional economic incentives is not the only way to improve employees' performance.

Second, this study extends prior research on how value statements can improve employees' productivity. Despite the findings from Kachelmeier et al. (2015) that a value statement will lower overall productivity, this study highlights how an organizational value statement can increase overall productivity in certain circumstances. This study hypothesizes that depending on the type of incentive scheme, introduction of an informal management control in the form of a value statement can be used to intrinsically motivate employees. Implementing a properly aligned value statement that will address employees' uncompensated responsibilities can be used to increase employees' productivity and improve the organization's image both internally and externally. The value statement can complement the role of economic incentives when those incentives do not directly apply to employees' important and new responsibilities. The presence of a value statement

will consciously or subconsciously encourage employees to internalize the organization's values, which will cause them to be better organizational citizens by taking on tasks that help the organization but for which they are not directly compensated.

Third, this study utilizes goal regulatory and motivation crowding theories to examine the interaction between formal and informal MCS on employees' performance and judgment and decision-making. The study highlights the overjustification effect of a piece-rate incentive scheme on employees' performance (Lepper and Greene 1978). This study contributes to the crowding out theory literature by reinforcing how employees' intrinsic motivation can be overshadowed by the incentive scheme, such that their performance on tasks for which they are not directly compensated will suffer, even when there is an organizational value statement that encourages strong performance on all tasks.

Last, this study goes beyond Kachelmeier et al. (2015) by examining three different types of incentive schemes that can interact with informal MCS to influence employees' performance. There are few studies that examine quota incentive schemes in accounting, as most of the prior studies on incentive schemes have focused on fixed pay and piece-rate incentive schemes (Choi et al. 2012, 2013; Kachelmeier et al. 2008; Kachelmeier et al. 2015; Libby and Thorne 2009). This study contributes to incentive literature by shedding light on the potential benefits of quota incentive schemes over piece-rate schemes.

The paper proceeds as follows: The next section discusses the background literature and hypotheses development. Section III discusses the experimental method and design. Last, section IV provides the results, and section V discusses the conclusion and opportunity for future research.

Background and Hypotheses Development

Formal and Informal MCS and Employee's Behavior

Chenhall et al. (2010) suggest that formal and informal controls provide a basis to elaborate on the classification schemes of MCS. Their study further suggests that examining the interaction between formal and informal MCS is important in understanding how MCS can be designed and implemented and their effects on organizational outcomes (Ahrens and Chapman 2004; Auzair and Langfield-Smith 2005; Chenhall et al. 2010; Whitley 1999)

Formal controls have been identified as an important facet of MCS; they help an organization maintain financial viability and develop efficient and effective work processes (Chenhall et al. 2010). Formal controls are explicit sets of structures and routines that consist of purposefully-designed and information-based processes, to which employees must strictly adhere in order to ensure that overall organizational goals are achieved (Bisbe and Otley 2004). Formal controls can take several forms, such as performance-based compensation, budgets, performance reports, supervisory reviews, segregation of duties, policies and procedures, etc. (Christ et al. 2012). Formal controls are often used to focus employees' attention and force dialogue throughout an organization. These controls are sometimes used as a diagnostic control system that allow managers to ensure important organizational goals are being achieved effectively and efficiently (Simons 1995). Despite the benefits of formal controls, they can also have unintended consequences, which may be detrimental to the organization (Christ et al. 2012). For example, when employees feel their autonomy has been restricted by formal MCS, their level of trust in the organization will be impaired, which may result in poor employee cooperation, decreased effort, and reduced productivity (Christ et al. 2008).

Alternatively, informal controls refer to communication channels that tolerate mistakes, enhance bonding, and encourage open-door management policy and information sharing within an organization (Chenhall et al. 2010). Informal controls are also known as organic communication because they inspire a free flow of information throughout the organization, and promote a flexible organizational culture that stimulates an adaptive decision making work environment (Chenhall and Morris 1995). Prior research describes informal MCS as implicit sets of structures that management adopts to encourage employees to act in a way that aligns with overall organizational goals (Berry et al. 2009). Management usually puts informal MCS in place to inspire self-regulation behaviors among employees; hence, management may not reward or penalize employee behavior that is consistent or inconsistent with this informal MCS (Berry et al. 2009; Christ et al. 2008). Examples of informal MCS that have been examined in prior accounting studies are vicarious learning (Choi et al. 2016), employees' feedback (Christ et al. 2016), organizational culture (Chow et al. 2002; Dent 1991; Henri 2006; Pratt and Beaulieu 1992) and organizational value statements (Kachelmeier et al. 2015). Out of all these informal MCSs, an organizational value statement is one of the informal controls that has not been extensively explored (Kachelmeier et al. 2015). However, an organizational value statement should be seen as an important element in the organization because it is intended to guide everyday decisions of employees and clarifies employees' expectation within the organization (Urbany 2005). An organizational value statement defines the behaviors, attitudes, and character that management is trying to promote among internal stakeholders, such as an organization's employees (Highhouse et al. 2002; Urbany 2005; Wenstøp and Myrmel 2006).

Organizational Value Statement

An organizational value statement has been identified as an informal control that can be used to exert social pressure on employees within an organization without explicit measures to enforce the pressure (O'Reilly III, Chatman and Caldwell 1991). Despite that an organizational value statement has no explicit enforcement measures, it helps an organization define its culture and beliefs, which reflects a guiding philosophy for employees' decision-making processes (Urbany 2005). The existence of a value statement is not a guarantee that employees will be aware of and internalize the value statement (Urbany 2005). As every day decisions in organizations are often ambiguous and require some level of professional judgment from employees, the mere presence of a value statement may help employees easily resolve ambiguity or even provide direction in decision-making (Urbany 2005).

An organizational value statement can be broken down into sub-categories that make them more comprehensible and serve as a better guide for strategic decision-making. Comprehensive value statements consist of three main value categories: core values, protected values, and created values (Wenstøp and Myrmel 2006). Core values refer to the attitude and character of employees within an organization. Protected values are values that reflect the organizations' rules and standards, while created values are the expected returns to the stakeholders such as shareholders and customers (Wenstøp and Myrmel 2006). Prior research on value statements focuses on core values because this is the category that directly impacts employees' performance and decision-making. For example, an excessive organizational emphasis on quality over quantity in the value statement could undermine employees' productivity (Kachelmeier et al. 2015). Specifically, they show that an informal management control system in the form of an organizational value statement

that focuses on improving quality suppresses employees' productivity gains through a performance-contingent compensation scheme (Kachelmeier et al. 2015).

Goal regulation is a motivational mindset reflecting the purpose of, or the reason for, a course of action (Meyer et al. 2004). Goal regulation theory proposes that employees who are internally motivated by the values of the organization will generally perceive themselves as working toward the achievement of ideals, while those who are externally motivated will perceive themselves as working toward the fulfilment of obligations (Meyer et al. 2004). If employees are reminded of the values of the organization, they will exhibit greater intrinsic motivation and are more likely to work on uncompensated tasks, compared to those who are not reminded of the organization's values (Urbany 2005). This is expected because, as previously discussed, an organizational value statement defines the behaviors and attitude of employees that management is trying to promote within an organization (Wenstøp and Myrnel 2006). The value statement will provide guidance to the employees when there is no specific information on what is expected of them. Hence, employees are more likely to internalize a properly aligned value statement when it is present than absent, and this may have long- term implications for employees' decisions even when the economic incentives are no longer available. Using goal regulation theory, this study proposes that inclusion of a properly aligned value statement will act as an informal MCS that will motivate employees to perform their uncompensated tasks. Following the propositions stated above, the following hypothesis is stated:

H1: Employees will be more productive when completing uncompensated tasks in the presence of an organizational value statement as compared to the absence of an organizational value statement.

Incentive Scheme and Employees' Decisions

Prior experimental research has examined whether incentive-based compensation schemes can be used to motivate employees to improve their performance. Incentive-based, compared to fixed, compensation schemes enhance employees' performance, and this enhancement can be solidified by appropriate feedback and employees' experience (Sprinkle 2000). Relative to fixed-pay, incentive-based compensation does not improve, and sometimes even degrades performance (Ashton 1990). For example, piece-rate compensation schemes lead to a significant reduction in the perceived task attractiveness and worsened task performance compared to fixed-wage compensation (Fessler 2003). Similarly, piece-rate incentive schemes undermine self-regulation, which can make it difficult for employees to take responsibility for a task that is not directly compensated (Frey and Jegen 2001).

The results from Kachelmeier et al. (2015) suggest that the presence of an organizational value statement improves the quality of employees' performance and that it can undermine the effectiveness of compensation schemes on employees' productivity. In the presence of a value statement emphasizing good quality output, employees will prioritize the quality of their output even in the presence of piece-rate incentive compensation that motivates greater quantity of output. Further, under piece-rate pay, employees will be more productive without a value statement, but the introduction of a value statement negatively affects the efficiency of employees operating under a piece-rate incentive. The presence of an informal MCS (a value statement) negatively interacts with incentive compensation to undermine productivity (Kachelmeier et al. 2015).

Motivation crowding theory states that external intervention via monetary incentives may undermine (or crowd out) intrinsic motivation (Frey and Jegen 2001). For example, piece-rate incentive compensation may crowd out the notion of responsibility by employees, which may

make them less innovative and creative, especially when they are not compensated directly for taking the initiative. Organizations use incentive compensation schemes to encourage employees to perform their task consistent with organizational goals (Bonner et al. 2000; Bonner and Sprinkle 2002). One of the limitations of their research is that it does not consider how internally motivated the employees will be in the absence of such monetary incentives. If incentives raise employees' motivation to perform tasks, and employees are not directly compensated for performing that particular task, they may decide not to take any initiative to perform the task even when the task is particularly important to their organization. Despite the benefits of piece-rate incentive schemes over fixed pay compensation that has been shown in the literature (Bonner et al. 2000; Kachelmeier et al. 2015), my study proposes that there are certain situations where fixed-incentives may be more beneficial. Specifically, my study proposes that when employees are not directly compensated for performing a task, employees operating under a fixed-pay incentive scheme will be more likely to perform the uncompensated task than those compensated by a piece-rate incentive scheme, especially when an organizational value statement is present to intrinsically motivate them. Employees operating under a piece-rate incentive scheme will be less intrinsically motivated than those operating under a fixed pay scheme. Overjustification effects of monetary incentives (Lepper and Greene 1978) will crowd-out employees operating under piece-rate incentive more compared to employees operating under a fixed pay incentive. Specifically, the second hypothesis is:

H2: In the presence of an organizational value statement, employees operating under a fixed pay incentive scheme are likely to be more productive when performing uncompensated tasks than employees operating under a piece-rate incentive scheme.

While research on accounting incentives has focused on fixed pay and piece-rate incentive schemes (Fessler 2003; Kachelmeier et al. 2015; Sprinkle 2000), another important incentive scheme that has not been extensively examined is a quota scheme (Bonner et al. 2000). A quota incentive scheme is a hybrid of fixed pay and piece-rate compensation because it has an overall link to pay-for-performance, but it does not directly connect pay to each unit of output (Bonner et al. 2000; Murthy 2010). For example, employees working under a quota incentive scheme will typically receive a fixed pay irrespective of the level of the performance; however, once a particular performance target is achieved, the employee will receive payment for each additional unit of output. Unlike any other incentive scheme, a quota scheme specifically incorporates an explicit assigned goal which provides a benchmark for the bonus reward (Bonner et al. 2000; Murthy 2010). As long as the performance target is achievable, a quota scheme may increase internal motivation more than a piece-rate incentive scheme. A quota incentive scheme is also known as a performance target scheme. A piece-rate incentive scheme is similar to a no-work no-pay scenario, which signifies that every time an employee performs a task, he/she is expected to be remunerated for performing the task. Under the quota scheme, employees are guaranteed a particular fixed pay, irrespective of their performance level, although they do not get the bonus award if they do not achieve the performance target.

A complete contract that incentivizes all relevant aspects of an employee's performance is ideal; however, it is not economically feasible (Choi et al. 2016). Thus, it is essential to motivate employees to perform a task that will be in the interest of the organization, even when they are not directly compensated for performing such a task. Organizations need employees who will take the initiative to make decisions that will benefit organizations with or without direct incentive compensation. Employees should be willing to create value without direct monetary incentives

because the contract that management used to incentivize their employees today may not address unforeseen employees' responsibilities in the future. Management should strive to motivate employees beyond traditional methods of monetary incentives. The most valuable employees may not be those that perform better with incentives, rather they may be those that are willing to help their organizations whenever the need arises with or without direct incentives (Robinson, Kraatz, and Rousseau 1994). It may not be ideal for employees to see monetary incentives as the main motivation to perform their responsibilities, but they should see monetary incentives as an appreciation for performing their responsibilities to the best of their abilities.

Crowding out theory states that employees will be overshadowed by the monetary incentive scheme to the extent that their intrinsic motivation will be depleted when the economic incentive is no longer available (Frey and Jegen 2001). A piece-rate incentive scheme will crowd out employees' internal motivation to a greater extent than a quota incentive system as employees will expect monetary compensation for every task that they perform. This study proposes that when an organizational value statement is present, which serves as an intrinsic motivator, employees operating under a piece-rate incentive scheme are less likely to continue to perform their uncompensated tasks relative to employees operating under a quota incentive scheme. Overjustification effects of piece-rate incentive schemes will be more salient when the economic incentives are no longer available compared to quota incentive schemes (Lepper and Greene 1978). Therefore, my third hypothesis is:

H3: In the presence of an organizational value statement, employees operating under a quota incentive scheme are likely to be more productive when performing uncompensated tasks than employees operating under a piece-rate incentive scheme.

Depending on the assigned task and difficulty of performance goal, employees working under a quota incentive scheme may be more motivated than employees working under either a piece-rate or fixed pay incentive scheme (Bonner et al. 2000). Similarly, perceived task attractiveness may also influence the attitude of the employee to the assigned task irrespective of the type of incentive (Fessler 2003). However, an employee working under a fixed incentive may be more sensitive to the task attractiveness relative to the quota scheme because the quota incentive scheme is a combination of both fixed pay and piece-rate incentive schemes.

Due to the nature of fixed pay incentive and quota schemes, it is difficult to establish the scheme that will result in the optimum employee performance in uncompensated task. Employees operating under the two incentive schemes will be more intrinsically motivated to perform uncompensated task compared to employees operating under a piece-rate. Employees operating under quota incentive schemes may be as intrinsically motivated as employees operating under fixed pay incentive schemes. Quota incentive schemes include fixed pay, explicit performance goals, and performance bonuses (Bonner and Sprinkle 2002); hence, employees will likely see the performance bonus as an extra benefit. This implies that employees operating under a quota scheme will be less likely to be crowded out with this performance bonus because they feel valued by the organization as they see this extra benefit for their effort. Employees operating under a fixed pay are more likely to work on their important but uncompensated task because their performance is not directly link to their fixed pay. This study expects employees operating under a fixed pay to be willing to perform their important task with or without direct incentive compensation. This study proposes a research question: which incentive scheme, fixed pay or quota incentive scheme will induce better performance in important but uncompensated task? This leads to my formal research question:

RQ: In the presence of an organizational value statement, which incentive scheme between fixed pay and quota schemes will lead to more productive performance of important but uncompensated tasks?

Research Method

Experimental Design and Task

This study utilizes a 2x3 between-participants experimental design that manipulates organizational value statement and the type of incentive scheme. Specifically, the study manipulates the organizational value statement by either having the value statement present or absent. The study manipulates incentive scheme by randomly offering participants either fixed pay, quota, or piece-rate incentive compensation. The participants are provided a hypothetical case about the company and asked to perform a slider task and uncompensated decoding task using z-Tree software (Fischbacher, 2007). Prior research demonstrates that a real effort task provides greater external validity over a monetary cost effort task because real effort replicates the exertion of effort outside of the laboratory (Gill and Prowse, 2011). This study seeks to use a novel computerized real effort task based on moving sliders because the slider task overcomes many disadvantages of existing real effort tasks (Gill and Prowse, 2012). The experiment consists of two phases: Phase One requires participants to perform one round of practice (unpaid exercise) and four rounds of a paid slider task; Phase Two requires participants to perform an uncompensated decoding task.

The experiment is computer-based and administered via z-Tree and Qualtrics software. Participants are required to complete the study in the laboratory. They are all assigned their individual computer and asked to work independently. The opening screen of the z-Tree study

presents the explanation of research and the study overview. Individuals that agree to participate proceed to the next screen to begin the study. The second screen informs the participants that they will read important information in the next few screens and they are expected to pay maximum attention because they will be asked questions to assess their understanding of the material.

The z-Tree experimental material consists of six sections: background information about a hypothetical corporation (KS Upright) and the task instructions, treatment manipulations, comprehensive checks, slider task, important information about unpaid decoding task, and the decoding task. The Qualtrics experimental material consists of three sections: manipulation checks, decision-making questions, and demographics. See Figures 1 and 2 for summaries of the experimental procedures in z-Tree and Qualtrics respectively.

Participants are presented with background information for a hypothetical scenario in which they assume the role of an employee of the company named KS Upright. The employees are responsible for adjusting sliders between 0 and 100 with the use of their mouse only. They are informed that sliders are an important piece of automation equipment that must be successfully positioned at exactly 50 on each slider. The task consists of 48 identical sliders which must be moved to 50 within 120 seconds. They are able to score points based on the number of sliders positioned at exactly 50 at the end of 120 seconds. The score for each round is shown at the center top of the screen and the time remaining in any given round is shown in the upper right hand corner of the screen. All participants receive the same background information and instructions. See Figure 3 for the image of the slider task interface.

After reading the background information and instructions, the participants move to the next screen, the treatment manipulation screen (this is discussed in detail later in the independent variable section). They all respond to comprehension checks before moving on to the slider tasks.

All participants perform one 60-second practice round to familiarize themselves with the slider task before the four working rounds. After each working round, the participants are able to see their results before moving on to the next round.

Once the slider task is completed, the participants receive their total point score and total compensation for the study. Thereafter, they are informed that the CEO needs their help with decoding tasks which should take about five minutes of their time. They are also notified, that they will not be paid for completing this exercise since they have already completed their paid exercise. They are further informed that their performance in this decoding task is important to their company (KS Upright) but their compensation for participating remains unchanged regardless of their performance in the decoding task.

In the decoding task, participants are instructed to use the keys provided on the left side of the screen to correctly identify the number associated with the alphabet showing on their screen. If the number is correctly recorded, they will get a point score that is shown on the screen. However, if the number is wrong, they will get an error message, but they have unlimited attempts to get the correct number. The time that they have remaining in any given round is shown in the upper right hand corner of their screen. They have 30 seconds for one practice round and 60 seconds for the four working rounds. See Figure 4 for the image of decoding task interface.

After completing all the tasks in z-Tree, the participants are instructed to exit z-Tree and open the Qualtrics link on their desktop. On the first page of the Qualtrics, the participants must input the unique “lab” number which is provided to them at the beginning of the experiment in order to complete the questions and receive their cash compensation at the end of the experiment. The participants, thereafter, respond to the manipulation checks, decision-making questions, and demographics.

Independent Variables

Compensation Scheme Manipulation

In this study, I use an experimental currency called “Lira”. Lira is converted into U.S dollars at a rate of \$1 for every 30,000 Lira and participants are paid in cash at the end of the study. The amount they earn depends on their randomly assigned compensation plans and their performance on the paid task. The participants in the fixed salary are paid a fixed salary of 240,000 Lira which is converted to Dollars at the end of the experiment. The participants in the quota incentive compensation condition receive a fixed-payment of 45,000 Lira per round plus a performance bonus of 1,500 Lira for every slider correctly positioned after the first 10 correctly positioned sliders in each round. The participants in the piece-rate incentive compensation receive 3,000 Lira for each slider they correctly position at 50.

Value Statement Manipulation

Half of the participants are randomly assigned to the treatment condition with the value statement while the remaining half are randomly assigned to the treatment condition without the value statement. For the participants with value statement condition, they have the information stating that “before completing your decoding task the CEO would like to remind you of KS Upright value statement which emphasizes that: *The work **YOU** do is an important part of the success of our company. Together we build systems that work!*”.

Dependent Variable

The main dependent variable in this study is the participants’ performance in phase two, the uncompensated decoding task. In the decoding task, participants have to use the keys provided on the left side of the screen to correctly identify the number associated with the alphabet showing

on their screen. If the number is correctly recorded they get a point score that will be shown on the screen. However, if the number is wrong, they get an error message and they have unlimited attempts to get the correct number. The time that each participant has remaining in any given round is displayed in the upper right hand corner of the screen. The participants have 30 seconds for one practice round and 60 seconds to complete four more rounds.

Participants

Participants are recruited from both undergraduate and graduate business classes using a multi-contact method. The study was first announced in class, after which students received an email containing information on how to sign-up for the laboratory experiment. As an incentive for participating, extra credit opportunities were offered to the students that participated in this study in addition to their incentive compensation (which depends on their compensation plan as well as their task performance). Alternative assignments were also offered to the students that decided not to participate but were interested in the extra credit opportunities. One hundred and thirty useable responses are included in the analysis. In order to be eligible to participate in the study, participants must be eighteen years of age or above. The majority of the participants are female (52.3 percent). Most participants are between 21-25 years old (47 percent), with others age 18-20 (30 percent), age 26-30 (9 percent), age 31-35 (9 percent), and over age 35 (5 percent). Most of the participants (65 percent) have 1-5 years of work experience, with 13 percent of participants having 6-10 years of work experience 6-10, and 7 percent having 11 years and over of work experience. Eighteen percent have no work experience and 1 percent did not respond. The majority of participants are accounting majors (86.9 percent). Most of the participants are classified as juniors (43.1 percent)

with the remainder classified as seniors (33.8 percent), graduate students (17.1 percent), sophomores (3.1 percent), and freshmen (2.3 percent). Table 1 presents demographic data.

Result

Descriptive Statistics

The focus of this study is employees' uncompensated task performance; hence, the main dependent variable of interest is the number of letters that the participants are able to decode without any incentive compensation. Table 2 Panel A presents descriptive statistics of uncompensated task performance across the six treatment conditions. In the fixed pay condition, the mean (standard deviation) of uncompensated decoding task performance is 117.71 letters decoded (24.61) when the value statement is present, and 95.60 letters decoded (16.90) when the value statement is absent. In the piece rate incentive pay condition, the mean (standard deviation) of uncompensated decoding task performance is 95.10 letters decoded (15.57) when the value statement is present, and 107.83 letters decoded (18.42) when the value statement is absent. In the quota incentive pay condition, the mean (standard deviation) of uncompensated decoding task performance is 92.85 letters decoded (10.07) when the value statement is present, and 95.45 letters decoded (11.48) when the value statement is absent. The total uncompensated task performance mean (standard deviation) is 102.75 letters decoded (21.39) when the value statement is present and 99.88 (16.73) when the value statement is absent.

Test of Hypotheses

H1 posits that employees are more likely to be more productive when performing uncompensated task when they have the value statement to motivate them compared to when the

value statement is not available. Specifically, H1 predicts that employees will be more productive when performing uncompensated tasks in the presence of an organizational value statement as compared to the absence of an organizational value statement. To test this conclusion statistically, Table 2 Panel B reports overall ANOVA findings (also see Figure 5). Although in the predicted direction, the result shows that the total uncompensated task performance mean (102.75) when the value statement is present is not significantly different from the total uncompensated task performance mean (99.88) when the value statement is absent ($F = 0.562$, $p = 0.228$, one tailed). Further analysis was carried out to understand the effect of the value statement under different incentive structures and interesting results emerged.

Planned contrasts of the value statement and no value statement performance depending on incentive structure show significant results (see Table 2 Panel C and Figure 6). Specifically, participants' uncompensated task performance under a fixed pay incentive scheme when the value statement is present (117.71) is significantly better ($t = 3.517$, $p < 0.001$, one tailed) than uncompensated task performance when the value statement is absent (95.60). This shows that the introduction of a value statement helps improve participants' performance significantly when they operate under fixed pay. Conversely, participants' uncompensated task performance under a piece rate incentive when the value statement is present (92.85) is significantly lower ($t = -2.483$, $p = 0.009$, one tailed) than uncompensated task performance under a piece rate incentive when the value statement is absent. This result is similar to the result of Kachelmeier et al. (2015) that show a significant interaction between piece-rate incentives and value statement, with significant monetary incentive effects in the absence of the value statement but no visible monetary incentive effects when value statement is present. My study is different from Kachelmeier et al. (2015) because it considers uncompensated task performance while Kachelmeier et al. (2015) focus on

compensated task performance. The explanation for the result of this hypothesis could be that since this is an uncompensated subsequent task and the participants are on piece-rate compensation, hence the presence of the value statement reminded the participants that they are not going to be compensated for this particular task, despite the importance of this task to the organization. Hence the participants under piece-rate are crowded by their incentive schemes and the present of value statement increases the crowding out effect on subsequent uncompensated tasks performance. This study further explores planned contrasts of a value statement and no value statement on quota incentive, and there is no significant difference in uncompensated task performance ($t = -0.783$, $p = 0.219$, one tailed).

H2 posits that when employees are not directly compensated for performing a task, employees operating under a fixed pay scheme are more likely to be productive when performing uncompensated task than those compensated by a piece-rate incentive scheme, especially when an organizational value statement is present. Specifically, because of a crowding out effect of piece-rate incentive scheme, my study predicts that in the presence of an organizational value statement, employees operating under a fixed pay incentive scheme are likely to be more productive when performing uncompensated tasks than employees operating under a piece-rate incentive scheme. Table 3 Panel A reports the ANOVA results with uncompensated task performance as the dependent variable. The model is statistically significant at $p < 0.001$. Table 3 Panel B reports the contrast for H2. As predicted, in the presence of the value statement, participants operating under a fixed pay incentive scheme are more productive than participants operating under a piece-rate incentive scheme ($t = 3.729$, $p < 0.001$, one tailed).

H3 posits that in the presence of an organizational value statement, employees operating under a quota incentive scheme are likely to be more productive than employees operating under

a piece-rate incentive scheme. The results in Table 3 Panel B show that in the presence of an organizational value statement, employees operating under a quota incentive are not significantly more productive than employees operating under a piece-rate incentive scheme ($p = 0.293$). Hence, employees operating under a piece-rate incentive are not more crowded out by their compensation scheme as compared to employees operating under a quota compensation scheme. The result does not support my predicted hypothesis.

RQ asks in the presence of an organizational value statement, which incentive scheme between fixed pay and quota schemes will lead to better performance in important but uncompensated task? This is proposed as a research question because the performance target component of the quota incentive pay may negatively impact employees' behavior, leading to less optimum performance relative to fixed pay. Table 3 Panel B reports the results of the planned contrasts for RQ, which shows that in the presence of an organizational value statement, uncompensated task performance differs significantly ($p < 0.001$, two tailed) when employees are compensated with fixed-pay relative to a quota. Examining the means for each incentive scheme in the presence of a value statement shows that employees under fixed pay are more productive in the uncompensated task than the quota employees². See Figure 7 for the graphical representation of H2, H3 and RQ.

Manipulation and Comprehension Checks

I asked participants a series of questions before they began the slider task regarding: (1) whether they will be paid for completing the four rounds of slider task after the practice round; (2)

² I carried out additional analysis on demographic factors and none of the demographic factors influence the participants' answers.

the type of incentive they are eligible to receive; (3) whether they were provided with KS Upright value statement; (4) whether they will be paid for completing the four rounds of decoding task. Participants could not proceed to the slider and decoding tasks until they had answered each question correctly. The manipulation check is conducted later in the experiment to provide assurance that the participants are aware of the facts that are vital to the successful operationalization of the variable. To verify the manipulation of the incentives, the participants are asked, “Prior to positioning the sliders, you were given information about the compensation you were eligible to receive for completing the task. Which type of compensation were you eligible to receive?” Participants are asked the correct position to earn point for each slider in every round. A total of 9 participants failed the two manipulation check questions and excluding them from the analysis did not change the results of the study. Hence, they are included in the analysis.

Conclusion

This study examines the effect of a nonbinding value statement on employees’ performance on an important but uncompensated task. Prior literature has shown that incentive contracts cannot completely govern all employees’ responsibilities (Christ et al. 2012) and using economic incentives to explicitly stimulate expected behavior is desirable, but it is often difficult to achieve (Choi et al. 2016). In view of the position of prior literature on incentive contracts and employees’ responsibilities, it is important to examine how organizations can use informal management control systems such as organizational value statements to compliment economic incentives in order to ensure that employees perform their important but uncompensated tasks. The study draws upon goal regulation theory, which proposes that employees who view their behavior as more internally driven by the values of the organization will perceive themselves as working towards

the accomplishment of ideals, while employees who view their behavior as more externally driven by incentive compensation will perceive themselves as working toward the fulfilment of obligations (Meyer et al. 2004). I predict that employees will be more productive when performing uncompensated tasks in the presence of an organizational value statement as compared to the absence of an organizational value statement. I do not find support for this hypothesis, however, further analysis of the individual incentive compensation shows interesting results. The results show that under a fixed pay compensation, the effect of a nonbinding value statement is more pronounced in uncompensated task performance, to the extent that participants are more productive when the value statement is present as compared to when the value statement is absent. This implies that the presence of a value statement motivates employees that are being compensated with fixed pay to be more productive in an uncompensated task.

Similar to Kachelmeier et al. (2015), I find an interesting result in the analysis of a piece-rate incentive with and without a value statement. The results show that in the absence of the value statement, employees are more likely to perform their uncompensated task better compared to the presence of the value statement. Employees working under a piece-rate incentive focus so much on the incentive pay associated with their performance and any form of informal management control systems could negatively affect their performance because it will remind them that they are not being compensated for performing this task. However, employees working under a fixed pay will usually work at their own pace because their incentive compensation is not associated with their performance. Hence, any form of motivational techniques such as informal management control system will encourage them to be more productive in their important but uncompensated task. The implication of this finding is that value statements can be used to motivate employees operating under a fixed pay to perform important tasks either compensated or uncompensated.

However, companies should be very careful when they are trying to motivate factory floor employees because the motivational techniques such as informal management control systems could lead to dysfunctional behavior.

Organizations invest in the creation and dissemination of value statements in order to manage external impressions and reputation (Urbany 2005); however, they pay little or no attention to improving internal productivity with the use of organizational value statements (Highhouse et al. 2002). If an organization values all the information included in their value statement, then they could make an effort to effectively communicate their values to their employees, especially employees that are on a fixed pay. This may encourage the employees to consciously or subconsciously believe in those values and live by those values. Employees should be interested in knowing the value statements all the time, not just when they have interactions with the human resource department. The value statements should be used proactively to clarify expectations from employees.

This study contributes to the literature in several important ways. First, the study extends the contribution of Kachelmeier et al. (2015) by examining the effect of nonbinding organizational value statements on employees' performance in an important but uncompensated task. This study is important because it is the first study that specifically examines the effect of the type of incentive structure on employees' performance on an important but uncompensated task. Technology has drastically influenced the way organizations maintain their competitive advantage; hence, organizations need to recruit and retain employees that believe in the values of the company because it is very difficult to incentivize all aspects of employees' responsibilities (Choi et al 2016). Investigating the reactions of employees under different incentive structures to perform important but uncompensated tasks provide a unique contribution to managerial accounting

literature. Second, while Kachelmeier et al. (2015) examine the fixed pay and piece rate incentive compensations, my study investigates fixed pay, piece-rate, and quota incentive compensations. Quota incentive compensation has not been extensively explored in managerial accounting literature. Despite the benefit of quota incentive compensation that has been identified in some literature, it is still difficult to examine quota incentive compensation using a laboratory experiment.

My results also suggest several avenues for future research. First, I use a laboratory experiment for this study and it is difficult to disentangle the effect of fixed pay and bonus pay components of quota incentive compensation. Future research can examine this research question using a field experiment. Field experiments may help our understanding of the effect of quota incentive compensation on important but uncompensated tasks. Similarly, field experiments will address external validity issues with the organizational value statement. Second, I use student participants in my study. Using actual employees in future research could make incentive compensation more salient.

Notwithstanding its limitations, this study extends management control literature by establishing the type of incentive compensation that results in employees' productive performance on important but uncompensated tasks. Also, the study supports Kachelmeier et al. 2015 by reinforcing the importance of nonbinding organizational value statements under different incentive structures.

Reference

Ahrens, T., & Chapman, C. S. (2004). Accounting for flexibility and efficiency: A field study of management control systems in a restaurant chain. *Contemporary Accounting Research*,

21(2), 271–301.

Ashton, R. H. (1990). Pressure and Performance in Accounting Decision Settings - Paradoxical Effects of Incentives, Feedback, and Justification. *Journal of Accounting Research*, 28(S), 148–180.

Auzair, S. M., & Langfield-Smith, K. (2005). The effect of service process type, business strategy and life cycle stage on bureaucratic MCS in service organizations. *Management Accounting Research*, 16(4), 399–421.

Berry, A. J., Coad, A. F., Harris, E. P., Otley, D. T., & Stringer, C. (2009). Emerging themes in management control: A review of recent literature. *British Accounting Review*, 41(1), 2–20.

Bisbe, J., & Otley, D. (2004). The effects of the interactive use of management control systems on product innovation. *Accounting, Organizations and Society*, 29(8), 709–737.

Bonner, S. E., Hastie, R., Sprinkle, G. B., & Young, S. M. (2000). A review of the effects of financial incentives on performance in laboratory tasks: Implications for management accounting. *Journal of Management Accounting Research*, 12(1), 19–64.

Bonner, S. E., & Sprinkle, G. B. (2002). The effects of monetary incentives on effort and task performance: Theories, evidence, and a framework for research. *Accounting, Organizations and Society*, 27(4–5), 303–345.

Chenhall, R. H., Hall, M., & Smith, D. (2010). Social capital and management control systems: A study of a non-government organization. *Accounting, Organizations and Society*, 35(8), 737–756.

Chenhall, R., & Morris, D. (1995). Organic Decision and Communication Processes and Management Accounting Systems in Entrepreneurial and Conservative Business Organizations. *Omega*, 23(5), 485–498.

- Choi, J., Hecht, G., Tafkov, I. D., & Towry, K. L. (2016). Vicarious learning under implicit contracts. *Accounting Review*, *91*(4), 1087–1108.
- Choi, J., Hecht, G. W., & Tayler, W. B. (2012). Lost in translation: The effects of incentive compensation on strategy surrogation. *Accounting Review*, *87*(4), 1135–1163.
- Choi, J., Hecht, G. W., & Tayler, W. B. (2013). Strategy Selection, Surrogation, and Strategic Performance Measurement Systems. *Journal of Accounting Research*, *51*(1), 105–133.
- Chow, C. W., Harrison, G. L., McKinnon, J. L., & Wu, A. (2002). The organizational culture of public accounting firms: evidence from Taiwanese local and US affiliated firms. *Accounting, Organizations and Society*, *27*(4–5), 347–360.
- Christ, M. H., Emett, S. A., Summers, S. L., & Wood, D. A. (2012). The Effects of Preventive and Detective Controls on Employee Performance and Motivation*. *Contemporary Accounting Research*, *29*(2), 432–452.
- Christ, M. H., Emett, S. A., Tayler, W. B., & Wood, D. A. (2016). Compensation or feedback: Motivating performance in multidimensional tasks. *Accounting, Organizations and Society*, *50*, 27–40.
- Christ, M. H., Sedatole, K. L., & Towry, K. L. (2012). Sticks and carrots: The effect of contract frame on effort in incomplete contracts. *Accounting Review*, *87*(6), 1913–1938.
- Christ, M. H., Sedatole, K. L., Towry, K. L., & Thomas, M. A. (2008). When formal controls undermine trust and cooperation. *Strategic Finance*, *January*, 39–44.
- Cianci, A. M., Kaplan, S. E., & Samuels, J. a. (2013). The moderating effects of the incentive system and performance measure on managers' and their superiors' expectations about the manager's effort. *Behavioral Research in Accounting*, *25*(1), 115–134.
- Dent, J. F. (1991). Accounting and organizational cultures: A field study of the emergence of a

- new organizational reality. *Accounting, Organizations and Society*, 16(8), 705–732.
- Fessler, N. J. (2003). Experimental Evidence on the Links among Monetary Incentives , Task Attractiveness , and Task Performance. *Journal of Management Accounting Research*, 161–176.
- Fischbacher, U. (2007). z-Tree : Zurich toolbox for ready-made economic experiments, 171–178.
- Frey, B. S., & Jegen, R. (2001). Motivation crowding theory. *Journal of Economic Survey*, 15(5).
- Gill, D., & Prowse, V. (2011). A Novel Computerized Real Effort Task Based on Sliders *, (May 2009).
- Gill, D., & Prowse, V. (2012). A Structural Analysis of Disappointment Aversion in a Real Effort Competition. *The American Economic Review*, 102(1), 469–503.
- Henri, J.-F. (2006). Organizational culture and performance measurement systems. *Accounting, Organizations and Society*, 31(1), 77–103.
- Highhouse, S., Hoffman, J. R., Greve, E. M., & Collins, A. E. (2002). Persuasive impact of organizational value statements in a recruitment context. *Journal of Applied Social Psychology*, 32(8), 1737–1755.
- Kachelmeier, S. J., Reichert, B. E., & Williamson, M. G. (2008). Measuring and motivating quantity, creativity, or both. *Journal of Accounting Research*, 46(2), 341–373.
- Kachelmeier, S. J., Thornock, T. A., & Williamson, M. G. (2015). Communicated Values as Informal Controls: Promoting Quality While Undermining Productivity? *Contemporary Accounting Research*, XX(Xx), 1–24.
- Lepper, M., & Greene, D. (1978). *The Hidden Costs of Reward: New Perspectives on the Psychology of Human Motivation*.
- Libby, R., & Lipe, M. G. (1992). Incentives, Effort, and the Cognitive Processes Involved in

- Accounting-Related Judgments. *Journal of Accounting Research*, 30(2), 249–273.
- Libby, T., & Thorne, L. (2009). The influence of incentive structure on group performance in assembly lines and teams. *Behavioral Research in Accounting*, 21(2), 57–72.
- Meyer, J. P., Becker, T. E., & Vandenberghe, C. (2004). Employee commitment and motivation: A conceptual analysis and integrative model. *Journal of Applied Psychology*, 89(6), 991–1007.
- Murthy, U. S. (2010). The Effect of Relative Performance Information under Different Incentive Schemes on Performance in a Production Task. *Working Paper*, (June).
- O'Reilly III, C. A., Chatman, J., & Caldwell, D. F. (1991). People and Organizational Culture : A Profile Comparison Approach to Assessing Person- Organization Fit, 34(3), 487–516.
- Otley, D. (1994). Management Control in Contemporary Organizations: toward a wider framework. *Management Accounting Research*.
- Pratt, J., & Beaulieu, P. (1992). Organizational culture in public accounting: Size, technology, rank, and functional area. *Accounting, Organizations and Society*, 17(7), 667–684.
- Robinson, S. L. ., Kraatz, M. S. ., & Rousseau, D. M. . (1994). Changing Obligations and the Psychological Contract : A Longitudinal Study. *Academy of Management Journal*, 37(1), 137–152.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations : Classic Definitions and New Directions, 67, 54–67.
- Simons, R. (1995). Control in an age of empowerment. *Harvard Business Review*, 73(2), 80–88.
- Sprinkle, G. B. (2000). The effect of incentive contracts on learning and performance. *Accounting Review*, 75(3), 299–326.
- Urbany, J. E. (2005). Inspiration and cynicism in values statements. *Journal of Business Ethics*,

62(2), 169–182.

Wenstøp, F., & Myrmel, A. (2006). Structuring organizational value statements. *Management Research News*, 29(11), 673–683.

Whitley, R. (1999). Firms, institutions and management control: the comparative analysis of coordination and control systems. *Accounting, Organizations and Society*, 24(5–6), 507–524.

STUDY TWO: THE IMPACT OF INCENTIVE SYSTEMS AND ORGANIZATIONAL VALUE STATEMENT DELIVERY ON EMPLOYEES' PERFORMANCE

Introduction

The ultimate goal of a management control system in most organizations is to align employee behavior with the overall organizational objectives, and to promote effective and efficient use of organizational resources (Chenhall 2003). Management control systems consist of any actions or activities undertaken by management to influence the likelihood that employees will conduct themselves in ways which lead to the achievement of organizational objectives (Berry, Coad, Harris, Otley and Stringer 2009; Chenhall 2003; Malmi and Brown 2008; Otley and Berry 1980). These actions and activities can be broadly divided into formal and informal management controls. Formal controls consist of explicit preventive or detective management control activities such as performance measurement systems (Christ, Emett, Summers and Wood 2012). Informal controls, on the other hand, are implied by social pressures, such as feedback, and management communication, such as a value statement or the organizational culture, where no explicit enforcement measures exist (Berry et al. 2009; Kachelmeier, Thornock and Williamson 2015). Organizational culture is a set of values, beliefs, and social norms which tend to be shared by an organization's members and in turn, influence their thoughts and actions (Flamholtz, Das, and Tsui 1985). It is an important form of informal management control system that can be used to regulate employees' behavior (Malmi and Brown 2008). For an organization to imbue its culture into its employees' behaviors, it must be able to effectively communicate its core values to all employees and provide amalgamating direction for the organization. The communication of an organization's core values is often done with the use of a value statement.

While prior research has shown that the presence of an organizational value statement focusing on quality improvement can have negative effects on employees' overall productivity under a piece-rate incentive scheme (Kachelmeier et al. 2015), prior research has not examined whether the interactive delivery of an organizational value statement can impact the salience of the value statement. A value statement that is more salient may lead to improved employees' performance irrespective of the focus of the value statement on quality or quantity improvement. Specifically, whether organizations can use interactive delivery of informal management controls (a value statement), combined with formal management controls (incentive systems) to improve employees' performance is unknown. Further, the extent to which interactive delivery of a value statement can improve employees' performance under different incentive systems is also unknown. Promoting an organization's value statement can be used to constantly remind employees of the importance of an organization's values (Highhouse, Hoffman, Greve and Collins 2002). Interactive delivery of this value statement, which gives employees opportunity to relate continuously with the value statement, may make employees more aware of the objectives of the organization. At the same time, management may use this interactive delivery of value statement to promote the culture of the organization.

The purpose of this study is to examine whether the interactive delivery of a value statement (informal control) can be used in conjunction with an incentive scheme (formal control) to improve employees' performance. There are different methods of delivering an organizational value statement. The popular method is the passive approach of delivering an organizational value statement through employee handbooks, organizational websites, and souvenirs (Wenstøp and Myrmel 2006). Another popular passive method used by some corporate organizations is framing the organizational value statement and placing it on the office walls (Highhouse et al., 2002).

However, the potential problem with these passive methods of delivery is that employees' attention may not be drawn to the value statement. This passive delivery of the value statement may not proactively align employees' behaviors with the organizational values. However, interactive delivery is a continuous presentation of the organizational value statement to the employees. The value statement can be integrated electronically into employees' computers in order to provide continuous interactive delivery. This interactive delivery will provide a continuous reminder to the employees of what is important to the organization. Interactive delivery can also stimulate organizational culture and promote organizational performance.

Prior accounting research shows that the method of delivery of information influences employees' decisions. Specifically, Arnold et al. (2006) show that the presentation format of information can influence employees' decision-making in a variety of ways, depending on the user's level of expertise and the nature of the information. Technology provides new, interactive approaches to address contemporary issues (O'Donnell and David 2000). O'Donnell and David (2000) hypothesize that technologically integrating a value statement creates an interactive way of delivering a value statement to employees, while the traditional approach is a passive way of delivering the value statement. Through electronic integration of the value statement, employees will more frequently interact with the value statement compared to the employees with the traditional passive method of delivery. The potential benefit of interactive delivery over the passive delivery is that interactive delivery is more of a proactive than reactive method of delivery, provides timely reinforcement of organizational objectives to employees, and may improve performance.

According to mere exposure effect, repeated exposure of an individual to a stimulus object enhances his or her attitude toward the object (Zajonc 1968). Mere exposure is a psychological

phenomenon also referred to as familiarity principle. This is a situation where an individual develops a preference for an object merely because they have consistent exposure to that object. This study hypothesizes that the interactive delivery of an organizational value statement enhances employees' attitudes toward the value statement compared to passive delivery of the value statement. I expect this enhancement in employees' attitudes to help better align employees' performance with the goals of the organization. Electronically integrating a value statement into employees' daily activities will make the value statement more salient compared to the traditional approach of hanging the value statement on the office walls (Erik and Robert 2002; Kacmar, Zivnuska, and Gully 2003). There is a higher likelihood that employees mental arousal will be influenced when they interact with a value statement and they will better internalize the organization's values (Gardner 1986). Additionally, piece-rate incentive schemes activate employees' alertness (Gardner 1986). Thus, this study hypothesizes that a piece-rate incentive scheme will be more effective in motivating employees to perform compared to a fixed pay scheme. Furthermore, I hypothesize that the delivery method will moderate the impact of the compensation scheme such that employees operating under a fixed pay with interactive delivery will perform more like employees operating under a piece-rate compensation, but employees with fixed pay and passive delivery will perform worse than any of the other three conditions.

To examine these hypotheses, I conduct an experiment which involves a 2 (method of value statement delivery: interactive vs passive) x 2 (incentive structure: fixed pay vs piece-rate) between subject design. I recruit seventy-seven undergraduate business students at a large university to participate in this study. The participants are randomly assigned to four conditions, and they are

required to perform a decoding task³ in z-Tree (Gill and Prowse 2011). All participants are given eight rounds of the decoding task and have 60 seconds per round to complete as many decoding exercises as possible. The participants under the passive delivery of the value statement received the value statement as part of the instructions before beginning the decoding task. However, the participants in the interactive delivery of the value statement received the value statement four times, at the beginning of every two rounds, and they were required to acknowledge reading the value statement before proceeding to the next round.

I do not find support that the method of delivery of an organizational value statement impacts employees' performance. However, further analysis shows partial support for the positive effect of interactive delivery of value statement in fixed pay compensation on employee's performance. I do find support that the type of incentive scheme impacts employees' performance. Employees operating under a piece-rate incentive scheme perform significantly better than employees operating under a fixed pay incentive scheme. Similarly, I find an interaction effect for the method of delivery of an organizational value statement and incentive pay on employees' performance. Specifically, employees operating under fixed pay with interactive delivery of an organizational value statement perform more like employees operating under a piece-rate compensation. Also as predicted, employees operating under fixed pay with passive delivery of an organizational value statement perform significantly worse than employees operating under any of the other three conditions. This implies that the interactive method of delivery of an organizational value statement has a significant effect on employees operating under a fixed pay compensation.

³ The decoding task instrument is adapted from Weiming Liu dissertation, University of Waterloo. I would like to thank Weiming for sharing his decoding task z-Tree codes with me.

This study contributes to the management control literature by demonstrating how utilizing technology can enhance the delivery of an organization's value statement and ultimately improve employees' performance. This study also seeks to connect informal management controls to formal management controls by systematically implementing informal management controls that reassure employees what the organization appreciates and rewards. Another contribution of this study is that it provides empirical evidence that an organizational value statement can influence employees' performance under a fixed pay incentive scheme through the interactive delivery of the value statement, without increasing employees' monetary incentives or changing their incentive structure. This study helps create awareness that formal management control systems can be used in conjunction with informal management control systems to improve employees' performance. This study also contributes to the management accounting literature by introducing the mere exposure psychological effect to the management control literature. Lastly, this study addresses a call for future research that investigates the effects of an organizational value statement and other informal controls on employees' performance (Berry et al., 2009; Kachelmeier et al., 2015). This study is different from Kachelmeier et al. (2015) in two ways. First my study examines the combined effect of value statement delivery and the incentive system on employees' performance, while Kachelmeier et al. (2015) examines the effect of the presence versus absence of the value statement. Second, my study focuses on the moderating effect of the organizational value statement delivery method and employee incentive scheme on employee performance, while Kachelmeier et al. (2015) focus on moderating effect of presence of value statement on piece-rate employees.

The paper proceeds as follows: The next two sections discuss the relevant background literature and develops the hypotheses. Section IV discusses the experimental method and design.

Lastly, section V provides the results, and section VI discusses the conclusion and opportunities for future research.

Theory and Hypotheses Development

Background

One of the goals of every organization is to motivate employees to exhibit behaviors that align with the organization's objectives (Benston 1963). Management needs to introduce and incorporate the culture of their organization into their employees' everyday work life. Management's responsibility is to encourage employees to internalize the culture of the organization formally and/or informally. One method of encouraging employees to imbibe the culture of an organization is through consistent communication of the organization's value statement (Highhouse et al. 2002). This is an example of motivating employees through conscious goal setting (Locke 1996). There are many ways to inform employees that a particular organizational goal is important, such as recognition and rewards from management (Locke 1996). Employees' behavior can be aligned with organizational goals through proper leadership techniques, such as providing and effectively communicating an inspiring organizational value statement or promoting employees who embrace the value statement and dismissing those who reject it (Locke 1996).

Determining how to effectively motivate employees to work toward the firm's goals has long been one of management's most important and vexing problems (Benston 1963). One of the challenges of motivating employees is that intrinsic motivation may be difficult to observe (Latham and Locke 1979). The effectiveness of motivational techniques depends on management style, organizational structure, and organizational culture (Benston 1963). A method of getting

employees attention is through goal setting (Terborg and Miller 1978). Establishing a goal for employees implies that management can incorporate the goal of the organization into the management style and culture of the organization. This is often done through the creation of a value statement that all employees are expected to follow. Value statements influence employee performance by affecting the direction of their action and the persistence of that action over time (Locke 1996; Urbany 2005).

Motivating employees to behave in a way that is aligned with organizational goals is not an indicator that the organization's goals have been met, but merely a step to ensure that employees' judgment and decision-making are properly aligned with the organization's overall objectives (Hackman and Oldham 1976). Management is ultimately interested in employees' productive behaviors. Employee behavior has implications for organizational performance (Huselid 1995). For example, Farrell, Kadous and Towry (2012) investigate whether communication about causal linkages between actions today and performance tomorrow improves employee effort allocations and firm performance. Their results suggest that communicating a qualitative linkage between quality today and financial performance tomorrow significantly increases quality-related effort, thus increasing overall firm performance (Farrell et al. 2012). This helps explain why organizations incorporate and communicate specific performance measures in employment contracts (Farrell, Kadous and Towry 2008), as this focuses employees' effort to align with the goals of the organization.

Management control systems, which include both preventive and detective controls, can be used to encourage employees to align their behavior with the overall organizational goal to help achieve an organization's performance target (Chenhall 2003; Malmi and Brown 2008; Tucker, Thorne and Gurd 2006). Preventive controls are controls that deter problems before they arise,

while detective controls are controls designed to discover problems after they occur (Christ et al. 2012). Preventive and detective controls have different effects on employee performance and motivation. Specifically, compared to detective controls, preventive controls restrict employees' autonomy but provide more timely feedback (Christ et al. 2012). Thus, employees operating under preventive controls perform better on a controlled dimension of a task than those operating under detective controls (Christ et al. 2012). These findings suggest that the timeliness of the feedback provided by a formal control is an important element that influences employee performance and judgment and decision-making (Christ et al. 2012). Similarly, prior research examines how employees' performance on multidimensional tasks differs under different control structures. The results of Christ et al. (2016) suggest that employee performance on a multidimensional task is higher when firms compensate employees on only one dimension of the task and provide feedback on the other dimension compared to when firms compensate on both dimensions of the task.

Incentive contracts have been identified as a means of motivating employees' effort and improving firm performance (Choi, Hecht and Tayler 2012; Christ et al. 2012; Church, Libby and Zhang 2008; Libby and Lipe 1992; Pratt and Awasthi 1990). While incentive systems are a formal management control system that can be used to enforce quality standards, other informal management control systems can be used to exert social pressure to improve employees' performance (Berry et al. 2009). For example, Kachelmeier et al. (2015) investigate whether a value statement focused on accuracy influences the effect that a compensation scheme has on employee productivity. The results of their experimental investigation suggest that the inclusion of an accuracy focused value statement improves the quality of employees output at the expense of a corresponding loss of productivity. Kachelmeier et al. (2015) differentiate between productivity and output by defining productivity as output that meets quality standards and output

as volume of activity. The authors suggest that future research could investigate the effects of an organizational value statement and other informal controls on employees' motivation, judgment and decision-making, and overall performance (Kachelmeier et al. 2015).

Method of Delivery of Value Statement and Employees Performance

Organizations create value by attracting, recruiting, and retaining employees that exhibit behaviors that align with the organization's goals (Benston 1963; Lepak, Smith and Taylor 2007). To create value, organizations must be able to communicate their value statement effectively to all their stakeholders and, more importantly, their employees. This suggests that organizations need to be value focused in all of their activities (Lepak et al. 2007). A value focused organization can be described as any organization that is able to clearly define, communicate, and structure their fundamental values in terms of objectives in order to guide decision making (Keeney 1994, 1996). Organizational value statements that are found in different places on company websites may be difficult to sort out, and confusing with regard to value categories (Wenstøp and Myrmel 2006). Prior literature shows that clarifying and explicitly stating organizational strategic objectives should have a high benefit-to-effort ratio (Keeney 1996). Specifically, Keeney (1996) proposes that organizational strategic objectives need to be clear and must be written down for further clarification. Organizations should give employees opportunities to interact with the organizational value statement on a more frequent basis.

Value statements impact decision making in organizations (Urbany 2005). Urbany (2005) investigates the impact of a value statement on the everyday decision making of employees within an organization. The results from the survey suggest that the adoption of a value statement is intended to guide everyday decisions of an organization's management and employees. The value

statement is also intended to influence the perceptions of external stakeholders (Urbany 2005). Further, Kachelmeier et al. (2015) show that merely the presence of a value statement improves employee's focus on the quality of their productive output.

After the development of a value statement, management is responsible for effective communication of the value statement to all employees and external stakeholders. The traditional method of delivering the value statement to employees is through the employees' handbook, value statement cards, or through other organizational souvenirs given to employees during their first week at the organization (Wenstøp and Myrmed 2006). Management of some organizations will go to the extent of framing the organization's value statement and placing it on the walls throughout the office building in order to communicate the organization's values to their employees (Highhouse et al. 2002). Although management is carrying out these traditional methods of communicating the value statement, this does not necessarily guarantee that employees are cognizant of these values. While management can give the employee a handbook that contains the value statement, it is difficult to ensure that employees interact with the value statement on a regular basis, as employees may not frequently read their employee handbook. The traditional method of communicating to the employee, as described above, is passive because it does not insure that employees interact regularly with the value statement.

Research has shown that electronic integration of information can make the information more salient and improve decision-making. For example, Arnold et al. (2006) examine the electronic delivery of explanations in an intelligent decision support system. The results show that users are more likely to adhere to recommendations of the decision support systems when an explanation facility is available. Information and communication technologies and their impact on control system design and capability has received limited attention in prior research (Berry et al.

2009). Information and communication technologies can enhance the delivery of a value statement within an organization. Electronic integration of a value statement can be used to make the value statement more interactive. Also, electronic integration of a value statement can facilitate diffusion of information which can make the value statement more noticeable and prominent to employees (Rogers 1995).

The mere exposure effect occurs when an individual is repeatedly exposed to a particular stimulus object, and develops a preference for that object (Zajonc 2001). The mere exposure effect states that the mere repeated exposure of an individual to a stimulus object enhances his or her attitude toward the object (Zajonc 1968). This psychological phenomenon is also known as the familiarity principle, where an individual develops a preference for an object merely because they have consistent exposure to that object (Zajonc 1968). Prior research has established that repeated exposure to information can lead to the formation of a preference, thus enhancing positive affect (Zajonc 2001). For the mere exposure effect to occur, an individual is not required to engage in any special behavior; the stimulus just must be accessible to the individual's sensory receptors. Repeated exposure of a stimulus is sufficient for the enhancement of a preference for that stimulus (Zajonc 2001). The interactive delivery of a value statement is a way to make the value statement more salient by drawing employees' attention to it. When an employee's attention is drawn to the value statement through interactive delivery, salience of the value statement should increase (Wright and Anderson 1989). The increased salience should motivate employees to develop positive affect towards the statement. Positive affect generated by the interactive delivery of a value statement will subconsciously influence an attitude change in the employees, and this will inspire employees to perform better (Wegener, Petty, Detweiler-Bedell and Jarvis 2001).

A message is salient when it is prominent, important, and noticeable. As an object becomes more salient, it becomes more relevant and accessible, and it moves from being perceived as a passive object to a more interactive object (Erik and Robert 2002; Kacmar, Zivnuska, Witt, Gully 2003). An organization can make a value statement more salient by incorporating it into the daily activities of the employees. For example, this could be accomplished through the electronic integration of the value statement into an organization's computer systems. Presumably, when a value statement is electronically integrated, the employees' interaction with the value statement increases. The more the employees interact with the value statement, the more likely they are to develop positive affect towards it (Zajonc 2001), thus influencing their performance (Janke, Mahlendorf, and Weber 2014; Wegener et al. 2001). By implementing an interactive electronic integration of a value statement, an organization can remind the employee of the values of the organization anytime the employee logs into their computer system.

The goal of the value statement is to remind employees what the company stands for, as well as what is important to the organization. Incorporating a value statement into daily activities, for example through electronic integration, will give employees an understanding of how important it is that they align their actions with the value statement. This will help align employees' decisions with the overall organizational goal. Making an organization's value statement salient entails more than making employees aware of the values. It must also ensure that employees emulate those values. An interactive value statement facilitates persuasion, an informal social control mechanism (Schaler 2013), since employees tend to develop positive affect either consciously or subconsciously as a result of the mere exposure effect of the interactive value statement.

Interactive information is more salient to employees than passive information (Erik and Robert 2002), thus enhancing employees' positive affect towards the information (Zajonc 1968). The interactive nature of the value statement through electronic integration will motivate employees to develop positive affect towards the value statement. This electronic integration will result in better alignment of the employees' judgment and decision-making with the organizational goals compared to the traditional passive method of delivery, thus increasing employee performance. The value statement becomes more concrete and accessible when it is electronically integrated into employees' daily activities through their work computers (Freitas, Gollwitzer and Trope 2004). Computers are the official working tools of employees in an organization and there is a decreasing number of employees working in an organization without the aid of a computer (Gosse 1993; Janvrin, Bierstaker and Lowe 2009). In most cases, employees are required to use their personal credentials to log in to their work computer. As a result, employees will be more aware of the value statement when integrated into a computer login than through the passive method of including the value statement in employees' handbooks. If employees are more frequently reminded of the organizational value statement, they are more likely to internalize the value statement and develop positive affect toward the value statement. Given the propositions stated above, the following hypothesis is stated:

H1: Employees will be more productive when a value statement is delivered interactively compared to when it is delivered passively.

Incentive Systems, Value Statement, and Employees' Performance

Prior literature has identified that there is a significant relationship between individual's incentives, effort, and performance (Bonner and Sprinkle 2002). Specifically, Bonner and Sprinkle (2002) establish a four dimensional theoretical framework explaining how effort can influence performance including direction, duration, intensity of effort, and strategy development (Bonner and Sprinkle 2002). Incentive systems can serve as a formal management control system to motivate employees to exert effort in executing their tasks. Incentives systems must be properly aligned to the organizational values in order to obtain desired employee behavior, as improper alignment may result in dysfunctional outcomes (Ashton 1990; Libby and Lipe 1992; Pratt and Awasthi 1990; Tuttle and Burton 1999). Cognitive processes involved in accounting judgment tasks influence the effect that various types of incentive systems have on employees' effort. Specifically, piece rate incentive schemes increase the duration and consistency of encoding effort relative to fixed pay incentive schemes. This increased effort improves performance on a recall task to a greater extent than performance on a recognition task (Libby and Lipe 1992). The implication of this study is that a piece-rate incentive motivates employees to exert more cognitive effort on an assigned task in order to maximize their incentive pay.

Although performance-based incentives encourage employees to be more motivated to perform their assigned tasks, there are some essential conditions for the effectiveness of this impact (Bonner et al. 2000). One condition is the level of the employee in the organization. For example, monetary incentives based on performance may only be effective to motivate lower-level employees and not higher-level employees. The impact of incentives depends on the type and amount of the incentive, and, more importantly, the task structure and the knowledge of the decision maker (Libby and Lipe 1992). Salient features of accounting settings may moderate the

influence of monetary incentives, including employee skill, task complexity, assigned goal, and rewarded dimensions of performance (Bonner and Sprinkle 2002). Increases in effort due to incentives may not improve employees' performance and decisions, particularly if the employees do not have the required skill set to effectively execute the task or do not have the appropriate level of motivation (Bonner and Sprinkle 2002).

Management must be cognizant of the organization's ultimate performance goal when designing the employee compensation scheme. Depending on the result that the organization is striving to achieve, different compensation schemes will result in different motivating effects on employees' performance and decisions. If the goal of the organization is to improve quantity with little or no regards for quality, effort inducing monetary incentive systems can motivate employees to keep producing. On the contrary, if the goal of the organization is to improve the quality of the employees' output, then management may have to reconsider the structure of their incentive systems to be more of a quality result oriented approach. Quantity incentives encourage employees to be more productive whereas creativity incentives encourage employees to improve their average creativity at the expense of productivity (Kachelmeier, Reichert, and Williamson, 2008). The implication of these findings is that if creativity is quantifiable and relevant to the firm's goals, incorporating creativity measures in a multidimensional assessment and performance incentive scheme can have the unintended consequence of reducing less-creative performance without necessarily improving creative output performance.

Activation theory suggests that mental arousal is essential to effectively motivate employees and to alert employees to their task performance (Gardner 1986). Employees seek this activation through various types of stimulation (Gardner 1986). Compensation schemes are one of the important stimuli that can be used to activate employees alertness and commitment to their

assigned tasks (Fessler 2003). Prior literature has shown that different compensation schemes have different effects on employees' performance (Bonner and Sprinkle, 2002; Cianci et al. 2013; Dillard and Fisher 1990). Bonner et al. (2000) suggest that the most effective compensation schemes are quota schemes (combination of fixed pay and performance bonus) followed by piece-rate schemes, tournament schemes, and fixed pay schemes. They suggest that the type of task performed is important for the effectiveness of these compensation schemes. Using activation theory and the findings from Bonner et al. (2000) on the effectiveness of piece-rate incentive schemes over fixed schemes, this study proposes that a piece-rate compensation scheme will be more effective in activating employees to perform better because employees operating under a piece-rate will try to increase their personal benefit. Thus, the following hypothesis is formally stated:

H2: Employees will be more productive when they are operating under a piece-rate compensation scheme compared to when they are operating under a fixed pay compensation scheme.

Monetary incentive systems can be used to direct and control employees' actions within an organization (Bonner and Sprinkle 2002; Libby and Lipe 1992; Pratt and Awasthi 1990). While directing and controlling employees' actions may lead to increased employee effort, this does not guarantee improvement in employees' judgment and decision-making in favor of the organization. Monetary incentives may be used to motivate employees increased effort, however the effect on performance depends on a cognitive characteristic that has been related to performance (Pratt and Awasthi 1990). This implies that the effectiveness of a monetary incentive may depend on the cognitive skill of the decision maker and the complexity of the task. Individual employees may be able to spend significant time on a problem solving task and pay undivided attention to the task,

but this may not result in improved performance if the employee does not possess the skills necessary to complete the task (Bonner and Sprinkle 2002). Thus, harder working employees do not guarantee performance improvements, especially if the employees are exerting more effort just to maximize their personal compensation without necessarily considering the goal of the organization.

The responsibility of management is not merely to develop a value statement, but to develop a value statement that aligns with the organization's overall objective and the objectives of other management control systems such as the incentives systems, and performance measurement systems (Birnberg and Snodgrass 1988; Bonner and Sprinkle 2002; Chenhall 2003; Malmi and Brown 2008). Mere exposure effect states that the mere repeated exposure of a stimulus object to an individual enhances the individual's attitude toward that object (Zajonc 1968, 2001). Mere exposure leads to the formation of preferences and positive affect toward that particular object (Zajonc 1968, 2001). An interactive, electronically integrated value statement enhances the diffusion of the organization's value statement through consistent reminders of the organization's values to employees. Mere exposure effect suggests that this electronic delivery method will make the value statement more salient, accessible, and stimulating, which will promote positive affect towards the organization's values and improve employees' decisions. Additionally, activation theory suggests that employees operating under piece-rate incentive systems will be more likely to exert greater effort than employees operating under fixed pay incentive systems. The value statement will become more persuasive and influential when communicated interactively through electronic delivery as compared to the traditional passive delivery method. I propose that the delivery method will moderate the impact of the compensation scheme such that employees paid fixed pay with interactive delivery of a value statement will perform more like employees who

receive piece-rate compensation, but employees with fixed pay and passive delivery will perform worse. This leads to the following hypothesis:

H3: The method of delivery of an organizational value statement will moderate the impact of the compensation scheme such that employees operating under a fixed pay with interactive delivery will perform more like employees operating under piece-rate compensation, but employees with fixed pay and passive delivery will perform worse.

Research Method

Experimental Design and Task

This study utilizes a 2x2 between-participants experimental design that manipulates the method of delivery of an organizational value statement and the type of incentive scheme. Specifically, the study manipulates the method of delivery of an organizational value statement as either interactive or passive. The study also manipulates incentive scheme by offering participants either a fixed pay incentive scheme or a piece-rate incentive scheme.

The experiment is a computer-based study. Participants are required to complete the study in the university laboratory. They are all assigned to an individual computer and asked to work independently. The participants are provided a hypothetical case about a company and are required to perform a decoding task (Fischbacher 2007). The opening screen presents the explanation of research and the study overview. Individuals that agree to participate proceed to the next screen to begin the study. The second screen informs the participants that they will read important information in the next few screens and they are expected to pay maximum attention because they will be asked questions to assess their understanding of the material. The experimental material consists of six sections: background information about a hypothetical corporation (Ultra-mobile)

and the task instructions, explanation of compensation, comprehension checks, the decoding task, post-experimental questions, and demographics. See Figure 8 for a summary of the experimental procedures.

Participants are presented with background information for a hypothetical scenario in which they are asked to assume the role of an employee of the company named Ultra-mobile. The employees are responsible for decoding as many letters as possible by identifying the number that correctly corresponds with the letter they are decoding. The company's decoding system requires the employees to decode based on a predetermined decoding key. The participants are provided with the decoding key they are required to use on the left side of their screen. Participants earn one point for each letter correctly decoded. During each round, participants accumulate points as they complete the task, and the cumulative points are displayed on their screen. If participants make a decoding error, they receive an error message, but they have unlimited attempts to enter the correct number until they run out of time. Each participant has 60 seconds per round and the time remaining in any given rounds is shown in the upper right hand corner of the screen. All participants receive the same background information and instructions. See Figure 9 for the screenshot of the decoding task interface.

After reading the background information and instructions, the participants move to the next screen, which describes the manipulation of the compensation scheme. Participants are required to correctly respond to comprehension check question before moving on to the decoding task. The comprehension check question ask the participants: which type of compensation are you eligible to receive? All participants performed two 60-second practice rounds to familiarize themselves with the decoding task before beginning the eight 60-second working rounds. After each working round, participants were able to see their results before moving on to the next round.

The participants then responded to decision-making questions and questions regarding demographic information.

Independent Variables

Compensation Scheme Manipulation

The participants in the fixed salary incentive scheme condition are paid \$10. The participants in the piece-rate incentive scheme condition receive \$0.05 for each letter correctly decoded. Participants earned an average of \$9.94 and received their remuneration in cash at the conclusion of the study. I asked the participants a force response comprehension check question about the type of compensation they are eligible to receive. Participants cannot proceed to the decoding task until they answer the question correctly.

Value Statement Delivery Manipulation

Before beginning the decoding task, all participants receive the following information: “...before completing your decoding task the CEO would like to remind you of Ultra-mobile’s corporate **VALUE STATEMENT** which emphasizes that: *The work **YOU** do is an important part of the **success of our company**. Together we build systems that work!*” In the condition with the interactive delivery of the value statement, participants are reminded of the corporate value statement after every two rounds; and, they must acknowledge that they have read and understand the information before proceeding to the next round of the decoding task. See figure 10 for the image of the interactive value statement delivery interface. Participants with passive value statement delivery do not receive any additional information while completing the eight rounds of the decoding task.

Dependent Variable

The dependent variable in this study is the participants' performance on the decoding task. It is measured as the total number of points earned on the decoding task across the eight working rounds. In the decoding task, participants have to use the key provided on the left side of the screen to correctly identify the number associated with the letter displayed on their screen. If the number is correctly recorded, they get a point. However, if the number is incorrectly recorded, they get an error message and they have unlimited attempts within the allocated time to respond correctly. The time that each participant has remaining in any given round is displayed in the upper right hand corner of the screen. The participants have 60 seconds for two practice rounds and 60 seconds to complete eight more rounds.

Participants

A total of seventy-seven undergraduate students participated in this study. The study was first announced via email to the students by their instructors, after which students voluntarily signed-up for the laboratory experiment using the sign-up link embedded in the email. In order to be eligible to participate in the study, participants are required to be eighteen years of age or above.

Table 4 presents the demographic data of the participants. Forty-two of the participants are male (55 percent) and 35 are female (45 percent). Fifty-two of the participants are between 18–20 years old (68 percent), while 23 are between 21–25 years old (30 percent) and two are 26–30 years old (3 percent). Fifty-one of the participants have 1-5 years of work experience (66 percent), while seven have 6-10 years of work experience (9 percent) and 19 participants have no work experience (25 percent). Thirty-two of the participants are accounting majors (42 percent) and 15 are finance majors (19 percent). Thirty-five of the participants are sophomores (45 percent), while 15 are

seniors (19 percent), 14 are juniors (18 percent), 11 are freshmen (14 percent), and two are graduate students (3 percent).

Results

Descriptive Statistics

Table 5 Panel A presents descriptive statistics related to the participants' performance, which is represented by the total number of points earned in the eight working rounds across the six treatment conditions. In the fixed pay condition, the mean (standard deviation) for decoding task performance is 180.82 (20.12) when the value statement is delivered passively, and 196.90 (28.63) when the value statement is delivered interactively. In the piece-rate incentive condition, the mean (standard deviation) for decoding task performance is 212.05 (26.60) when the value statement is delivered passively, and 201.84 (27.91) when the value statement is delivered interactively. The total decoding task performance mean (standard deviation) is 198.08 (28.38) for the passive delivery of value statement and 199.31 (28.02) for the interactive delivery of the value statement. The total decoding task performance mean (standard deviation) is 189.51 (26.05) and 207.20 (27.37) for fixed pay and piece-rate incentives, respectively.

Test of Hypotheses

H1 posits that employees will perform better when there is an interactive delivery of the value statement compared to when there is a passive delivery of the value statement. The ANOVA, shown in Table 5 Panel B shows that the total decoding task performance mean (198.08) when value statement is passively delivered is not significantly different from the total decoding task performance mean (199.31) when the value statement is interactively delivered ($F = 0.240$, $p =$

0.313, one-tailed). The result implies that the main effect for the method of delivery of an organizational value statement is not significant, hence H1 is not supported.

H2 posits that employees will perform better when they are operating under a piece-rate incentive scheme compared to when they are operating under a fixed pay incentive scheme. As predicted, the result of Table 5 Panel B shows the main effect for incentive scheme is statistically significant ($F = 9.093$, $p = 0.002$, one-tailed). The result of this study supports activation theory (Gardner 1986). Hence, employees operating under a piece-rate incentive scheme perform significantly better than the employees operating under a fixed pay incentive scheme in the decoding task this might be because employees operating under a piece-rate are trying to increase their personal benefit. However, there is no personal incentive or pressure for employees operating under a fixed pay to increase their performance.

H3 posits that the method of delivery of an organizational value statement will moderate the impact of the compensation scheme such that employees operating under a fixed pay with interactive delivery will perform more like employees operating under a piece-rate compensation, but employees with fixed pay and passive delivery will perform worse than any of the other three conditions. The result in Table 5 Panel B shows a significant interaction ($F = 4.802$, $p = 0.016$, one-tailed). Further analysis with a planned contrast of fixed pay with passive value statement delivery against the other three conditions also shows a statistically significant result ($t = 3.159$, $p = 0.001$, one-tailed). Hence, employees operating under a fixed pay incentive scheme with passive delivery of an organizational value statement perform significantly worse than employees operating under a fixed pay incentive scheme with interactive delivery of an organizational value statement, as well as employees operating under a piece-rate incentive scheme. The implication of this result is that it is more beneficial for organizations paying their employees a fixed pay to

explore other informal control systems that can be used to encourage their employees to increase their performance. As predicted in this study, the interactive delivery of organization value statement significantly increases the performance of employees under a fixed pay incentive scheme. See Figure 11 for the graphical representation of the results.

Additional Analysis

In order to assess whether any of the demographic variables covary with the result, I carry out additional analysis where all the demographic variables are included in the analysis. The results show that only gender is statistically significant, which implies that gender may likely influence the result of my study. Although there is no theoretical reason to expect gender to influence the performance of my participants in the decoding task, I run an ANCOVA in order to corroborate this assertion. Table 6 shows the ANCOVA with gender as a covariate. The interpretation of the results do not differ from the result of the ANOVA, which supports my assertion that there is no theoretical basis to expect gender to influence the performance of the participants in the decoding task.

Conclusion

Using a decoding task, I find that the effectiveness of a fixed pay incentive scheme depends on the interactive or passive delivery of an organizational value statement. When the value statement is delivered interactively, which gives participants the opportunity to see the value statement more often, participants under a fixed pay incentive scheme perform better on the decoding task than when the value statement is delivered passively. The implication of this finding is that organizations can use informal management control systems, such as an organizational

value statement, to improve employees' performance, especially if they are operating under a fixed pay contract. Intermittent display of the value statement to employees operating under a fixed pay will promptly and proactively remind the employees of the priorities of the organization. Also, since the technology is readily available within organizations, it can be used to enhance the level of interaction that employees have with the value statement. The results of this study buttress our understanding of mere exposure theory, which states that mere repeated exposure of a stimulus object to an individual enhances the individual's attitude towards that object (Zajonc 1968). This study establishes that with the use of technology, frequent presentation of an organizational value statement will consciously or subconsciously motivate employees' and improve their performance when they are operating under a fixed pay incentive scheme.

Similar to the finding of Kachelmeier et al. (2015), the interactive delivery of an organizational value statement does not improve the performance of employees operating under a piece-rate incentive scheme. This result is expected because employees operating a piece-rate may see the incentive compensation as the main motivation and work toward maximizing their personal benefit. Hence, the introduction of an interactive value statement will more likely distract them from their original strategy, which may eventually slow down their performance. As predicted in the study, employees operating under a piece-rate incentive scheme perform significantly better than employees operating under a fixed pay incentive scheme.

The implication of this study is that organizations can enhance the dissemination of their value statement by electronically integrating it into the day to day activities of the employees especially if they are using fixed pay incentive scheme. Practically, organizations could require employees to login into their computer systems using one or two of the value propositions of the organization every month, in addition to their personal login password. This will help employees

familiarize themselves with the values of the organization. This study contributes to the managerial accounting literature by extending Kachelmeier et al. (2015) study on communicated values as informal controls. My study shows that it is not just about the presence or absence of the value statement, but it is also about the salience of the value statement, which can be enhanced by interactive delivery through electronic integration especially when fixed pay is used.

My results suggest several avenues for future research. First, I use a decoding task in this study. Future research can extend this study using a more subjective task. In practice, some of the tasks that employees perform are subjective in nature. This indicates that it may be difficult to extend the results of this study to employees carrying out subjective tasks. Second, this study uses student participants, which may limit the external validity of the findings and applicability to the real world environment. Hence, future research can extend this study using either a field experiment or a qualitative study. Third, the manipulation of interactive delivery may not be as salient to participants as the incentive scheme in an experiment conducted in a relatively short time span. Stronger manipulation in practice might have greater effect on employees' performance. Notwithstanding its limitations, this study extends managerial accounting and accounting information systems literatures by showing how the interactive delivery of an organizational value statement can be integrated electronically to improve employees' performance when a fixed pay compensation scheme is used.

Reference

Arnold, V., Clark, N., Collier, P. A., Leech, S. A., & Sutton, S. G. (2006). The Differential Use and Effect of Knowledge-Based System Explanations in Novice and Expert Judgment Decisions. *MIS Quarterly*, 30(1), 79–97.

- Ashton, R. H. (1990). Pressure and Performance in Accounting Decision Settings - Paradoxical Effects of Incentives, Feedback, and Justification. *Journal of Accounting Research*, 28(S), 148–180.
- Benston, G. J. (1963). The Role of the Firm's Accounting System for Motivation. *The Accounting Review*, 38(2), 347–354. Retrieved from <http://www.jstor.org/stable/242925>
- Berry, A. J., Coad, A. F., Harris, E. P., Otley, D. T., & Stringer, C. (2009). Emerging themes in management control: A review of recent literature. *British Accounting Review*, 41(1), 2–20.
- Birnberg, J. G., & Snodgrass, C. (1988). Culture and control: A field study. *Accounting, Organizations and Society*, 13(5), 447–464.
- Bonner, S. E., Hastie, R., Sprinkle, G. B., & Young, S. M. (2000). A review of the effects of financial incentives on performance in laboratory tasks: Implications for management accounting. *Journal of Management Accounting Research*, 12(1), 19–64.
- Bonner, S. E., & Sprinkle, G. B. (2002). The effects of monetary incentives on effort and task performance: Theories, evidence, and a framework for research. *Accounting, Organizations and Society*, 27(4–5), 303–345.
- Chenhall, R. (2003). Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Accounting, Organizations and Society*, 28(2–3), 127–168.
- Choi, J., Hecht, G. W., & Tayler, W. B. (2012). Lost in translation: The effects of incentive compensation on strategy surrogation. *Accounting Review*, 87(4), 1135–1163.
- Christ, M. H., Emett, S. A., Summers, S. L., & Wood, D. A. (2012). The Effects of Preventive and Detective Controls on Employee Performance and Motivation*. *Contemporary Accounting Research*, 29(2), 432–452.

- Christ, M. H., Sedatole, K. L., & Towry, K. L. (2012). Sticks and carrots: The effect of contract frame on effort in incomplete contracts. *Accounting Review*, 87(6), 1913–1938.
- Church, B. K., Libby, T., & Zhang, P. (2008). Contracting Frame and Individual Behavior: Experimental Evidence. *Journal of Management Accounting Research*, 20(1), 153–168.
- Cianci, A. M., Kaplan, S. E., & Samuels, J. a. (2013). The moderating effects of the incentive system and performance measure on managers' and their superiors' expectations about the manager's effort. *Behavioral Research in Accounting*, 25(1), 115–134.
- Dillard, J. F., & Fisher, J. G. (1990). Compensation Schemes, Skill Level, and Task Performance: An Experimental Examination. *Decision Sciences*, 21(1), 121–137.
- Erik, L., & Robert, E. (2002). Are interactive decision aids better than passive decision aids ? A comparison with implications for information providers on the internet. *Journal of Interactive Marketing*, 16(2), 22.
- Farrell, A., Kadous, K., & Towry, K. (2008). Contracting on Contemporaneous versus Forward-Looking Measures: An Experimental Investigation*. *Contemporary Accounting Research*, 25(3), 773–802.
- Farrell, A. M., Kadous, K., & Towry, K. L. (2012). Does the Communication of Causal Linkages Improve Employee Effort Allocations and Firm Performance? An Experimental Investigation. *Journal of Management Accounting Research*, 24(February).
- Fessler, N. J. (2003). Experimental Evidence on the Links among Monetary Incentives , Task Attractiveness , and Task Performance. *Journal of Management Accounting Research*, 161–176.
- Fischbacher, U. (2007). z-Tree : Zurich toolbox for ready-made economic experiments, 171–178.
- Flamholtz, E. G., Das, T. K., & Tsui, A. S. (1985). Toward an integrative framework of

- organizational control. *Accounting, Organizations and Society*, 10(1), 35–50.
- Freitas, A. L., Gollwitzer, P., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *Journal of Experimental Social Psychology*, 40(6), 739–752.
- Gardner, D. G. (1986). Activation theory and task design: an empirical test of several new predictions. *The Journal of Applied Psychology*, 71(3), 411–418.
- Gill, D., & Prowse, V. (2011). A Novel Computerized Real Effort Task Based on Sliders *, (May 2009).
- Gosse, D. I. (1993). Cost Accounting's Role in Computer- Integrated Manufacturing An Empirical Field Study. *Journal of Management Accounting Research*, 5(3), 159–179.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: test of a theory. *Organizational Behavior and Human Performance*, 16(2), 250–279.
- Highhouse, S., Hoffman, J. R., Greve, E. M., & Collins, A. E. (2002). Persuasive impact of organizational value statements in a recruitment context. *Journal of Applied Social Psychology*, 32(8), 1737–1755.
- Huselid, M. (1995). The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance. *Academy of Management Journal*, 38(3), 635–672.
- Janke, R., Mahlendorf, M. D., & Weber, J. (2014). An exploratory study of the reciprocal relationship between interactive use of management control systems and perception of negative external crisis effects, 25, 251–270.
- Janvrin, D. J., Bierstaker, J. L., & Lowe, D. J. (2009). An Investigation of Factors Influencing the Use of Computer Related Audit Procedures. *Journal of Information Systems*, 23(1), 97–

118.

- Kachelmeier, S. J., Reichert, B. E., & Williamson, M. G. (2008). Measuring and motivating quantity, creativity, or both. *Journal of Accounting Research*, 46(2), 341–373.
- Kachelmeier, S. J., Thornock, T. A., & Williamson, M. G. (2015). Communicated Values as Informal Controls: Promoting Quality While Undermining Productivity? *Contemporary Accounting Research*, XX(Xx), 1–24.
- Kacmar, K. M., Zivnuska, S., & Gully, S. M. (2003). The Interactive Effect of Leader – Member Exchange and Communication Frequency on Performance Ratings, 88(4), 764–772.
- Keeney, R. L. (1994). Creativity in decision making with value-focused thinking. *Sloan Management Review*, 35(4), 33–41.
- Keeney, R. L. (1996). Value-focused thinking: Identifying decision opportunities and creating alternatives. *European Journal of Operational Research*, 92(3), 537–549.
- Latham, G., & Locke, E. (1979). Goal-setting: A motivational technique that works.
- Lepak, D. P., Smith, K. G., & Taylor, M. S. (2007). Introduction to special topic forum value creation and value capture: A multilevel perspective. *Academy of Management Review*, 32(1), 180–194.
- Libby, R., & Lipe, M. G. (1992). Incentives, Effort, and the Cognitive Processes Involved in Accounting-Related Judgments. *Journal of Accounting Research*, 30(2), 249–273.
- Locke, E. A. (1996). Motivation through conscious goal setting. *Applied and Preventive Psychology*, 5(2), 117–124.
- Malmi, T., & Brown, D. A. (2008). Management control systems as a package-Opportunities, challenges and research directions. *Management Accounting Research*, 19(4), 287–300.
- O'Donnell, E., & David, J. S. (2000). How information systems influence user decisions : a

- research framework and literature review, *I*, 178–203.
- Otley, D. T., & Berry, A. J. (1980). Control, organisation and accounting. *Accounting, Organizations and Society*, *5*(2), 231–244.
- Pratt, J., & Awasthi, V. (1990). The Effects of Monetary Incentives on Effort and Decision Performance: The Role of Cognitive Characteristics. *The Accounting Review*, *65*(4), 797–811.
- Rogers, E. (1995). *Diffusion of innovations*. New York.
- Schaler, J. A. (2013). Book review by Jeffrey A. Schaler of Richard E. Vatz's, *The Only Authentic Book of Persuasion: The Salience-Agenda/Meaning-Spin Model Second Edition/Revised* (Dubuque, Iowa: KendallHunt, July 2013 edition) 102 pages. ISBN-10: 0757590578; ISBN-13: 978-07575. *Current Psychology*, *32*(4), 366–373.
- Terborg, J. R., & Miller, H. E. (1978). Motivation, behavior, and performance: A closer examination of goal setting and monetary incentives. *Journal of Applied Psychology*, *63*(1), 29–39.
- Tucker, B., Thorne, H., & Gurd, B. (2006). Management Control Systems and Strategy : What ' S Been Happening ?, 1–60.
- Tuttle, B., & Burton, F. G. (1999). The effects of a modest incentive on information overload in an investment analysis task. *Accounting, Organizations and Society*, *24*(8), 673–687.
- Urbany, J. E. (2005). Inspiration and cynicism in values statements. *Journal of Business Ethics*, *62*(2), 169–182.
- Wegener, D. T., Petty, R. E., Detweiler-Bedell, B. T., & Jarvis, W. B. G. (2001). Implications of attitude change theories for numerical anchoring: Anchor plausibility and the limits of anchor effectiveness. *Journal of Experimental Social Psychology*, *37*, 62–69.

Wenstøp, F., & Myrmel, A. (2006). Structuring organizational value statements. *Management Research News*, 29(11), 673–683.

Wright, W. F., & Anderson, U. (1989). Effects of situation familiarity and financial incentives on use of the anchoring and adjustment heuristic for probability assessment. *Organizational Behavior and Human Decision Processes*, 44(1), 68–82.

Zajonc, R. B. (1968). Attitudinal Effects of Mere Exposure. *Journal of Personality and Social Psychology Monograph Supplement*, 9(2).

Zajonc, R. B. (2001). Mere Exposure : A Gateway to the Subliminal. *Current Directions in Psychological Science*, 10(6), 224–228.

STUDY THREE: THE EFFECTS OF THE INCENTIVE SYSTEMS AND ORGANIZATIONAL CULTURE ON STRATEGY SURROGATION

Introduction

Strategic performance measurement systems (SPMS) are systems that organizations use to translate their strategy into tangible objectives and performance metrics for employees (Burney and Widener 2013). SPMS are useful as a means of breaking down the overall organizational strategy into parts that are easier for employees to understand (Kaplan and Norton 2002).⁴ Monetary and human investments in SPMS have increased since the 1990s, and recent reports indicate that an average company with \$1 billion sales spends over 25,000 person-days per year planning and measuring performance using such systems (Micheli and Manzoni, 2010).

The ultimate goal of a SPMS is to encourage employees to engage in actions that are consistent with overall organizational strategic objectives (Kaplan and Norton, 1996). Recent management accounting research has shown that strategically linked firm-specific performance measures can be used to evaluate strategy on a timely basis and assess the potential causes of strategic failures (Campbell et al., 2015). However, strategy surrogation has been identified as one of the possible unintended consequences of the use of a SPMS (Choi et al. 2012, 2013).

Strategy surrogation occurs when managers focus on the measures in the SPMS on which they are compensated and completely or partially lose focus on the overall strategic objectives of the organization (Choi et al., 2012, 2013). For example, consider a firm pursuing a customer-focused strategy and measuring customer satisfaction using a satisfaction survey score. Choi et al. (2013) argue “to the extent that those scores imperfectly measure customer satisfaction, managers’

⁴ The most common type of SPMS used in practice is the Balanced Scorecard (Kaplan and Norton 1992, 1993).

strategy-related judgments and decisions may be flawed if they surrogated customer satisfaction with the survey scores” (p. 106). Prior research has also shown that tying pay to performance on particular measures and targets included in a SPMS increases strategy surrogation, and the effect is more pronounced when managers are compensated on a single measure of a strategic construct compared to when managers are compensated on multiple measures of a strategic construct or under a fixed pay scheme (Choi et al., 2012).

The purpose of the current study is to investigate the impact of an important aspect of organizational context, specifically organizational culture, and different types of compensation schemes on strategy surrogation. Organizational culture is defined as a set of dominant values, beliefs, and assumptions that govern how people behave in organizations (Henri 2006). According to the competing values model, organizational culture can be characterized as control-dominant that values stability and accountability or flexibility-dominant that values invention and innovation (Quinn and McGrath, 1985; Quinn, 1988; Quinn and Rohrbaugh, 1983). In the current study, I examine the impact of each of these cultural characterizations on strategy surrogation. Furthermore, I build on the prior work by Choi et al. (2012) by investigating whether the type of organizational culture, flexibility or control-dominant, exacerbates or mitigates the impact of compensation scheme on strategy surrogation.

I base my predictions on the effect of compensation scheme and the moderating effect of organizational culture on strategy surrogation on inattentional blindness theory (Simons 2000). According to this theory, when individuals concentrate on a particular object or event, they often fail to notice other relevant and distinctive objects of interest that are located outside their field of focus. While discounting irrelevant information improves strategic decision-making (Chugh and

Bazerman, 2007; Simons and Chabris, 1999), inattention blindness is the discounting (or actually failing to even notice) of *relevant* information that is beyond one's current focus.

I hypothesize that individuals operating in a control-dominant organizational culture will exhibit more strategy surrogation than individuals operating in a flexibility-dominant organizational culture. In a control-dominant culture, there may be greater motivation for individuals to be blinded towards an overall strategic objective and less motivated to look beyond the performance metric, because what gets measured will receive the most attention (Burney and Widener, 2013). Additionally, I predict that when individuals are paid for performance, they are motivated to meet or exceed performance targets and have little or no incentive to look beyond these metrics. Thus, individuals paid for performance will exhibit more surrogation than those individuals paid a fixed wage. Finally, I predict that a flexibility-dominant culture will reduce strategy surrogation more under a fixed pay scheme than a pay-for-performance scheme compared to a control-dominant culture.

My experimental study involves a 2 (culture: control-dominant vs flexibility-dominant) x 2 (compensation scheme: fixed pay vs. pay-for-performance) between-subjects design. To examine these hypotheses, I conduct an online experiment using 80 Amazon Mechanical Turk (MTurk) workers as proxies for managers. The study consists of two parts. In the first part, the participants are asked to read a short case scenario and at the end of the case they are asked to make some decisions. In the second part, participants are asked several post-study questions and demographic questions. The participants are randomly assigned to four conditions. All participants are paid \$2.50 for participating and additional research compensation up to a total of \$9.00 depending on their randomly assigned condition and their decisions.

The results suggest that the effect of organizational culture does not influence managers' propensity to exhibit strategy surrogation. Specifically, managers operating in a control-dominant organizational culture do not exhibit more strategy surrogation than managers operating in a flexibility-dominant organizational culture. However, the results show that the type of compensation scheme strongly influences employees' tendency to exhibit strategy surrogation. Specifically, the results indicate that employees compensated using a pay-for-performance compensation scheme have higher tendency to use the measures of SPMS as surrogate for strategy constructs more than the employees compensated using fixed pay. This result is in support of the theory of inattention blindness. These results imply that employees operating under a pay-for-performance will be less likely to notice relevant information that is beyond their current focus when making decisions compared to employees operating under fixed pay. Lastly, I do not find support for the interaction.

This study contributes to research and practice in several ways. First, there has been limited research examining management control systems from the perspective of organizational culture (Dent, 1991; Henri, 2006). The organizational culture literature outside of accounting is broad and dynamic. Prior literature has shown that we know little about the way in which accounting is implicated in an organization's culture (Dent, 1991); hence, there is a need for more accounting studies that explore the links between management control system design and organizational culture. Although Dent (1991) used a longitudinal field study to explore how new accounting practices were implicated in an emergent reconstruction of an organization's culture, my study extends prior research by exploring whether organizational culture, specifically control-dominant and flexibility-dominant, influence strategy surrogation. Unfortunately, the results do not indicate that organizational culture is a driving force.

Second, this study examines and shows that employees compensated under a pay-for-performance scheme significantly surrogate more than employees compensated under a fixed pay scheme. The results of this study corroborate prior research findings in the managerial accounting on strategy surrogation. Specifically, my study confirms prior findings by Choi et al. (2012) that employees compensated on a single measure of a strategic construct with a pay-for-performance exacerbates more surrogation of the construct relative to employees that receive a fixed pay.

Third, this study examines whether the type of organizational culture moderates the effect of incentive system (Bonner and Sprinkle, 2002; Brüggem and Moers, 2007; Burney and Widener, 2013; Cianci et al., 2013) on strategy surrogation. Considering the mixed results of incentive effects on individual performance (Ashton, 1990; Bonner and Sprinkle, 2002; Libby and Lipe, 1992; Pratt, 1990; Tuttle and Burton, 1999), there is a need for accounting researchers to shed light on the effect of incentives on employee judgment and decision-making in different organizational environments. This study contributes to the incentives literature by highlighting conditions under which incentive systems can be used to refocus employees' attention. Choi et al (2012) contributes to the literature on SPMS by highlighting the tendency of managers to use strategically linked performance measures as surrogates for strategy. While their focus was on the effects of compensation on strategy surrogation, they suggest that future research could investigate other institutional factors that inhibit or exacerbate surrogation. Thus, this study addresses one of these important institutional factors. Specifically, the study shows that organizational culture does not moderate the effect of incentive system on strategy surrogation.

The paper proceeds as follows: The next section discusses the background literature and hypotheses development. Section III discusses the experimental method and design. Lastly, section IV provides the results, and section V discusses the conclusion and opportunity for future research.

Background and Hypotheses Development

Surrogation

“The primary purpose of measurement is to communicate the state of other things. Figures produced as an output of measurement have no utility in themselves apart from their function to represent the state of other objects. Things or phenomena that are used to convey information about the state of something else are called surrogates.” (Ijiri, 1975, p. 40)

Surrogation often occurs because perfectly capturing the construct of interest is difficult in reality (Ijiri, 1975). For example, prior literature shows that accounting measurement only provides a surrogate or symbolic representation of the economic reality in an organization, while the decision makers are interested in the underlying reality (Bedford, 1968). Measurement is defined as a special language which signifies real-world phenomena by means of numbers and the relations among those numbers that are predetermined within the number system (Ijiri, 1975). The purpose of measurement is not to just capture the figures, but “to represent a given relation(s) among objects by predetermined relation(s) among the numbers” (Bedford, 1968, p. 272). Hence, an individual may think that measurement is the end, and they fail to understand that it is just the means to an end, which may result in surrogation (Ijiri, 1975).

Strategy Surrogation

SPMS have been described as any system in which there is a link between financial and nonfinancial performance measures and strategy in order to align individual actions within an organization with the organization’s strategy (Webb, 2004). While aligning individual actions with organizational strategy is important, transparency in performance measurement systems has been identified as one of the keys to a functioning and effective SPMS (Kaplan and Norton, 1996). Managers ideally should be able to “see through” the metrics of measurement of a strategically

linked performance measurement systems (Kaplan and Norton, 1992), since a perfect measure of the construct of interest is rare (Choi, et al. 2012). When performance metrics are difficult to “see through” (Kaplan and Norton, 1993) and the performance goals are often difficult to achieve (Webb, 2004), SPMS utilization may result in strategy surrogation (Choi, et al. 2012, 2013).

According to Choi et al. (2012), strategy surrogation occurs in SPMS when individuals in an organization “fail to fully appreciate the fact that measures are merely representations of strategic constructs, and act as though the measures are the constructs of interest” (p.1135). To completely capture a construct of interest in a SPMS is practically impossible. For example, university administration may try to capture the strategic construct of teaching effectiveness through student evaluations; however, since the faculty members are aware that their performance evaluation will depend on students’ perceptions, they may decide to give students higher grades towards the end of the semester in order to get a better evaluation. In this example, the faculty members have surrogated the students’ evaluations for teaching effectiveness. This study explores whether institutional factors such as organizational culture could be used to encourage or discourage managers from exhibiting such dysfunctional behavior.

Limited studies have examined this important concept of strategy surrogation in accounting. Choi et al. (2012) examine whether and how the use of strategically linked performance measures for compensation purpose affects managers’ propensity to exhibit strategy surrogation. Drawing upon attribute substitution theory, their study shows that when managers’ compensation is based on a single measure of a strategic construct of interest, managers are more likely to surrogate than when the compensation is based on multiple measures of a strategic construct. Surrogation often occurs in a complex and fast paced decision-making environment in an organization, where managers often rely on an easily accessible heuristic for their judgment and

decision-making (Kahneman, 2011). Hence, managers have a tendency to attach more value to a singular measure of a strategic construct compared to multiple measures, especially when it is easier for them to focus on more salient items (Kahneman, 2011; Simons, 2000).

In a similar manner, Choi et al. (2013) examine how managers' involvement in strategy surrogation influences their propensity to surrogate strategic constructs with compensated measures. Their study suggests that in order to mitigate the impact of strategy surrogation in an organization, managers must be involved in choosing strategy measures. They demonstrate that managers' involvement in strategy deliberation without involvement strategy selection may not necessarily reduce surrogation. Considering the importance of SPMS in an organization (Campbell et al., 2015; Chen, 2015; Chenhall, 2005; Dent, 1990) and the potential hindering effect of strategy surrogation on the effectiveness of SPMS (Choi et al., 2013), prior research has called for future research that will examine other institutional factors that could possibly inhibit or exacerbate strategy surrogation (Choi et al., 2012).

Organizational Culture

Organizational culture and management style appear to be interdependent throughout the lifecycle of a performance measurement system; and, this interdependency is dynamic in nature (Bititci et al. 2006). Management style needs to evolve as the lifecycle of the performance measurement system and organizational culture evolves (Bititci et al. 2006). For an organization to compete in a competitive, dynamic, and global environment, the organization must be willing to develop and implement performance measurement systems that lead to a participative and consultative management style and organizational culture. Such organizational culture must also support implementation and the operating effectiveness of performance measurement systems

(Bititci, et al. 2006). Bititci, et al. (2012) has called for future research to obtain a better understanding of management style and organizational culture that would facilitate the implementation of SPMS).

Performance measures play an important role in motivating employees to achieve organizational goals (Bititci et al., 2012; Ittner and Larcker, 1998); however, prior studies have shown that work-place environments influence the relationship between the effectiveness of performance measurements and employee outcomes (Cravens, Oliver, and Stewart, 2015). Considering the interplay between the organizational culture and effectiveness of performance measurements, certain performance measurements and management styles may be counterproductive to overall organizational goals in a particular organizational culture (Bititci, et al. 2012). The initial belief that organizations that are managed through measures perform better is now being challenged (Bititci, et al. 2006; Johnson and Broms, 2000). Johnson and Broms (2000) show that organizations should move beyond “managing by results” to “managing by means”. Thus, organizations should encourage systemic thinking by their employees rather than driving work with just financial targets (Johnson and Broms, 2000). The managing-by-means environment creates a flexible, enjoyable, and more productive working condition, while managing-by-results environment leads to a controlling work environment which may not necessarily lead to an increase in productivity (Johnson and Broms, 2000). One important institutional factor that could impact effectiveness of SPMS in an organization is the values and culture of the organization (Bititci, et al. 2006).

Henri (2006, 79) described organizational culture as “the shared values (what is important) that interact with an organization’s structures and control systems to produce behavioral norms (the way we do things around here)”. The view of organizational culture is broad in the

management and accounting literature; however, this study draws upon the competing values model of organizational culture (Henri, 2006; Quinn and McGrath, 1985) to examine strategy surrogation. Organizational culture is an important concept because it can either motivate or demotivate employees to achieve overall organizational goals (Bititci, et al. 2006; Bititci, et al. 2012; Choi, et al. 2012, 2013). While management-by-results is a form of management control system which is synonymous with terms such as formality, rigidity, and conformity, it may not necessarily lead to an increase in productivity (Henri, 2006; Johnson and Broms, 2000). Management-by-means is an inspirational method of encouraging employees to realize extraordinary results in a sustainable way, which is synonymous with terms such as adaptability, spontaneity, and responsiveness (Henri, 2006; Johnson and Broms, 2000).

Quinn and McGrath (1985) develop the competing values model of organizational culture. The competing values model consists of four quadrants which represent four different organizational cultures and their embedded theories of effectiveness: rational, consensual, hierarchical, and developmental cultures. From these four quadrants, the flexibility/control axes and internal/external focus axes emerge. For the purpose of this study, the current focus will be on the flexibility and control axes because the goal of this study is to examine how the trade-offs between flexibility (which could improve invention and innovation) and control (which could improve stability and accountability) affect strategy surrogation (Quinn and McGrath, 1985).

From a practical perspective, neither absolute flexibility nor absolutely control exists in any organization (Henri, 2006). Establishing absolute flexibility in an organization leads to disorderliness, instability, and chaos. At the same time, establishing absolute control discourages novelty, inspiration, and creativity. In every organization, an element of flexibility and controlling values exist (Quinn, 1988). Hence, Henri (2006, p. 80) explicitly states that the “distinction

between cultural types associated with control and flexibility values is not a dichotomous split but instead the extremes of control/flexibility continuum”. This study, similar to Henri (2006), refers to control values organizations as organizations reflecting a control dominant culture and flexibility values organizations as organizations reflecting a flexibility dominant culture. For example, working in public accounting can be used to illustrate a control-dominant cultural environment where auditors must strictly follow the audit program when carrying out the audit process. In this type of environment, auditors can easily surrogate the audit program for a quality audit, not realizing that it is merely providing guidance; the audit program does not necessarily translate to audit quality because it is the minimum requirement. In a contrary example, managers working in an environment where there is no formality or rigidity will have a different perspective to the metrics of their performance measurements. The managers will tend to see that performance metrics are used to provide mere guidance, which implies that they provide means to the end but not the end itself. This type of cultural environment can be referred to as flexibility-dominant culture.

Psychology theory on attention capture has found that when individuals concentrate on another object, event, or thing, they often fail to notice salient, distinctive, and unexpected events around them, a phenomenon known as inattention blindness (Simons, 2000). For example, a driver may fail to notice a pedestrian while trying to make a right turn at the red stop light because his/her focus is on the red light, or a person may fail to notice a friend in the cinema while trying to find an empty seat because he/she is not paying attention to anything in the cinema hall other than the empty seat (Simons and Chabris, 1999; Simons, 2000). Traditional attention capture in psychology literature can be broadly divided into two categories, namely, implicit attentional capture and explicit attentional capture. Implicit attentional capture is a situation where an observer

is able to ignore something they expect but know to be irrelevant. However, explicit attentional capture, which is also known as inattentional blindness, is a situation where an observer fails to notice something that is potentially relevant, but that he/she does not expect (Simons, 2000).

Choi et al. (2012) define strategy surrogation as the inability of managers to realize that performance measures are merely representations of strategic constructs and assuming that these measures are the constructs of interest. Choi et al. (2012) suggest that future research should examine other institutional factors that could inhibit or exacerbate strategy surrogation. The type of cultural environment is one of those factors that could influence managers' propensity to surrogate. In a cultural environment that is control-dominant, managers may find it difficult to consider salient and potentially relevant information when making decisions compared to managers that operate in a flexibility-dominant environment. Due to rigidity, formality, and conformity characteristics of a control dominant culture, managers may demonstrate a greater tendency to over focus on the performance measures and lose focus of underlying constructs of interest, which the performance measures are representing. Alternatively, considering the responsiveness, adaptability, and spontaneity characteristics of the flexibility dominant environment, managers may have more incentive to see beyond the performance measures; hence, they may be less likely to ignore salient and potentially relevant information than the managers in a control-dominant organizational culture. Using inattentional blindness theory, I propose the following hypothesis:

***H1:** Managers operating within a control-dominant organizational culture will exhibit more strategy surrogation than managers operating within a flexibility-dominant organizational culture*

Incentive Systems, Performance Measurement and Strategy Surrogation

Incentive systems have been examined from different dimensions in the accounting literature. For example, reporting structures may be classified as vertical incentive systems where team members report observations of their peers' efforts to management or a horizontal incentive system that allows team members to directly control the actions of each other. As the level of team identity increases, the horizontal approach becomes more effective relative to the vertical approach (Towry 2003). Measuring how employees react to incentives is very important to performance measurement and most importantly to SPMS (Burney and Widener, 2013; Chenhall, 2005).

Burney and Widener (2013) examine whether the extent to which a SPMS is coupled with strategy affects employee performance indirectly through motivational characteristics such as perceived self-efficacy and perceived psychological contract. Their study shows that tightly properly aligning a SPMS-based incentives plan with strategy facilitates internalized motivated behaviors (Burney and Widener, 2013). The ultimate goal of SPMS is to translate overall organizational strategy, which is intangible, into tangible objectives and measures, and to ensure that organizational outcomes are improved through a better and clearer communication of an organization's strategy to its employees (Kaplan and Norton, 1996). To achieve this goal, employee incentive systems are often linked to the SPMS (Cianci et al., 2013).

Incentive systems are used to draw attention to, motivate, direct and redirect employees' performance in an organization in order to achieve an overall organizational goal (Baiman, 1990; Towry, 2003). Some argue that incentive systems improve performance; others argue that incentive systems reduce performance, and some argue the presence of incentive systems has no effect on performance (Bonner and Sprinkle 2002; Burney and Widener 2013; Cianci et al. 2013; Awasthi and Pratt 1990; Tuttle and Burton 1999; Wright and Anderson 1989).

The effect of incentives depends on the ability of the decision-maker and the difficulty of the job tasks, and not merely the type and size of the bonus offer (Libby and Lipe 1992). Cognitive evaluation theory suggests that incentives can decrease effort and task performance by focusing attention on the external rewards related to a task, which ultimately decreases intrinsic motivation (Bonner and Sprinkle, 2002; Deci, et al. 1981; Dillard and Fisher, 1990). Alternatively, the pressure-arousal-performance framework establishes that incentives, feedback, and justification generate pressures for decision-making and can either lead to better or worse performance depending on other psychological factors (Ashton, 1990; Baumeister, 1984, 1986). Thus, generalizing the effects of incentive systems on performance measurement across different organizational environments is difficult (Pratt & Awasthi, 1990). As a result of this difficulty, more research that examines the relationship between different types of incentive systems and performance measurement in different organizational settings is needed (Bonner and Sprinkle, 2002).

Strategy surrogation occurs when incentive compensation increases the salience of the incentivized measures of performance (Choi et al., 2012; Ijiri, 1975). Specifically, Choi et al. (2012) investigate the influence of incentive compensation on managers' propensity to use compensated measures as surrogates for strategic constructs. Their findings suggest that compensating managers based on a single measure of a strategic construct increases their propensity to use the compensated measure as a surrogate for the construct compared to compensating managers with multiple measures of a strategic construct.

Employees' exhibit an increase in productivity of approximately 20 percent when they are paid using a piece rate incentive system rather than a high fixed wage (Shearer 2004). The lowest weighted productivity scores occur when there is no incentive or only a creativity incentive

(Kachelmeier et al. 2008). Kachelmeier et al. (2008) suggest that the quantity of incentives will increase total quantity and creativity incentives will increase average creativity, however, combining the two may not necessarily increase productivity (Kachelmeier, Reichert, & Williamson, 2008).

Pay-for-performance incentive compensation can be used to motivate additional cognitive effort, but that effort may not translate into optimum outcome for the organization (Libby and Lipe, 1992). Depending on the sensitivity of the cognitive process and outcome of the increased effort, increased pressure resulting from the pay-for-performance may cause counterproductive results (Ashton, 1990; Kennedy, 1995). Managers may decide to redirect their effort to optimize their personal incentives by not showing any initiative to see beyond the measures that have been linked to SPMS. It is practically impossible for an organization to accurately translate all its strategy into tangible objectives and performance metrics (Burney and Widener, 2013). Hence, fixed pay compensation motivates managers to engage in actions that are consistent with overall organizational strategic objectives and provides managers autonomy to use their initiative in order to achieve strategic objectives. Additionally, fixed pay compensation can be used to build trust between the managers and the organization, because managers equate fixed pay with an increased level of trust, i.e., they are trusted to do their job without additional incentives that are associated with pay-for-performance. However, using pay-for-performance linked to SPMS can be perceived by managers as a way of enforcing the use of SPMS, which may reduce innovativeness and creativity of the managers.

The type of incentive systems, fixed-pay or pay-for-performance, may affect managers' propensity to exhibit strategy surrogation. Specifically, using psychology-based theory of inattention blindness, managers that are compensated by fixed pay are expected to surrogate less

than managers that are compensated by a pay-for-performance scheme. Pay-for-performance may encourage managers to focus more on the measures of performance in an attempt to optimize their incentives. Hence, managers will concentrate on the metrics rather than looking beyond the metrics. However, when managers are compensated using fixed pay, they are expected to be more likely to rely on their intrinsic motivation to perform their job because there is little incentive for them to over focus on the metrics of performance measurements. This implies that the managers operating under a pay-for-performance scheme are expected to surrogate more than managers operating under a fixed-pay incentive compensation. Thus, the following is proposed:

***H2:** Managers operating under pay-for-performance incentive compensation will exhibit more strategy surrogation than managers operating under fixed pay compensation.*

Inattentional blindness suggests that employees will not notice salient and important events outside the scope of established performance measures while they are trying to focus their attention on performance measures (Simons and Chabris, 1999; Simons, 2000). Thus, when managers focus on a performance measure under a pay-for-performance incentive compensation and they do not see beyond performance measures, their propensity to exhibit strategy surrogation should be greater when the organization operates under a control-dominant culture compared to a flexibility-dominant culture. This is expected because a control-dominant culture encourages conformity, formality, and rigidity while a flexibility-dominant culture encourages adaptability, spontaneity, and responsiveness. Additionally, pairing a pay-for-performance incentive compensation with a control-dominant organizational culture introduces another form of pressure on managers. This may make managers think that as long as they satisfy the pay-for-performance requirements they have no additional obligation to ensure that the overall organizational strategic objectives are met.

Managers may exhibit strategy surrogation consciously or subconsciously. Managers could consciously surrogate because managers may not be interested in paying attention to anything other than their performance metrics. This implies that there is no incentive for managers to see beyond the metrics of performance measurement. However, managers could subconsciously surrogate as a result of excessive pressure resulting from the combination of a control-dominant culture and a pay-for-performance incentive compensation. A pay-for-performance incentive may motivate additional cognitive effort by the managers, but this may not necessarily translate into the outcome the organization expects. Similarly, pay-for-performance may encourage managers to be innovative, but the innovation may be more towards managers' personal benefits rather than organizational strategic objectives. Hence, under a pay-for-performance incentive compensation, managers will be more likely to surrogate than when they are under a fixed pay incentive scheme, and a flexibility-dominant culture will be more likely to reduce the propensity to exhibit surrogation. Thus, the formal hypothesis is presented below:

***H3:** A flexibility-dominant culture will reduce strategy surrogation more under a fixed pay scheme than under a pay-for-performance scheme compared to a control-dominant culture.*

Experimental Method and Design

Experimental Design and Task

This study utilizes a 2x2 between-participants experimental design that manipulates organizational culture and the type of compensation scheme. Specifically, the study manipulates the organizational culture by describing a scenario in which an organization has a control-dominant culture that values stability and accountability or a flexibility-dominant culture that values

invention and innovation. The study also manipulates incentive schemes by offering participants either fixed-pay or pay-for-performance compensation. The participants are provided a hypothetical case about the company and are required to make some decisions. Specifically, the study consists of two parts. In the first part, the participants are asked to read a short case scenario⁵ and at the end of the case participants are asked to make some decisions. In the second part, participants are asked several post-study questions and several demographic questions.

The experiment is an online based study administered via Qualtrics software and disseminated through MTurk. The opening screen is the informed consent page which was approved by the IRB. If they agree to participate, then participants proceed to the transition screen which further asks them if they have properly read the information on the consent page. At this point, participants can decide to go back to read the consent page again or move to the next page; the screening page. The screening page asked participants about their age and the general payment instructions which were included in the informed consent page. The general payment screening question asked the participants about how much they are going to be paid for participating in the study. All participants are paid \$2.50, as well as additional research compensation up to a total of \$9 based on their compensation scheme and decisions. The participants are screened out, if they are less than eighteen years of age or they failed the screening question about the payment instructions. Following the screening page is the introduction and instructions page. On this page, the participants are asked to assume they are the General Manager of Sparky City's Water Treatment Plant and in charge of making changes to the water treatment process to reduce cost for the coming year. Participants are informed of the conversion rate of their compensation and the

⁵ This instrument is adapted from Akinyele, Arnold, Demek and Tian 2017 working paper. I would like to thank Vicky Arnold, Kristina Demek and Yu Tian for allowing me to adapt this case scenario for this study.

instructions of how to receive their payment on this study. A comprehension check question about their specific incentive compensation scheme is asked before participants are able to proceed to the case scenario. The comprehension check question asked the participants “which type of additional research compensation are you eligible to receive? YOU MUST ANSWER THIS QUESTION CORRECTLY TO CONTINUE IN THE STUDY”. Half of participants are randomly assigned to the fixed pay compensation scheme, while the other half are randomly assigned to the pay-for-performance bonus which is 20% of the total cost savings to the plant.

The case scenario highlights that the Water Treatment Plant is responsible for treating the water with chemicals to make it safe for use and consumption by the residents of Sparky City. A lower quality water supply may seriously affect the very old, very young, or health impaired individuals, although it is never possible to make the water 100% safe. Yet, it is still the responsibility of Water Treatment Plant to ensure that the water is safe for use. Sparky’s average number of microorganisms per billion gallons of water over the past three years is within the acceptable range. The Water Treatment Plant is planning to reduce operating costs and is considering changing the chemicals used to treat water. A consultant has provided nine different alternatives which are all within acceptable range quantitatively, but may have negative quality implications. As the General Manager, the participant must make a decision about which water treatment alternative to implement based on this scenario.

Independent Variables

Compensation Scheme

In this study, I use an experimental currency called “Lira”. Lira is converted into U.S dollars at a rate of \$1 for every 20,000 Lira, and participants are paid in cash at the end of the study

through their MTurk accounts. The amount participants earn depends on their randomly assigned compensation plan as well as their decision on the water treatment alternative to be implemented. The participants in the fixed salary condition are paid 100,000 Lira, which is converted to Dollars at the end of the experiment. The participants in the performance bonus condition are paid 20 percent of the total cost savings to the plant.

Organizational Culture

Half of the participants are randomly assigned to the treatment condition with a control-dominant organizational culture while the remaining half are randomly assigned to the treatment condition with a flexibility-dominant organizational culture. In the control-dominant organizational culture condition, participants are informed in the scenario that Sparky's City Council is known to be controlling and rigid with their decisions related to cost saving. The City strives to maximize cost saving irrespective of the warning from the consultant, as long as the alternative decision is within acceptable range for standards of water quality. In the flexibility-dominant organizational culture condition, participants are informed in the scenario that the Sparky City Council is known to be flexible and adaptable with their decisions related to cost savings. They strive to maximize cost saving, but also consider any warning from the consultant.

Dependent Variable

The main dependent variable in this study is the participants' water treatment alternative to be implemented. The participant can decide between nine different water treatment alternatives with corresponding cost savings to the plant as well as the microorganisms per billion (percent decrease in water quality).

Participants

To examine these hypotheses, I conduct an online experiment using eighty MTurk workers as proxies for managers. The participants are randomly assigned to four conditions. All participants in this study are paid \$2.50 for participating in this study, as well as additional compensation up to a total of \$9.00 depending on their randomly assigned condition and their decisions. The majority of the participants are male (65 percent). Most participants are between 31-40 years old (44 percent), with others age 21-30 (35 percent), age 41-50 (13 percent), and over age 50 (9 percent). Most of the participants (46.3 percent) have a Bachelor's degree, with 28.8 percent of the participants having high school or equivalent, 18.8 percent with Associate degree, 5 percent with Master's degree, and 1.3 percent with Doctorate degree. Most of the participants (36 percent) have 11-20 years of work experience, with 28 percent of participants having 6-10 years of work experience, 16 percent with 0-5 years of work experience, 15 percent with 21-30 years of work experience, and 5 percent with over 30 years of work experience. Tables 7 presents detail demographic data.

Results

Manipulation and Comprehension Checks

Participants answered a comprehension check question before they began to read through the case scenario: which type of additional research compensation are you eligible to receive? Participants must answer this question correctly before they can proceed to the case scenario. The manipulation check is conducted later in the experiment to provide assurance that participants are aware of the facts that are vital to the successful operationalization of the variable. To verify the manipulation of the organizational culture, participants are asked to indicate the level of their

agreement/disagreement with the following statements: (1) Sparky City Council is known to be controlling and rigid with their decisions related to cost saving; (2) Sparky City Council focuses on making decisions that are within an acceptable range for standards of water quality, and considers only quantifiable metrics in their decisions making process; (3) Sparky City Council is known to be flexible and adaptable with their decision related to cost savings; (4) Sparky City Council focuses on making decisions that are within an acceptable range for standards of water quality, and consider quantifiable metrics and qualitative factors in their decision-making process. Statements 3 and 4 were reverse coded. See Table 8 for the descriptive statistics of the manipulation checks and the result of t-tests comparing the answers of those in the flexibility-dominant culture to the control-dominant culture for each of the question. The results of the analysis show that the organizational culture is significant for all the manipulation checks, which indicates the strength of the manipulation checks.

Descriptive Statistics

The focus of this study is to examine managers' propensity to exhibit strategy surrogation which is operationalized by the water treatment alternative the manager decides to implement. Table 9 Panel A presents descriptive statistics of the managers' decisions and Figure 12 shows a graphical representation of the results. In the fixed pay condition, the mean (standard deviation) of water treatment decision is 4.85 (2.58) when employees are operating under a control-dominant organizational culture, and 4.26 (2.38) when employees are operating under a flexibility-dominant organizational culture. In the pay for performance incentive pay condition, the mean (standard deviation) of the alternative water treatment decision is 7.20 (2.26) when employees are operating under a control-dominant organizational culture, and 6.76 (2.41) when employees are operating

under a flexibility-dominant organizational culture. The mean (standard deviation) of the total fixed pay is 4.56 (2.47), while the mean (standard deviation) of the total pay for performance is 6.98 (2.32). Similarly, the mean (standard deviation) of the total control-dominant culture is 6.03 (2.68), while the mean (standard deviation) of the total flexibility dominant culture is 5.58 (2.68).

Test of Hypotheses

H1 posits that in a control-dominant organizational culture, managers may find it difficult to consider salient and potentially relevant information when making decisions compared to managers operating in a flexibility-dominant organizational culture. Specifically, managers operating in a control-dominant organizational culture will exhibit more strategy surrogation than managers operating in a flexibility-dominant organizational culture. To test this conclusion statistically, Table 9 Panel B reports overall ANOVA findings. The results indicate that there is not significant difference between managers operating in a control-dominant organizational culture and managers operating under a flexibility-dominant organizational culture ($F = 5.246$, $p = 0.172$, one-tailed).

H2 posits that managers that are compensated by a pay-for-performance scheme are expected to surrogate more than managers that are compensated by fixed pay scheme. Managers compensated with a pay-for-performance are more likely to concentrate on the metrics of the performance measurement rather than looking beyond the metrics because they are unintentionally blinded to anything other than the metrics. Table 9 Panel B shows that managers operating under a pay-for-performance incentive compensation statistically surrogate more than the managers operating under a fixed incentive compensation ($F = 117.405$, $p < 0.001$, one tailed).

H3 posits that employees working in a flexibility-dominant culture will exhibit less strategy surrogation under a fixed pay than under a pay-for-performance scheme compared to employees working in a control-dominant culture. Inattentional blindness suggests that employees will not notice salient and important events outside the scope of established performance measures while they are trying to focus their attention on performance measures. I predict that flexibility-dominant culture will reduce propensity of employees to surrogate and it will reduce it more under a fixed pay than under a pay-for-performance compared to control-dominant culture. The results do not support the interaction hypothesis ($F = 0.110$, $p = 0.445$, one-tailed).

Conclusion

This study examines the effect of an important organizational context, specifically organizational culture, and different types of compensation schemes on strategy surrogation. Strategy surrogation occurs when managers focus on the measures in the SPMS on which they are compensated and completely or partially lose focus on the overall strategic objectives of the organization (Choi et al., 2012, 2013). According to the competing values model, organizational culture can be characterized as control-dominant that values stability and accountability or flexibility-dominant that values invention and innovation (Quinn and McGrath, 1985; Quinn, 1988; Quinn and Rohrbaugh, 1983). According to inattentional blindness theory, when individuals concentrate on a particular object or event, they are less likely to notice other relevant and distinctive objects of interest that are located outside their field of focus (Simons 2000).

I hypothesized the main effect that managers operating in a control-dominant organizational culture will exhibit more strategy surrogation than managers operating in a flexibility-dominant organizational culture. I do not find support for this hypothesis. One reason

for not finding support for this hypothesis could be associated with the saliency of the organizational culture manipulation. It could be that the participants were not able to internalize the different type of organizational culture. It is also possible that participants in my study may have focused more on the immediate impact of the payment scheme rather than the broader impact of the organization culture. The implications of not finding support for this hypothesis is that, we cannot conclude that the type of organizational culture impact managers' propensity to exhibit strategy surrogation. Future research should examine the effect of organizational culture on strategy surrogation in other contexts to ensure that the manipulation of organizational culture was not overpowered by the short term effects of reward system used in my study. Future research should also examine other institutional factors that can influence employees' propensity to exhibit strategy surrogation. Similarly, future research can also examine other important aspect of managerial accounting research that the type of organizational culture can impact.

Choi et al. 2012 demonstrate that basing compensation on a single measure of a strategic construct leads managers to use that measure as a surrogate for the strategic construct more under pay-for-performance pay than they would under fixed pay. Consistent with prior literature (Choi et al. 2012), this study shows that managers compensated using a pay-for-performance surrogate more than the managers that are compensated using a fixed pay. This result is supported by the theory of inattention blindness. The result shows that employees operating under a pay-for-performance will be less likely notice relevant information that is beyond their current focus when making decisions, as compared to employees operating under a fixed pay. Strategy surrogation is an important but difficult to examine construct in managerial accounting (Choi, et al. 2012, 2013). Most of the previous studies have used laboratory experiments to examine strategy surrogation.

Future research can examine the concept of strategy surrogation using a different research approach such as field experiment or qualitative methods.

There is no support for the interaction effect of organizational culture and incentive scheme on strategy surrogation as predicted in H3. Future research could examine this research question using a more control research environment. Regardless of the limitation of this study, I believe this study contributes to our understanding of strategy surrogation in managerial accounting literature.

References

- Ashton, R. H. (1990). Pressure and Performance in Accounting Decision Settings - Paradoxical Effects of Incentives, Feedback, and Justification. *Journal of Accounting Research*, 28(S), 148–180.
- Baiman, S. (1990). Agency research in managerial accounting: A second look. *Accounting, Organizations and Society*, 15(4), 341–371.
- Baumeister, R. (1984). Choking under pressure: self-consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology*, 46(3), 610–620.
- Baumeister, R. (1986). A review of paradoxical performance effects Choking under pressure in sports and mental tests. *European Journal of Social Psychology*, 16, 361–383.
- Bedford, N. (1968). The Foundations of Accounting Measurement. *Journal of Accounting Research*, 6(2), 270–282.
- Bititci, U., Garengo, P., Dörfler, V., & Nudurupati, S. (2012). Performance Measurement: Challenges for Tomorrow*. *International Journal of Management Reviews*, 14(3), 305–327.

Retrieved from <http://doi.wiley.com/10.1111/j.1468-2370.2011.00318.x>

Bititci, U., Mendibil, K., Nudurupati, S. S., & Garengo, P. (2006). *Dynamics of performance measurement and organizational culture. International Journal of Operations & Production Management* (Vol. 26). <http://doi.org/10.1108/01443570610710579>

Bonner, S. E., & Sprinkle, G. B. (2002). The effects of monetary incentives on effort and task performance: Theories, evidence, and a framework for research. *Accounting, Organizations and Society*, 27(4–5), 303–345.

Brüggen, A., & Moers, F. (2007). The Role of Financial Incentives and Social Incentives in Multi-Task Settings. *Journal of Management Accounting Research*, 19(1), 25–50.

Burney, L. L., & Widener, S. K. (2013). Behavioral work outcomes of a strategic performance measurement system-based incentive plan. *Behavioral Research in Accounting*, 25(2), 115–143.

Campbell, D., Datar, S. M., Kulp, S. L., & Narayanan, V. G. (2015). Testing Strategy with Multiple Performance Measures Evidence from a Balanced Scorecard at Store24, 27(2), 41.

Chen, C. X. (2015). Testing Strategy with Multiple Performance, 27(2), 67–73.

Chenhall, R. H. (2005). Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: An exploratory study. *Accounting, Organizations and Society*, 30(5), 395–422.

Choi, J., Hecht, G. W., & Tayler, W. B. (2012). Lost in translation: The effects of incentive compensation on strategy surrogation. *Accounting Review*, 87(4), 1135–1163.

Choi, J., Hecht, G. W., & Tayler, W. B. (2013). Strategy Selection, Surrogation, and Strategic

- Performance Measurement Systems. *Journal of Accounting Research*, 51(1), 105–133.
- Chugh, D., & Bazerman, M. H. (2007). Bounded awareness: What you fail to see can hurt you. *Mind and Society*, 6(1), 1–18.
- Cianci, A. M., Kaplan, S. E., & Samuels, J. a. (2013). The moderating effects of the incentive system and performance measure on managers' and their superiors' expectations about the manager's effort. *Behavioral Research in Accounting*, 25(1), 115–134.
- Cravens, K. S., Oliver, E. G., & Stewart, J. S. (2015). Workplace Culture Mediates Performance Appraisal Effectiveness and Employee Outcomes: A Study in a Retail Setting, 27(2), 1–34. <http://doi.org/10.2308/jmar-51169>
- Deci, E., Betly, G., Kahle, J., Abrams, L., & Porac, J. (1981). When trying to win: Competition and Intrinsic Motivation. *Personality and Social Psychology Bulletin*, 7(1), 79–83.
- Dent, J. F. (1990). Strategy, organization and control: Some possibilities for accounting research. *Accounting, Organizations and Society*, 15(1–2), 3–25. [http://doi.org/10.1016/0361-3682\(90\)90010-R](http://doi.org/10.1016/0361-3682(90)90010-R)
- Dent, J. F. (1991). Accounting and organizational cultures: A field study of the emergence of a new organizational reality. *Accounting, Organizations and Society*, 16(8), 705–732.
- Dillard, J. F., & Fisher, J. G. (1990). Compensation Schemes, Skill Level, and Task Performance: An Experimental Examination. *Decision Sciences*, 21(1), 121–137.
- Henri, J.-F. (2006). Organizational culture and performance measurement systems. *Accounting, Organizations and Society*, 31(1), 77–103.
- Ijiri, Y. (1975). Theory of accounting measurement. *Sarasota, Fla. : American Accounting*

- Association*, (10), xiii, 210 .
- Ittner, C. D., & Larcker, D. F. (1998). *Innovations in Performance Measurement : Trends and Research Implications*, (2).
- Johnson, T., & Broms, A. (2000). “ *Profit Beyond Measure : Extraordinary Results Through Attention to Work and People .,*” *New York : Free Press.*
- Kachelmeier, S. J., Reichert, B. E., & Williamson, M. G. (2008). Measuring and motivating quantity, creativity, or both. *Journal of Accounting Research*, 46(2), 341–373.
<http://doi.org/10.1111/j.1475-679X.2008.00277.x>
- Kahneman, D. (2011). *Thinking, Fast and Slow*. Farrar, Straus and Giroux. Retrieved from <https://books.google.com/books?id=ZuKTvERuPG8C>
- Kaplan, R. S., & Norton, D. P. (1992). The Balanced Scorecard: Measures That Drive Performance - HBR, (February). Retrieved from <https://hbr.org/2005/07/the-balanced-scorecard-measures-that-drive-performance>
- Kaplan, R. S., & Norton, D. P. (1993). Having Trouble with Your Strategy? Then Map It. *Harvard Business Review*.
- Kaplan, R. S., & Norton, D. P. (1996). The Balanced Scorecard: Translating Strategy Into Action. *Harvard Business School Press*, 1–311. <http://doi.org/10.1109/JPROC.1997.628729>
- Kennedy, J. (1995). Debiasing the Curse of Knowledge in Audit Judgment. *The Accounting Review*, 70(2), 249–273. Retrieved from <http://www.jstor.org/stable/248305>
- Libby, R., & Lipe, M. G. (1992). Incentives, Effort, and the Cognitive Processes Involved in Accounting-Related Judgments. *Journal of Accounting Research*, 30(2), 249–273.

- Micheli, P., & Manzoni, J. F. (2010). Strategic performance measurement: Benefits, limitations and paradoxes. *Long Range Planning*, 43(4), 465–476.
<http://doi.org/10.1016/j.lrp.2009.12.004>
- Pratt, J., & Awasthi, V. (1990). The Effects of Monetary Incentives on Effort and Decision Performance: The Role of Cognitive Characteristics. *The Accounting Review*, 65(4), 797–811.
- Quinn, R. E. (1988). *Beyond rational management : mastering the paradoxes and competing demands of high performance*. (1st Ed). San Francisco: Jossey-Bass Inc Publishers.
- Quinn, R. E., & McGrath, M. (1985). The Transformation of Organizational Cultures: A Competing Values Perspective. *Organizational Culture*, 315–34.
- Quinn, R. E., & Rohrbaugh, J. (1983). a Spatial Model of Effectiveness Criteria: Towards a Competing Values Approach To Organizational Analysis*. *Management Science*, 29(3), 363–378. <http://doi.org/10.1287/mnsc.29.3.363>
- Simons, D. (2000). Attentional capture and inattention blindness. *Trends in Cognitive Sciences*, 4(4), 147–155. [http://doi.org/10.1016/S1364-6613\(00\)01455-8](http://doi.org/10.1016/S1364-6613(00)01455-8)
- Simons, D. J., & Chabris, C. F. (1999). Gorillas in Our Midst: Sustained Inattention Blindness for Dynamic Events. *Perception*, 28, 1059–1074.
- Towry, K. L. (2003). Control in a teamwork environment- The impact of social ties on the effectiveness of mutual contracts. *Accounting Review*, 78(4), 1069–1095.
- Tuttle, B., & Burton, F. G. (1999). The effects of a modest incentive on information overload in an investment analysis task. *Accounting, Organizations and Society*, 24(8), 673–687.

Webb, R. A. (2004). Managers' commitment to the goals contained in strategic performance measurement system. *Contemporary Accounting Research*, 21(4), 925–958.

Wright, W. F., & Anderson, U. (1989). Effects of situation familiarity and financial incentives on use of the anchoring and adjustment heuristic for probability assessment. *Organizational Behavior and Human Decision Processes*, 44(1), 68–82.

GENERAL CONCLUSION

This dissertation contains three studies examining informal MCS and different types of incentive compensation schemes on employees' performance. Interaction between informal MCS and different types of incentive compensation schemes serves as the common underlying concepts examined in this dissertation. Informal MCS are important to organizations because they are expected to encourage innovation (Bisbe and Otley 2004) without necessarily penalizing or rewarding employees directly. Informal controls are implied by social pressures, such as feedback, and management communication, such as a value statement or the organizational culture, where no explicit enforcement measures exist (Berry et al. 2009; Kachelmeier, Thornock and Williamson 2015). The first study examines whether the presence of a value statement (an informal MCS) can be used to motivate employees to perform important but uncompensated subsequent tasks. Additionally, study one seeks to examine the type of incentive scheme that will result in the highest subsequent uncompensated task performance in the presence of an organizational value statement. The second study extends the first study by examining whether the interactive method of delivery of a value statement (informal MCS) can be used in conjunction with an incentive scheme to improve employee's performance. Lastly, the third study investigates the impact of an important aspect of organizational context, specifically organizational culture (informal MCS), and different types of incentive compensation schemes on strategy surrogation. The following paragraphs discuss the unique contributions of each of these studies from a theory and/or practice perspective.

Study one examines whether the presence of a value statement (an informal MCS) can be used to motivate employees to perform important but uncompensated tasks. Additionally, this study examines the type of incentive scheme that will result in the highest subsequent uncompensated task performance in the presence of an organizational value statement. Using an

economic incentive contract to explicitly stimulate expected behavior from employees is desirable but often difficult to achieve (Choi, Hecht, Tafkov and Towry 2016). Considering that incentive contracts cannot completely govern all the employees' responsibilities (Christ, Emett, Summers and Wood 2012), this study investigates how employees will perform their important but uncompensated tasks, and the decisions employees will make when economic incentives are no longer available. The effect of extrinsic rewards, such as incentive systems, on intrinsic motivation, especially with respect to employees' subsequent attitude toward, or their willingness to engage in, the assigned task in the absence of contingency-based extrinsic reward is unknown (Lepper and Greene 1978).

Drawing upon goal regulation theory, study one shows that under a fixed pay compensation, the presence of a value statement improves the performance of employees compared to the absence of a value statement. Conversely, under a piece rate incentive compensation, the presence of a value statement negatively influences the performance of employees in important but uncompensated task. The results of this study are different from Kachelmeier et al. (2015) because their study specifically focus on quality improvement in their value statement which improves quality but reduces quantity output. The value statements in my study emphasizes that the work the employees do is an important part of the success of the company without focusing on either quality or quantity improvement. The result of negative influence of the value statement under piece-rate compensation could be attributed to nature of the value statement used in this study since the value statement does not specifically emphasis quality or quantity improvement. The implication of the results of my study is that organization should be careful when designing their value statements especially if they plan to use it as motivational statements for their employees.

As study one predicted, in the presence of an organizational value statement, participants operating under fixed pay compensation perform significantly better than participants operating under piece-rate compensation. The result supports the proposition that employees' intrinsic motivation under piece-rate compensation is more likely to be crowded out by the incentive scheme. Similarly, participants under fixed pay compensation are more productive in the uncompensated task than under quota compensation. There is no significant difference between uncompensated subsequent task performance of employees operating under piece-rate and quota compensation. My results suggest several avenues for future research. First, I use a laboratory experiment for this study and it is difficult to disentangle the effect of fixed pay and bonus pay components of quota incentive compensation. Future research can examine this research question using a field experiment. Field experiments may help our understanding of the effect of quota incentive compensation on important but uncompensated tasks. Similarly, field experiments will address external validity issues with the organizational value statement. Second, I use student participants in my study. Using actual employees in future research could make incentive compensation more salient.

Study two directly extends study one, by examining whether the interactive method of delivery of a value statement (informal MCS) through electronic integration can be used in conjunction with an incentive scheme to improve employees' performance. Prior research shows that effectiveness of incentive systems is influenced by the presence or absence of a nonbinding value statement in the organization. Drawing upon mere-exposure effect, I hypothesize that the interactive delivery of a value statement will motivate employees to be more productive than the passive delivery of a value statement. I also hypothesize that employees operating under a piece-rate incentive scheme will be more productive than employees operating under a fixed pay

incentive scheme. Further, I propose that the delivery method of the value statement will moderate the effectiveness of the compensation scheme such that employees operating under a fixed pay with interactive delivery will perform more like employees operating under a piece-rate compensation. However, employees operating under a fixed pay with passive delivery will be less productive than employees in any of the other three conditions.

The results of the study two show that the employees who experience the interactive delivery of a value statement do not perform significantly better than employees who experience the passive delivery of a value statement. However, employees who receive a piece-rate incentive perform significantly better than employees who receive a fixed pay incentive. As predicted, the method of delivery of an organizational value statement moderates the effectiveness of a fixed pay incentive scheme such that fixed pay employees with interactive delivery perform more like employees operating under piece-rate and employees operating under a fixed pay with passive value statement delivery perform worse than employees under any of the other three conditions. The implication of the results of this study is that organizations can enhance the dissemination of their value statement by electronically integrating it into the day to day activities of the employees especially if they are using fixed pay incentive scheme. Practically, organizations could require employees to login into their computer systems using one or two of the value propositions of the organization every month, in addition to their personal login password. This will help employees familiarize themselves with the values of the organization. Future research can extend this study using either a field experiment or a qualitative study. The manipulation of interactive delivery may not be salient to participants for an experiment conducted in a relatively short time span. Stronger manipulation in practice might have greater effect on employees' performance.

Study three draws upon the theory of inattention blindness (Simons 2000) to investigate whether different types of organizational culture, control dominant or flexibility dominant, impacts strategy surrogation. Strategy surrogation occurs when managers focus on the measures in the SPMS on which they are compensated and completely or partially lose focus on the overall strategic objectives of the organization (Choi, Hecht, & Tayler, 2012, 2013). In this third study, I examine the impact of each of these cultural characterizations on strategy surrogation. The results of the study show that surrogation is not significantly different between employees operating under a control-dominant culture and those operating under a flexibility-dominant culture. Similarly, the organizational culture does not moderate the relationship between incentive systems and strategy surrogation. One reason for not finding support for this hypothesis could be associated with the saliency of the organizational culture manipulation. It could be that the participants were not able to internalize the different type of organizational culture. It is also possible that participants in my study may have focused more on the immediate impact of the payment scheme rather than the broader impact of the organization culture. The implications of not finding support for this hypothesis is that, we cannot conclude that the type of organizational culture impact managers' propensity to exhibit strategy surrogation. Future research should examine the effect of organizational culture on strategy surrogation in other contexts to ensure that the manipulation of organizational culture was not overpowered by the short term effects of reward system used in my study. Future research should also examine other institutional factors that can influence employees' propensity to exhibit strategy surrogation. Similarly, future research can also examine other important aspect of managerial accounting research that the type of organizational culture can impact. The results of the study show that employees operating under a pay-for-performance

compensation scheme significantly surrogate more than employees operating under a fixed pay compensation scheme.

Collectively these studies contribute to management accounting research by examining how different types of informal MCS such as organizational value statement and organizational culture interact with incentive compensation scheme. Specifically, these three studies highlight how and when we can use informal MCS to improve employees' performance as well as their decision making in the organization. Study one contributes to research and practice by highlighting situations where a pay-for-performance incentive scheme may result in unintended consequences (Lepper and Greene 1978). Study two contributes to the management control literature by demonstrating how utilizing technology can enhance the delivery of an organization's value statement and ultimately improve employees' performance. Study three contributes to the incentives and organizational culture literature as well as strategy surrogation research by examining institutional factors that may inhibit or exacerbate surrogation.

References

- Berry, A. J., Coad, A. F., Harris, E. P., Otley, D. T., & Stringer, C. (2009). Emerging themes in management control: A review of recent literature. *British Accounting Review*, *41*(1), 2–20.
- Bisbe, J., & Otley, D. (2004). The effects of the interactive use of management control systems on product innovation. *Accounting, Organizations and Society*, *29*(8), 709–737.
- Choi, J., Hecht, G., Tafkov, I. D., & Towry, K. L. (2016). Vicarious learning under implicit contracts. *Accounting Review*, *91*(4), 1087–1108.
- Choi, J., Hecht, G. W., & Tayler, W. B. (2012). Lost in translation: The effects of incentive compensation on strategy surrogation. *Accounting Review*, *87*(4), 1135–1163.

- Choi, J., Hecht, G. W., & Tayler, W. B. (2013). Strategy Selection, Surrogation, and Strategic Performance Measurement Systems. *Journal of Accounting Research*, 51(1), 105–133.
- Christ, M. H., Sedatole, K. L., & Towry, K. L. (2012). Sticks and carrots: The effect of contract frame on effort in incomplete contracts. *Accounting Review*, 87(6), 1913–1938.
- Kachelmeier, S. J., Thornock, T. A., & Williamson, M. G. (2015). Communicated Values as Informal Controls: Promoting Quality While Undermining Productivity? *Contemporary Accounting Research*, XX(Xx), 1–24.
- Lepper, M., & Greene, D. (1978). *The Hidden Costs of Reward: New Perspectives on the Psychology of Human Motivation*.

APPENDIX A: STUDY 1 FIGURES

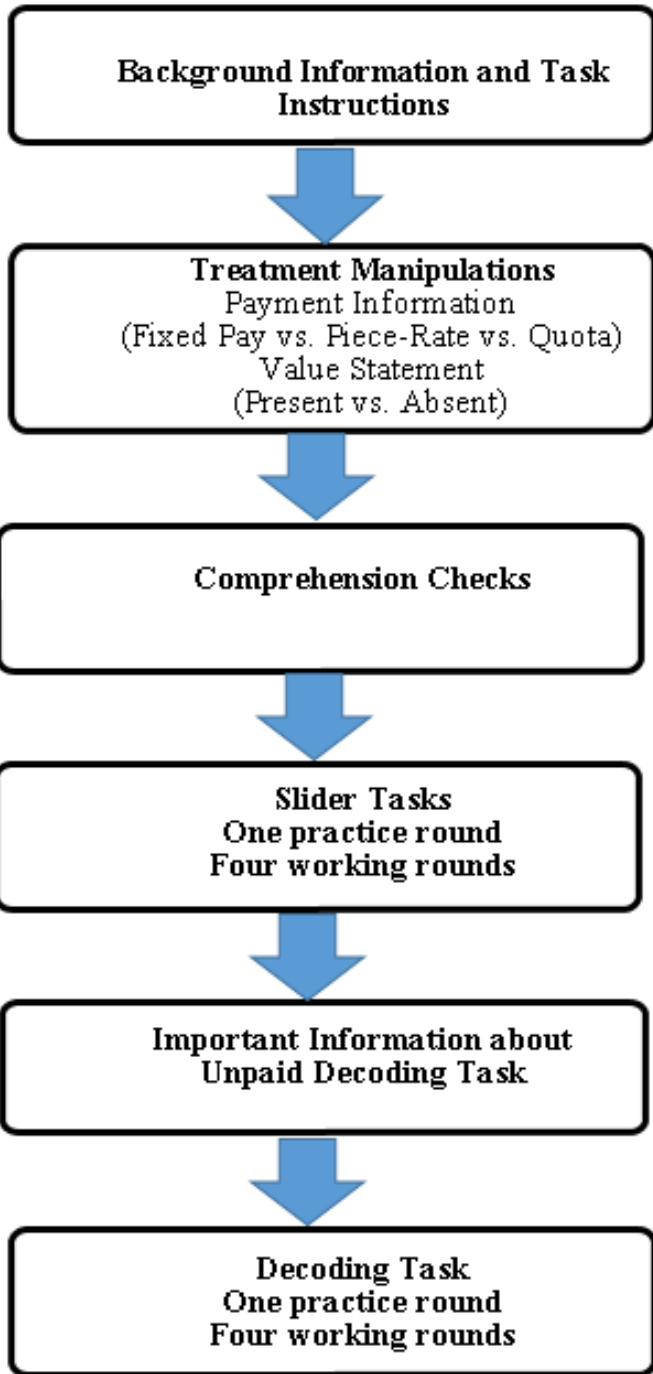


Figure 1 Diagram of z-Tree Experimental Procedure

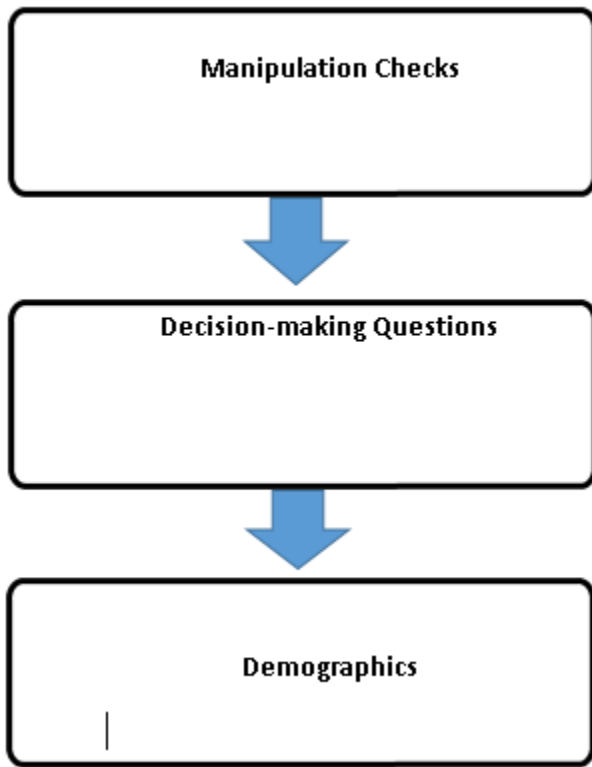


Figure 2 Diagram of Qualtrics Experimental Procedure

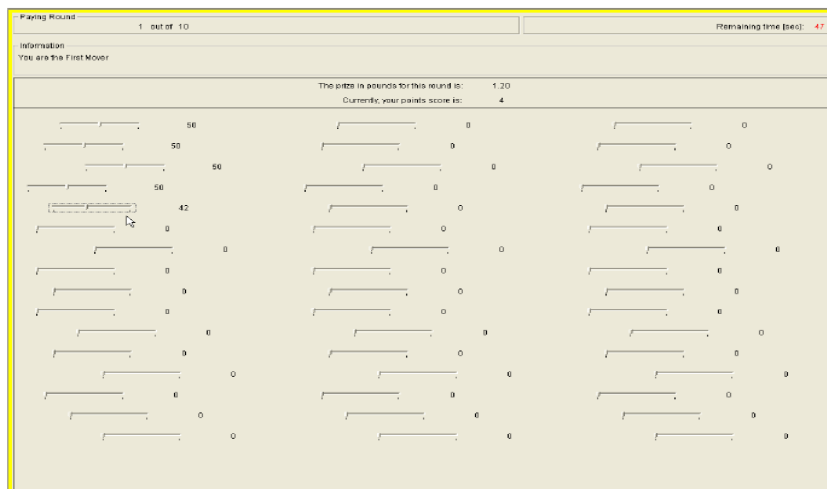


Figure 3 Slider Task

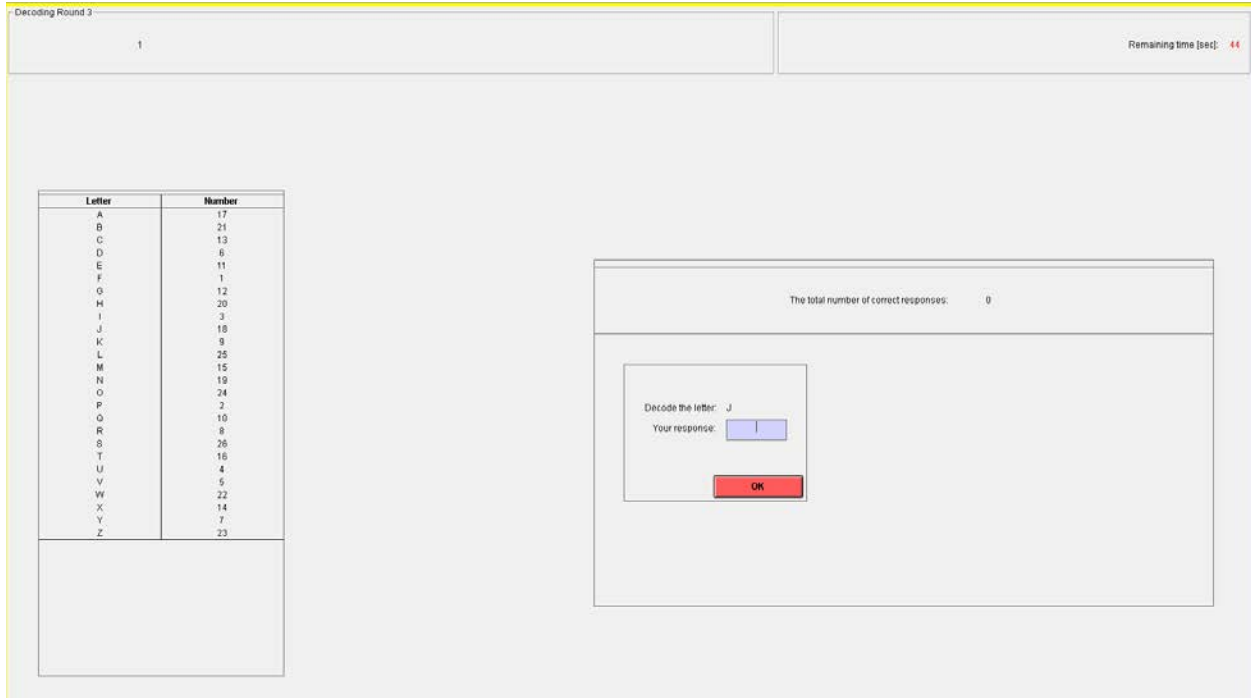


Figure 4 Decoding Task

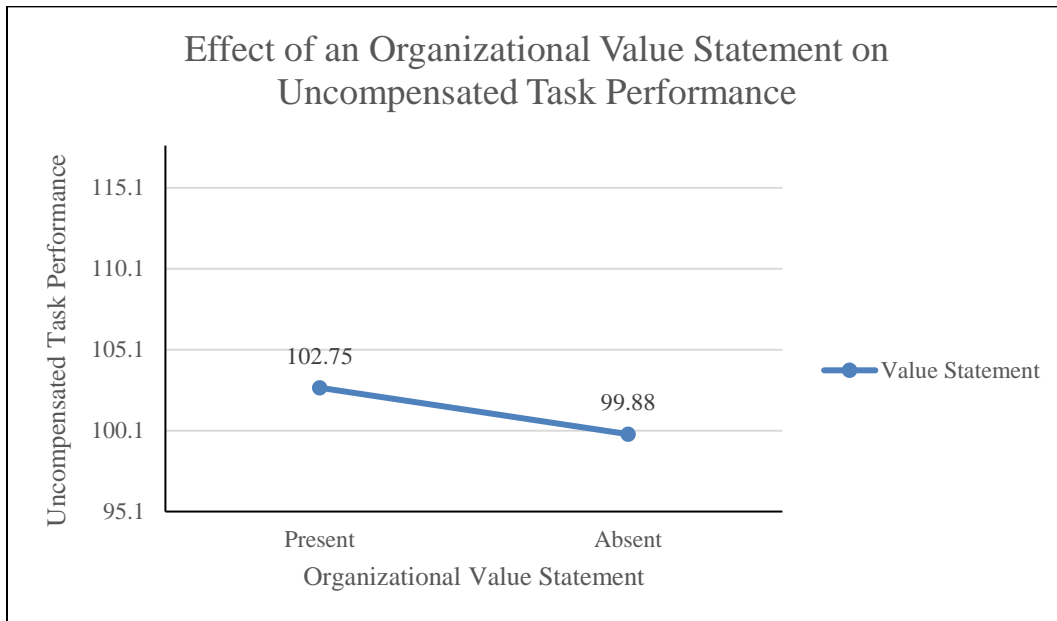


Figure 5 H1 Result

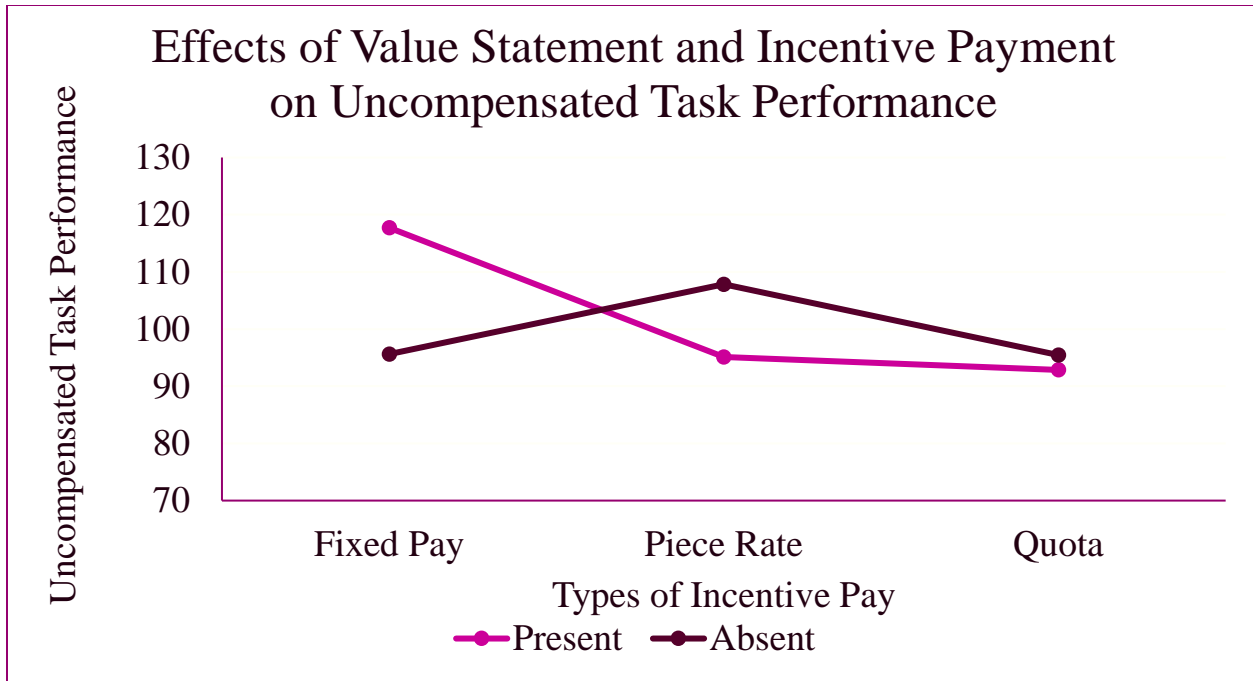


Figure 6 H1 a, b, c Results

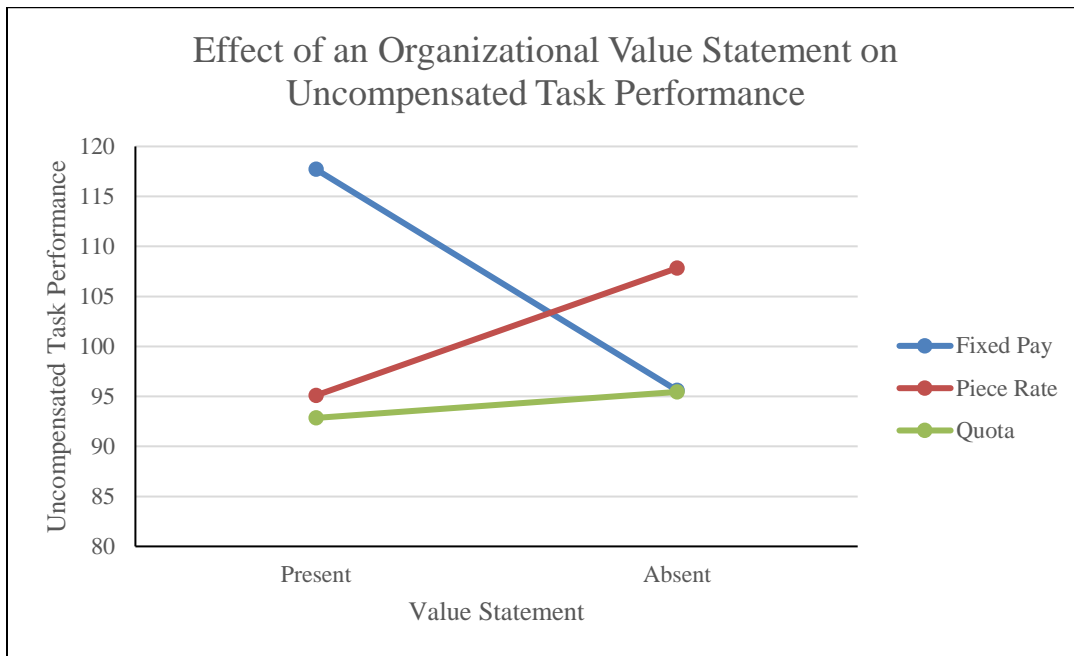


Figure 7 H2, H3 and RQ

APPENDIX B: STUDY 1 TABLES

Table 1 Demographics

(n= 130)		<u>n</u>	<u>%</u>
Age			
18 – 20		39	30%
21 – 25		61	47%
26 – 30		12	9%
31 – 35		12	9%
36 and over		6	5%
Gender			
Male		62	47.70%
Female		68	52.30%
Major			
Accounting		113	86.90%
Accounting and Finance		4	3.10%
Accounting and Economics		2	1.50%
Business		1	0.80%
Economics		1	0.80%
Finance		5	3.80%
Marketing		2	1.50%
Accounting MSA/MBA		2	1.50%
Grade Level			
Freshman		3	2.30%
Sophomore		4	3.10%
Junior		56	43.10%
Senior		44	33.80%
Graduate Students		23	17.10%
Years of Experience			
None		18	14%
1 – 5		85	65%
6 – 10		17	13%
11 and over		9	7%
No Response		1	1%

Table 2 Main Result - Uncompensated Subsequent Task Performance⁶

Panel A: Descriptive Statistics			
Mean (Standard Deviation) [Sample Size]			
	Value Statement		
Incentive Pay	Present	Absent	Total
Fixed Pay	117.71	95.6	107.66
	-24.61	-16.9	-23.96
	[24]	[20]	[44]
Piece Rate	95.1	107.83	101.75
	-15.57	-18.42	-18.1
	[21]	[23]	[44]
Quota	92.85	95.45	94.21
	-10.07	-11.48	-10.78
	[20]	[22]	[42]
Total	102.75	99.88	101.32
	-21.39	-16.73	-19.18
	[65]	[65]	[130]

Panel B: Results of ANOVA: Effect of an Organizational Value Statement on Uncompensated Task Performance (H1)

Source	Sum of Squares	d.f.	Mean Square	F-Ratio	p-value
Value Statement	164.880	1	164.880	.562	..228
Incentive Pay	3366.237	2	1683.119	5.740	.002
Value Statement * Incentive Pay	7012.454	2	3506.227	11.956	<.001
Error	36362.877	124	293.249		
Total	1381867.000	130			

Panel C: Planned Contrast of Value Statement and No Value Statement on Different Types of Incentive Pay (H1a, b, c)

	Contrast	Value of Contrast	Std. Error	t	d.f.	p-value
Uncompensated Task Performance	(FPV vs. FPNVS)	22.11	6.286	3.517	40.638	.001
	(PRV vs. PRNVS)	-12.73	5.128	-2.483	41.768	.009
	(QV vs. QNV)	-2.60	3.325	-.783	39.957	.219

⁶ Uncompensated task performance represents the number of decoding task that the participants were able to correctly decode in the subsequent task.

Table 3 H2, H3 and RQ

Panel A: Result of ANOVA: Effect of Presence of Value Statement and Type of Incentive Pay on Uncompensated Task Performance

Source of Variation	Sum of Squares	d.f.	Mean Square	F-Ratio	p-value
Type of Incentive Pay	8560.744	2	4280.372	12.816	<.001
Error	20707.318	62	333.989		
Total	29268.062	64			

Panel B: Results of Contrast for H2, H3 and RQ

Contrast	Value of Contrast	Std. Error	t	d.f.	p-value
H2: Fixed Pay vs. Piece Rate	22.61	6.065	3.729	39.376	.001
H3: Quota vs. Piece Rate	-2.25	4.076	-.551	34.435	.293
RQ: Fixed Pay vs. Quota	24.86	5.506	4.515	31.623	<.001

APPENDIX C: STUDY 1 EXPERIMENTAL MATERIALS

[SCREEN 1 – CONSENT]

You are invited to participate in a research project conducted by Kazeem Akinyele, Ph.D. Candidate, and Dr. Vicky Arnold, Faculty Supervisor, at the University of Central Florida. Whether you take part is up to you. You will be asked to perform some tasks and answer questions that will take approximately 30 to 45 minutes of your time. The purpose of this research is to learn more about employees' task performance as well as their judgment and decision-making processes.

You will be provided with some background information about a hypothetical company and will be asked to perform tasks and respond to a few questions. Please remember that there are no right or wrong answers. However, you are expected to take the tasks seriously, make decisions to the best of your ability, and answer the questions to the best of your knowledge.

Participants may receive cash compensation ranging from \$0 to \$21 depending on their incentive compensation plan and their task performance. A unique code will be provided at the end of the experiment and each participant will present this code for reimbursement of cash incentive compensation.

Please note that participation in this study is completely voluntary and your responses will be anonymous. If you decide to participate, you have the right to withdraw your consent or discontinue participation at any time. There are no anticipated potential risks associated with this study. You must be 18 years of age or older to take part in this research study.

If you have questions, concerns, or complaints regarding this project, you may contact: Kazeem Akinyele, Ph.D. Candidate, Dixon School of Accounting, College of Business Administration, (407) 823-1478 or by email at kazeem.akinyele@ucf.edu or Dr. Vicky Arnold, Faculty Supervisor, Dixon School of Accounting, College of Business Administration by email at vicky.arnold@ucf.edu.

Since this research involves human participants, it has been reviewed and approved by the Institutional Review Board (IRB) at the University of Central Florida. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

By clicking ">>" you are indicating that you wish to participate in this study.

[SCREEN 2 – TRANSITION]

On the next few screens you will be required to read important information about the study. Please pay attention because you will be asked questions to assess whether you have read the material.

[SCREEN 3 – BACKGROUND AND INSTRUCTIONS]

[Background]

KS Upright Automation is a leading provider of industrial products, systems, and services related to Instrumentation, Measurement, Safety, Electrical, Automation, and Communication Systems. KS Upright is a privately owned automation and telecommunication provider with their main office located in a major United States city. KS Upright uses sliders as one of its automation calibration equipment.

[Instructions]

For this study, please assume you are one of the employees of KS Upright and you are responsible for adjusting the sliders between 0 and 100 with the use of your mouse. Sliders are an important automation equipment that must be successfully positioned at exactly 50 on each slider. The task will consist of a screen with 48 identical sliders which must be moved to 50 within 120 seconds. Your “point score” in the task will be the number of sliders positioned at exactly 50 at the end of the 120 seconds. Your “point score” for each round will show at the center top of the screen. The time that you have remaining in any given round will be shown in the upper right hand corner of your screen.

You will be paid a \$5 show-up fee at the end of the study. At the conclusion of the study, you may receive additional compensation for your participation. In the study, we will use an experimental currency called “Lira”. The Lira you earn will be converted into U.S dollars at a rate of \$1 for every 20,000 Lira and you will be paid in cash at the end of the study. The amount of money you earn will depend on your compensation plan. Please follow the instructions.

There are 3 phases to this study

Phase I – You have two rounds of practice (unpaid exercises). You will complete two practice rounds in order to make sure you understand the task that you are expected to perform.

Phase II – You have six rounds of paid exercises

[Treatment 1: Fixed Salary and Value Statement]

As an employee of KS Upright, your compensation is a **fixed payment of 300,000 Lira** for correctly positioning as many sliders as possible in the six rounds. The correct position for each sliders is 50. You should correctly position as many sliders as possible in each round. Your 300,000 Lira will be converted to Dollars and you will be paid at the conclusion of the experiment. *All participants* in today’s session will also receive a fixed payment of 300,000 Lira.

*The work **YOU** do is an important part of the **success of our company**. Together we build systems that work!*

[Treatment 2: Fixed Salary and No Value Statement]

As an employee of KS Upright, your compensation is a **fixed payment of 300,000 Lira** for correctly positioning as many sliders as possible in the six rounds. The correct position for each sliders is 50. You should correctly position as many sliders as possible in each round. Your 300,000 Lira will be converted to Dollars and you will be paid at the conclusion of the experiment. *All participants* in today's session will also receive a fixed payment of 300,000 Lira.

[Treatment 3: Performance Target and Value Statement]

As an employee of KS Upright, your compensation will be based on the number of sliders you correctly position in the six rounds. You will receive a **fixed payment of 180, 000 Lira plus a performance bonus of 1,300 Lira for every slider correctly positioned after the first 20 in each round**. The correct position for each slider is 50. Thus, the more sliders you correctly position after the first 20 sliders in each round, the higher your bonus. Your total Lira will be converted to Dollars and you will be paid at the conclusion of the experiment. *All participants* in today's session will also receive a fixed payment of 180,000 Lira plus a performance bonus of 1,300 Lira for every slider after 20.

The work YOU do is an important part of the success of our company. Together we build systems that work!

[Treatment 4: Performance Target and No Value Statement]

As an employee of KS Upright, your compensation will be based on the number of sliders you correctly position in the six rounds. You will receive a **fixed payment of 180, 000 Lira plus a performance bonus of 1,300 Lira for every slider correctly positioned after the first 20 in each round**. The correct position for each slider is 50. Thus, the more sliders you correctly position after the first 20 sliders in each round, the higher your bonus. Your total Lira will be converted to Dollars and you will be paid at the conclusion of the experiment. *All participants* in today's session will also receive a fixed payment of 180,000 Lira plus a performance bonus of 1,300 Lira for every slider after 20.

[Treatment 5: Piece-Rate Incentive and Value Statement]

As an employee of KS Upright, your compensation will be based on the number of sliders you correctly position in the six rounds. You will receive **1,500 Lira for each slider correctly positioned**. The correct position for each slider is 50. Thus, the more sliders you correctly position, the higher your compensation. Your total Lira will be converted to Dollars and you will be paid at the conclusion of the experiment. *All participants* in today's session will receive 1,500 Lira for each slider correctly positioned at 50.

The work YOU do is an important part of the success of our company. Together we build systems that work!

[Treatment 6: Piece-Rate Incentive and No Value Statement]

As an employee of KS Upright, your compensation will be based on the number of sliders you correctly position in the six rounds. You will receive **1,500 Lira for each slider correctly positioned**. The correct position for each slider is 50. Thus, the more sliders you correctly position, the higher your compensation. Your total Lira will be converted to Dollars and you will be paid at the conclusion of the experiment. *All participants* in today's session will receive 1,500 Lira for each slider correctly positioned at 50.

Phase III: You have four rounds of unpaid exercises in order to complete your tasks.

I have read and understood the information shown above.

- Yes
- No

[SCREEN 4 REMINDER]

Your task will begin momentarily.

Remember, there are 3 phases to this study

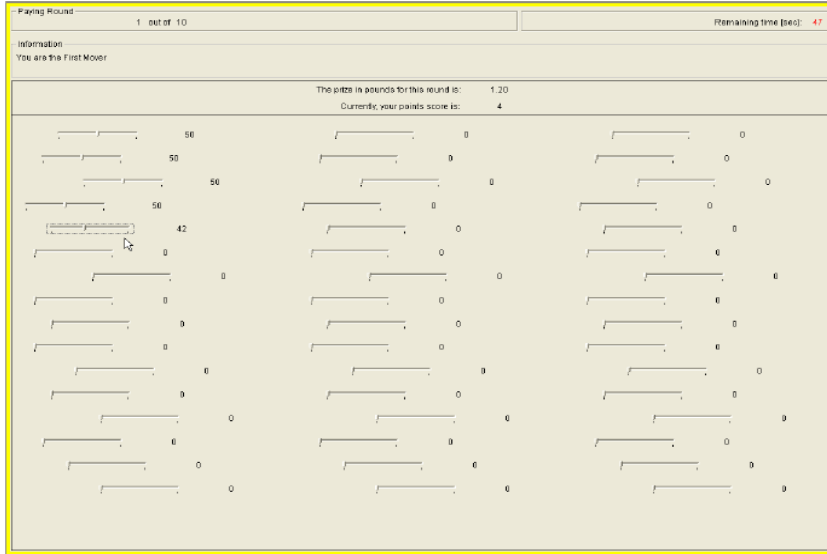
Phase I – You have two rounds of practice (unpaid exercises)

Phase II – You have six rounds of paid exercises

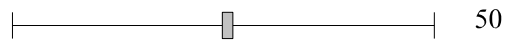
Phase III - You have four rounds of unpaid exercises

Each round includes 48 sliders and you will have 120 seconds for each round to position the sliders correctly at 50 with your mouse to earn your point score.

SCREEN 5 PRACTICE ROUNDS



(a) Initial position.

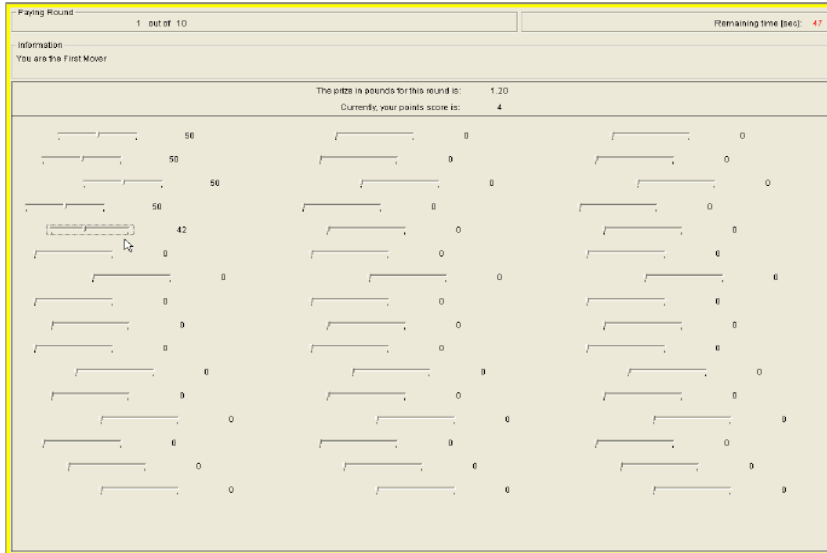


(b) Positioned at 50.

Schematic representation of a slider.

You have completed the practice rounds. The paid tasks will begin momentarily

SCREEN 6 Please start: Phase II - Paid Tasks



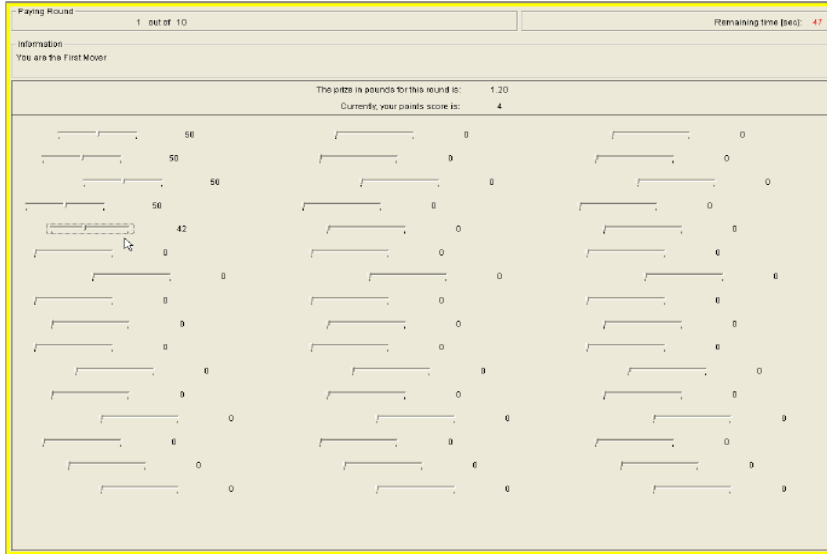
Schematic representation of a slider.

You have now completed the paid tasks. Your total point score was _____ and based on your _____ compensation plan, your total compensation is _____

The unpaid tasks will begin momentarily

SCREEN 7

Please start: Phase III - Unpaid Tasks



(a) Initial position.



(b) Positioned at 50.

Schematic representation of a slider.

Thank you, you have now completed all the tasks for this study. Please proceed to the next screen to answer some questions and provide demographic information.

SCREEN 8

[Manipulation Check Questions]

Prior to positioning the sliders, you were given information about compensation you were eligible to receive for completing the task. Which type of compensation were you eligible to receive?

1. A fixed salary of 300,000 Lira
 2. A fixed salary of 180,000 Lira PLUS a performance bonus that of 1,300 Lira for every slider correctly position at 50 after the first 20 sliders in each round.
 3. A piece-rate payment of 1,500 Lira for each slider correctly position at 50.
-

SCREEN 9

[Decision-Making Questions]

Considering your compensation plan, what is the level of **effort** that you put in the phase three (unpaid slider tasks compared to the paid tasks)?

1. Very low level of effort
2. Low level of effort
3. Slightly low level of effort
4. Same level of effort
5. Slightly high level of effort
6. High level of effort
7. Very high level of effort

What is the expected level of **effort** that should be exerted on the phase three (unpaid slider tasks compared to the paid tasks)?

1. Very low level of effort
2. Low level of effort
3. Slightly low level of effort
4. Same level of effort
5. Slightly high level of effort
6. High level of effort
7. Very high level of effort

What is the level of **performance** that you would expect in the phase three (unpaid slider tasks compared to the paid tasks)?

1. Very low level of performance
 2. Low level of performance
 3. Slightly low level of performance
 4. Same level of performance
 5. Slightly high level of performance
 6. High level of performance
 7. Very high level of performance
-

SCREEN 10

[Demographic Questions]

Please answer the following questions about yourself.

What is your age?

What is your gender?

- Male
 Female

What is your major?

What grade level are you?

- Freshman
 Sophomore
 Junior
 Senior
 Graduate student

Please make any comments that you think would be helpful in understanding your responses.

[Conclusion]

You have completed this study. We appreciate your time and thank you for your participation!

Please proceed to the next screen to exit this study and receive your validation code for payment.

0000

APPENDIX D: STUDY 2 FIGURES

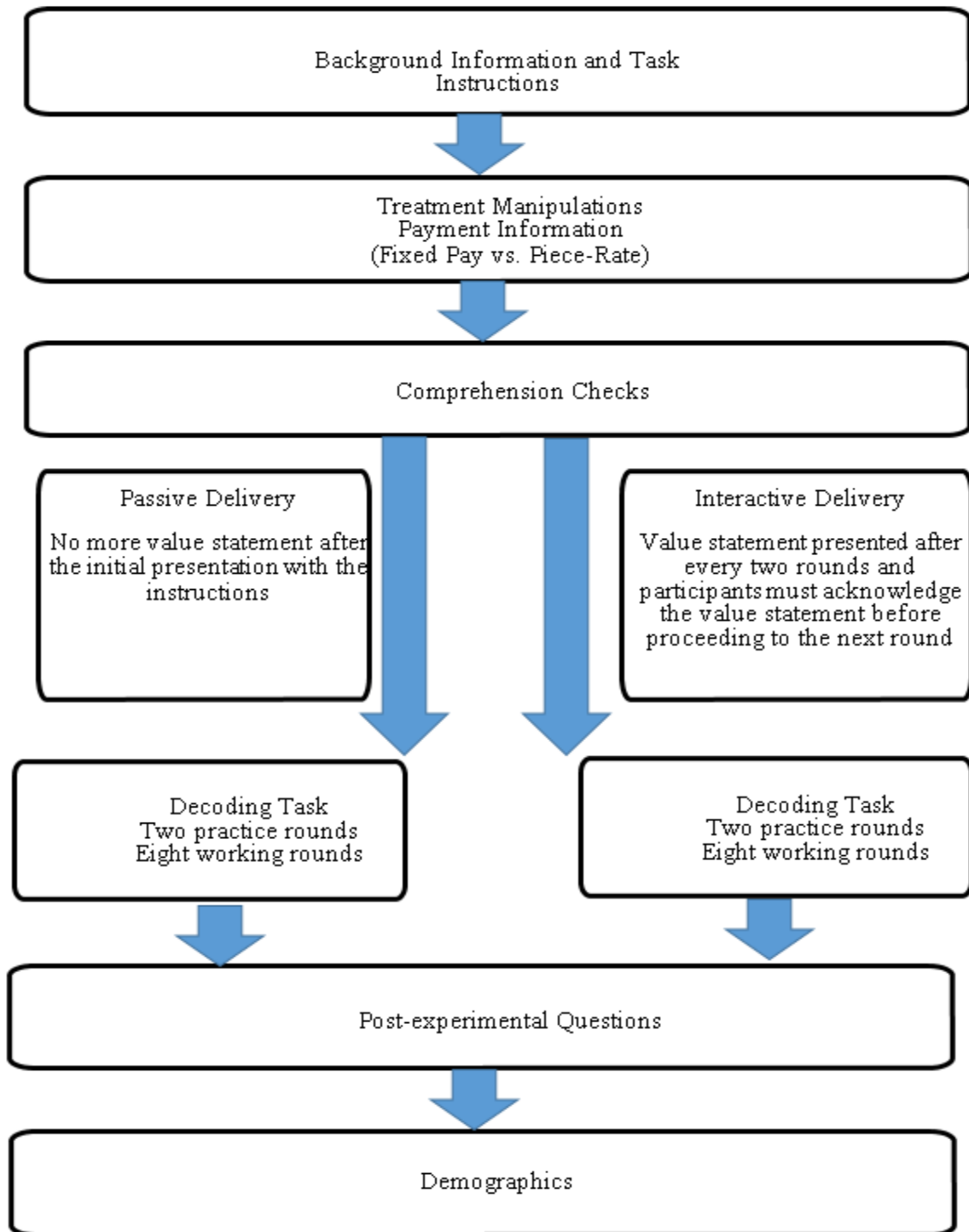


Figure 8 Diagram of Experimental Procedure

Decoding Practice Round 2

1

Remaining time [sec]: 54

Letter	Number
A	4
B	25
C	21
D	3
E	19
F	24
G	11
H	20
I	17
J	16
K	13
L	6
M	7
N	1
O	5
P	18
Q	23
R	22
S	12
T	2
U	9
V	15
W	14
X	26
Y	10
Z	8

The total number of correct responses: 0

Decode the letter: F

Your response:

OK

Figure 9 Screenshot of Decoding Task Interface

Please remember our corporate **VALUE STATEMENT** which emphasizes that:

*"The work **YOU** do is an important part of the success of our company. Together we build systems that work!"*

I have read and understand the information shown above

Yes, I understand. Please proceed to the next screen to start the working task round 3

Figure 10 Interactive Value Statement Delivery

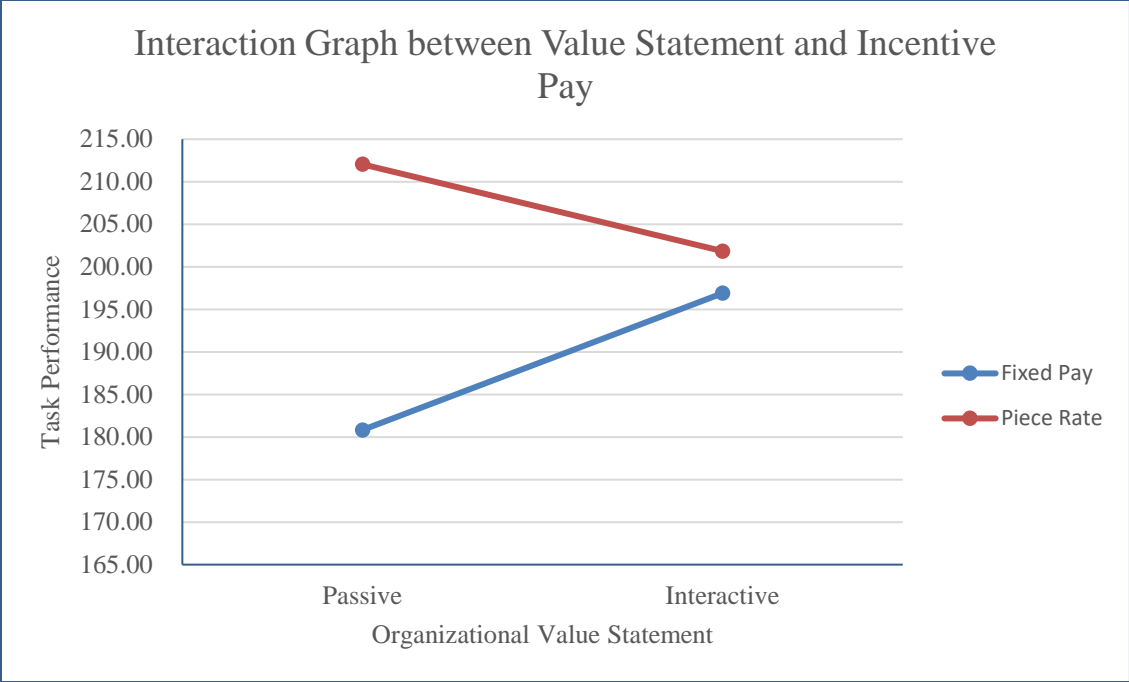


Figure 11 Graphical Representation of the Results

APPENDIX E: STUDY 2 TABLES

Table 4 Demographics

(n= 77)

	<u>n</u>	<u>%</u>
Age		
18 – 20	52	68%
21 – 25	23	30%
26 – 30	2	3%
Gender		
Male	42	55%
Female	35	45%
Major		
Accounting	32	42%
Finance	15	19%
Marketing	6	8%
Integrated Business	6	8%
Others	18	23%
Grade Level		
Freshman	11	14%
Sophomore	35	45%
Junior	14	18%
Senior	15	19%
Graduate Students	2	3%
Years of Experience		
None	19	25%
1 – 5	51	66%
6 – 10	7	9%

Table 5 Main Result - Performance

Panel A: Descriptive Statistics – Mean (Standard Deviation) [Sample Size]

Incentive Pay	Value Statement		Total
	Passive	Interactive	
Fixed Pay	180.82 (20.12) [17]	196.90 (28.63) [20]	189.51 (26.05) [37]
Piece Rate	212.05 (26.60) [21]	201.84 (27.91) [19]	207.20 (27.37) [40]
Total	198.08 (28.38) [38]	199.31 (28.02) [39]	198.701 (28.02) [77]

Panel B: Results of ANOVA: Effect of Method of Delivery of Organizational Value Statement on Task Performance (H1)

Source	Type III Sum of Squares	d.f.	Mean Square	F-Ratio	p-value
Value Statement Delivery	164.861	1	164.861	.240	.626
Incentive Pay	6256.123	1	6256.123	9.093	.004
Value Statement Delivery x Incentive Pay	3303.817	1	3303.817	4.802	.032
Error	50225.749	73	688.024		
Total	3099782.000	77			

Panel C: Planned Contrast of Incentive Pay and Method of Delivery of Value Statement

	Contrast	Value of Contrast	Std. Error	t	d.f.	P-value
Task Performance	FPP vs. FPI, PRP, PRI	68.319	21.6246	3.159	73	.002

Table 6 ANCOVA with gender as covariate

Tests of Between-Subjects Effects

Dependent Variable:

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	14434.885 ^a	4	3608.721	5.746	<.001
Intercept	391418.600	1	391418.600	623.261	<.001
Incentive Pay	6223.853	1	6223.853	9.910	.002
Value Statement Delivery	319.450	1	319.450	.509	.478
Incentive Pay X Value Statement Delivery	4352.110	1	4352.110	6.930	.010
Gender	5008.504	1	5008.504	7.975	.006
Error	45217.245	72	628.017		
Total	3099782.000	77			
Corrected Total	59652.130	76			

APPENDIX F: STUDY 2 EXPERIMENTAL MATERIALS

SCREEN 1 – CONSENT

You are invited to participate in a research project conducted by Kazeem Akinyele, Ph.D. Candidate, and Dr. Vicky Arnold, Faculty Supervisor, at the University of Central Florida. You will be asked to perform some tasks and answer questions that will take about 30 minutes of your time. The purpose of this research is to learn more about employees' task performance as well as their judgment and decision-making processes. This study is funded by the principal investigator.

You will be provided with some background information about a hypothetical company and will be asked to perform a simple computer-based decoding task, respond to questions checking for your understanding of instructions and a few demographic questions. Please remember that there are no right or wrong answers, and this will not affect your status or your grade in class. However, you are expected to take the tasks seriously, make decisions to the best of your ability, and answer the questions to the best of your knowledge. Participants will be randomly assigned to different incentive structures.

Please note that participation in this study is completely voluntary and your responses will be anonymous. If you decide to participate, you have the right to withdraw your consent or discontinue participation at any time. There are no anticipated potential risks associated with this study. You must be 18 years of age or older to take part in this research study.

If you have questions, concerns, or complaints regarding this project, you may contact: Kazeem Akinyele, Ph.D. Candidate, Dixon School of Accounting, College of Business Administration, (407) 823-1478 or by email at kazeem.akinyele@ucf.edu or Dr. Vicky Arnold, Faculty Supervisor, Dixon School of Accounting, College of Business Administration by email at vicky.arnold@ucf.edu.

Since this research involves human participants, it has been reviewed and approved by the Institutional Review Board (IRB) at the University of Central Florida. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901.

By clicking ">>" you are indicating that you wish to participate in this study.

SCREEN 2 – TRANSITION

On the next few screens you will read important information about the study. Please pay attention because you will be asked questions to assess your understanding of the material.

SCREEN 3 – BACKGROUND AND INSTRUCTIONS

[Background]

Ultra-mobile is a leading developer of internet communication systems. They are valued by employees as one of the top 10 best companies for which to work. The development of these internet communication systems requires employees to complete decoding tasks.

[Instructions]

Please assume you are one of the employees of Ultra-mobile. The company's decoding system requires you to decode based on a predetermined decoding key. You are responsible for decoding as many letters as possible by identifying the number that correctly corresponds with the letter you are decoding. In this study, you will be provided the decoding key you are required to use, and it will be on the left side of your screen. If the number is correctly recorded, you will earn a point. These points will accumulate as you complete the task, and the cumulative points will be displayed on your screen. If the number is incorrectly recorded, you will receive an error message. However, you will have unlimited attempts to enter the correct number.

Each decoding task is timed. You will be asked to complete two practice rounds, followed by eight working rounds. You have 60 seconds for each practice round and 60 seconds for each working round. A timer will display in the upper right hand corner of your screen showing the time you have remaining for that round.

All participants will receive cash compensation for their participation in this study. You will be provided more information about how your cash compensation is calculated in the next screen.

Please proceed to the next screen to learn more about your decoding task and compensation plan in this study.

I have read and understand the information shown above.

- Yes
- No

SCREEN 4 INCENTIVE AND VALUE STATEMENT DELIVERY MANIPULATIONS

[Treatment 1: Fixed Salary and Passive Value Statement]

Decoding Task

As a reminder, you will complete two practice rounds to make sure you understand the decoding task that you are expected to perform. Following the practice rounds, you have eight working rounds of the decoding task for which you will be compensated.

Payment Information

Your compensation for the work periods will be a **fixed payment of \$10** for correctly decoding as many letters as possible in the eight working rounds. You will receive this remuneration at the conclusion of the study.

Before completing your decoding task, the CEO would like to remind you of Ultra-mobile's corporate **VALUE STATEMENT** which emphasizes that:

*“The work **YOU** do is an important part of the success of our company. Together we build systems that work!” (This will be presented once at the beginning of the task.)*

[Treatment 2: Fixed Salary and Interactive Value Statement]

Decoding Task

As a reminder, you will complete two practice rounds to make sure you understand the decoding task that you are expected to perform. Following the practice rounds, you have eight working rounds of the decoding task for which you will be compensated.

Payment Information

Your compensation for the work periods will be a **fixed payment of \$10** for correctly decoding as many letters as possible in the eight working rounds. You will receive this remuneration at the conclusion of the study.

Before completing your decoding task, the CEO would like to remind you of Ultra-mobile's corporate **VALUE STATEMENT** which emphasizes that:

*“The work **YOU** do is an important part of the success of our company. Together we build systems that work!” (This will be presented 9 times, at the beginning of each round of decoding task.)*

[Treatment 3: Piece-Rate Incentive and Passive Value Statement]

Decoding Task

As a reminder, you will complete two practice rounds to make sure you understand the decoding task that you are expected to perform. Following the practice rounds, you have eight working rounds of the decoding task for which you will be compensated.

Payment Information

Your compensation will be based on the number of letters you correctly decode in the eight working rounds. You will receive **\$0.05 for each letter correctly decoded**. Thus, the more letters you correctly decode, the more compensation you will receive.

Before completing your decoding task, the CEO would like to remind you of Ultra-mobile's corporate **VALUE STATEMENT** which emphasizes that:

*“The work **YOU** do is an important part of the **success of our company**. Together we build systems that work!”(This will be presented once at the beginning of the task.)*

[Treatment 4: Piece-Rate Incentive and Interactive Value Statement]

Decoding Task

As a reminder, you will complete two practice rounds to make sure you understand the decoding task that you are expected to perform. Following the practice rounds, you have eight working rounds of the decoding task for which you will be compensated.

Payment Information

Your compensation will be based on the number of letters you correctly decode in the eight working rounds. You will receive **\$0.05 for each letter correctly decoded**. Thus, the more letters you correctly decode, the more compensation you will receive.

Before completing your decoding task, the CEO would like to remind you of Ultra-mobile's corporate **VALUE STATEMENT** which emphasizes that:

*“The work **YOU** do is an important part of the **success of our company**. Together we build systems that work!” (This will be presented 9 times, at the beginning of each round of decoding task.)*

I have read and understand the information shown above.

- Yes
 No
-

SCREEN 5

Comprehension Checks

Which type of compensation are you eligible to receive?

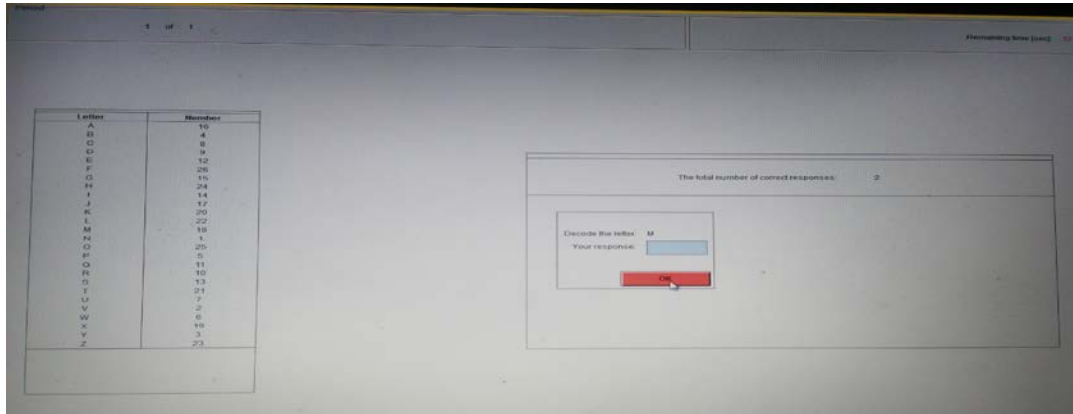
- A fixed salary of \$10
 - A piece-rate payment of \$0.05 for each alphabet correctly decoded
-

SCREEN 6

Two Practice Rounds

Instructions: In the box provided, enter the number that corresponds with the letter displayed in the middle of your screen. Use the decoding key on the left to identify the appropriate number. You have 60 seconds for each practice round.

It is very important that you work as quickly and accurately as possible during this practice period so that you have a good idea of how well you can perform this task.



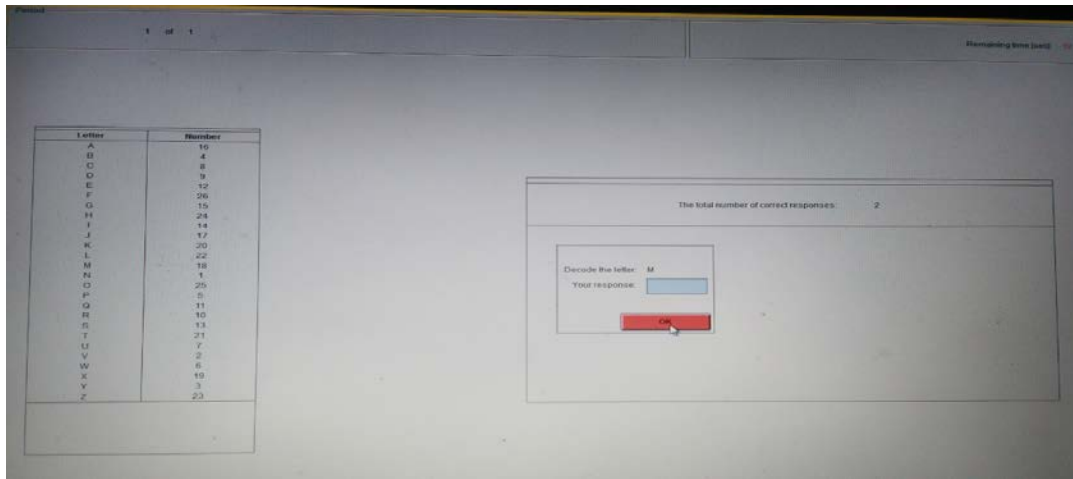
You have completed the practice rounds.

Your total points are _____

Please proceed to the next screen to start your eight rounds of 60 seconds decoding tasks

SCREEN 7

Please start: Decoding Task Eight Rounds



Thank you! You have now completed all the tasks for this study.

Please proceed to the next screen to exit this task and open the link on your desktop to answer few questions and provide demographic information.

You have now completed the decoding task paid rounds.

Your total point points are _____

Based on your _____ compensation plan, your total compensation is \$_____.

SCREEN 8

[Qualtrics Link]

Please input your “lab” number which was provided to you at the beginning of this experiment in order to complete the following questions and receive your cash compensation at the end of the experiment.

SCREEN 9

[Manipulation Check Questions]

To what extent do you think Ultra-mobile **VALUE STATEMENT** influenced your performance in decoding task?

1. Not at all influence
 2. Slightly influence
 3. Somewhat influence
 4. Moderately influence
 5. Extremely influence
-

SCREEN 10

[Decision-Making Questions]

To what extent do you think the organization values your performance?

1. Not at all value
2. Slightly value
3. Somewhat value
4. Moderately value
5. Extremely value

To what extent do you think the incentive compensation influenced your performance in the decoding task?

1. Not at all influence
 2. Slightly influence
 3. Somewhat influence
 4. Moderately influence
 5. Extremely influence
-

SCREEN 11

[Demographic Questions]

Please answer the following questions about yourself.

What is your age?

What is your gender?

- Male
 Female

What is your major?

What year are you in college?

- Freshman
 Sophomore
 Junior
 Senior
 Graduate student

How many years of overall work experience do you have?

Please make any comments that you think would be helpful in understanding your responses.

SCREEN 12

[Conclusion]

You have completed this study. We appreciate your time and thank you for your participation!

Please proceed to the next screen to exit this study.

APPENDIX G: STUDY 3 FIGURES

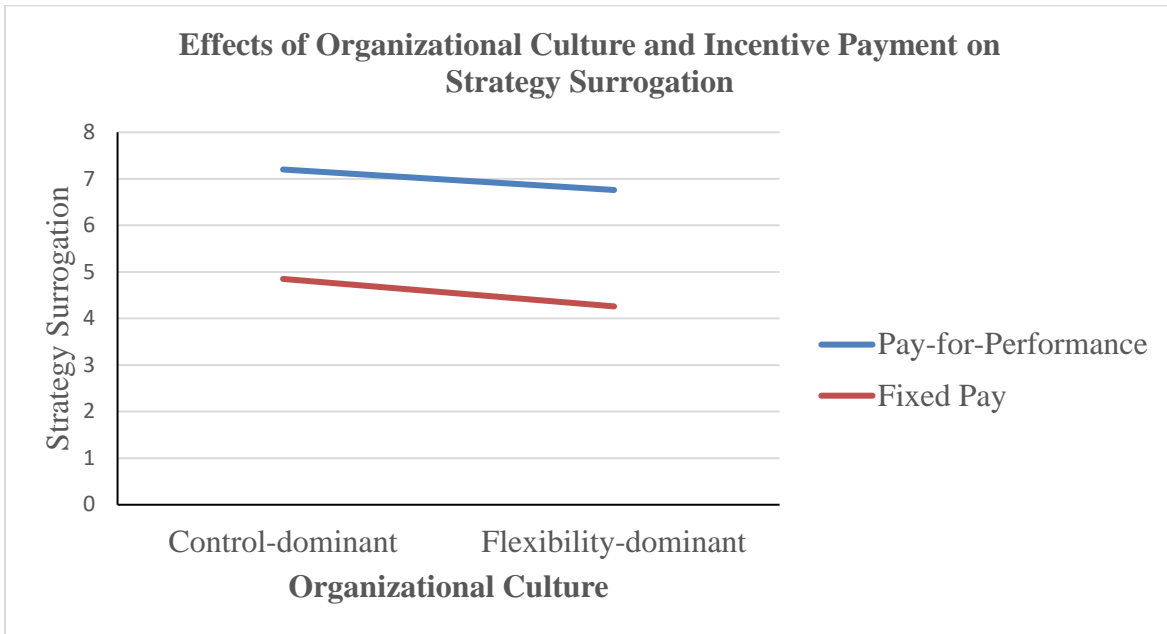


Figure 12 H3 Actual Interaction Result

APPENDIX H: STUDY 3 TABLES

Table 7 Demographics

		n	%
Age			
	21 - 30	28	35
	31 - 40	35	44
	41 - 50	10	13
	51 - 60	7	9
Gender			
	Male	52	65
	Female	28	35
Education			
	Less than high school	0	-
	High school or equivalent	23	28.8
	Associate degree	15	18.8
	Bachelor's degree	37	46.3
	Master's degree	4	5.0
	Doctorate degree	1	1.3
Work Experience			
	0 - 5	13	16
	6 - 10	22	28
	11- 20	29	36
	21 - 30	12	15
	> 30	4	5
Years of current job experience			
	0 - 5	53	66
	6 - 10	19	24
	11 - 20	8	10

Table 7 continued

Public Sector Work Experience				
	Yes		21	26.3
	No		59	73.8
Years of Public Sector Work Experience				
	None		60	75
	1 – 5		10	13
	6 - 10		9	11
	>10		1	1
Annual Household Income				
	Less than \$20,000		6	7.5
	\$20,000 - \$40,000		26	32.5
	\$41,000 - \$70,000		34	42.5
	\$71,000 - \$100,000		7	8.8
	Prefer not to answer		7	8.8
Political View				
	More Liberal		58	72.5
	More Conservative		22	27.5
Ethnic				
	African		0	0
	African/American		5	6.3
	Asian		7	8.8
	Caucasian/White (non-Hispanic)		57	71.3
	Hispanic		9	11.3
	Middle Eastern/Arabic		1	1.3
	Multi-Racial		1	1.3
	Native American		0	0
	Other/Please specify		0	0
	Prefer not to answer		0	0

Table 8 Organizational Culture Manipulations Descriptive Statistics and Test of Differences

Descriptions	Organizational Culture	Mean (SD) [n]	t	Sig. (2 tailed)
Sparky City Council is known to be controlling and rigid with their decisions related to cost saving	Control-dominant	6.35 (1.292) [40]	10.366	<.001
	Flexibility-dominant	2.58 (1.907) [40]		
Sparky City Council focuses on making decisions that are within an acceptable range for standards of water quality, and considers only quantifiable metrics in their decisions making process	Control-dominant	5.70 (1.728) [40]	2.647	.010
	Flexibility-dominant	4.65 (1.819) [40]		
Sparky City Council is known to be flexible and adaptable with their decision related to cost savings (Reverse coded)	Control-dominant	5.88 (1.636) [40]	10.796	<.001
	Flexibility-dominant	2.20 (1.400) [40]		
Sparky City Council focuses on making decisions that are within an acceptable range for standards of water quality, and considers quantifiable metrics and qualitative factors in their decision-making process (Reverse coded)	Control-dominant	4.10 (2.122) [40]	5.648	<.001
	Flexibility-dominant	2.03 (.947) [40]		

Table 9 Main Results –Alternative Decisions

Panel A: Descriptive Statistics – Mean (Standard Deviation) [Sample Size]

Incentive Pay	Organizational Culture		Total
	Control-dominant	Flexibility-dominant	
Fixed Pay	4.85 (2.58) [20]	4.26 (2.38) [19]	4.56 (2.47) [39]
Pay for Performance	7.20 (2.26) [20]	6.76 (2.41) [21]	6.98 (2.32) [41]
Total	6.03 (2.68) [40]	5.58 (2.68) [40]	5.80 (2.67) [80]

Panel B: Results of ANOVA: Effects of Organizational Culture and Incentive Payment on Strategy Surrogation

Source	Type III Sum of Squares	d.f.	Mean Square	F-Ratio	p-value
Incentive Pay	117.405	1	117.405	20.222	<.001
Organizational Culture	5.246	1	5.246	.904	.172
Incentive Pay x Organizational Culture	.110	1	.110	.019	.445
Error	441.244	76	5.806		
Total	3254.000	80			

APPENDIX I: STUDY 3 EXPERIMENTAL MATERIALS

[Transition Screen]

Please ensure you have read the information on the previous screen very carefully. You will be asked a question regarding the information provided, and you must respond correctly in order to participate in this study.

If you would like to review the previous information before continuing, click the “No, please go back to the previous screen” button.

If you would like to continue with the study click the “Yes, please proceed to the next screen” button. Once you proceed you will not be able to go back.

- Yes, please proceed to the next screen
 - No, please go back to the previous screen
-

[Screening Questions]

What is your age?

How much are you going to be paid for participating in this study?

- 1) All participants will be paid \$2.50 only for participating.
- 2) All participants will be paid \$2.50, as well as additional research compensation up to a total of \$9.00 for completing this study.
- 3) I have no idea.

On the next few screens you will be required to read important information about the study. Please pay attention because you will be asked questions to assess whether you have read the material.

[Introduction & Instructions – Treatment 1]

Dear Participant,

PLEASE READ THE FOLLOWING INFORMATION CLOSELY AS IT EXPLAINS HOW YOU WILL BE COMPENSATED FOR THE ADDITIONAL RESEARCH COMPENSATION. ALL PARTICIPANTS WILL RECEIVE \$2.50 IN ADDITION TO THE MONEY EARNED BASED ON THE COMPENSATION PLAN EXPLAINED BELOW.

In this study, we will use an experimental currency called “Lira”.

Please assume you are the General Manager of Sparky City's Water Treatment Plant and you are in charge of making changes to the water treatment process to reduce costs for the coming year.

As General Manager, your compensation for the coming year is a fixed salary of 100,000 Lira.

The Lira you earn as General Manager will be converted into U.S. dollars at a rate of \$1 for every 20,000 Lira earned and you will receive instructions on how to receive payment on the last screen of this study. Please follow the instructions carefully.

Please proceed to the following screen where you will learn about your role as General Manager of Sparky City's Water Treatment Plant and propose changes to the water treatment for the coming year.

I have read and understood the information shown above.

- Yes
- No

[Introduction & Instructions – Treatment 2]

Dear Participant,

PLEASE READ THE FOLLOWING INFORMATION CLOSELY AS IT EXPLAINS HOW YOU WILL BE COMPENSATED FOR THE ADDITIONAL RESEARCH COMPENSATION. ALL PARTICIPANTS WILL RECEIVE \$2.50 IN ADDITION TO THE MONEY EARNED BASED ON THE INCENTIVE PLAN EXPLAINED BELOW.

In this study, we will use an experimental currency called “Lira”.

Please assume you are the General Manager of Sparky City's Water Treatment Plant and you are in charge of making changes to the water treatment process to reduce costs for the coming year.

As General Manager, your compensation for the year is a performance bonus, which is 20% of the total cost savings to the plant. If you choose a water treatment alternative that can generate more cost savings to the water plant, you will receive a greater amount of bonus.

The Lira you earn as General Manager will be converted into U.S. dollars at a rate of \$1 for every 20,000 Lira earned and you will receive instructions on how to receive payment on the last screen of this study. The amount of money you earn will depend on the decisions that you make, so please follow the instructions carefully.

Please proceed to the following screen where you will learn about your role as General Manager of Sparky City's Water Treatment Plant and proposed changes to the water treatment for the coming year.

I have read and understood the information shown above.

- Yes
- No

[Comprehension Check Question]

Which type of additional research compensation are you *eligible* to receive? YOU MUST ANSWER THIS QUESTION CORRECTLY TO CONTINUE IN THE STUDY.

- A fixed salary of 100,000 Lira
 - A performance bonus that is 20% of the total cost savings to the plant
-

Case Scenario:

The City of Sparky gets its water from the Murry River, and the Water Treatment Plant is responsible for treating the water with chemicals to make it safe for use and consumption by the residents of Sparky. In order to make the water supply safe for human consumption, the City must chemically treat the water before it is made available to the public; however, it is never possible to make the water 100% safe. There is always some risk of water-borne illnesses from microorganisms in the water supply. They may arise because of bacteria in the actual water supply or in the infrastructure (pipes, water holding tanks, etc.). Illnesses from microorganisms in the water supply generally result in diarrhea-like symptoms and have little impact on healthy individuals. A lower quality water supply may seriously affect the very old, very young, or health impaired individuals.

The National Water Association sets standards for water quality. The standards currently state that a public water supply should have less than 3,200 microorganisms per billion gallons of water. Sparky's average number of microorganisms per billion gallons of water over the past three years has been 2,197 microorganisms, within the acceptable range.

The City of Sparky Water Treatment Plant is considering whether to make changes to the chemicals used to treat the water to reduce operating costs and, as General Manager, you are responsible for making this decision. In the past, you have contracted with Potable Water Chemical Company to provide the chemicals to treat the water. You have recently asked the Accounting Manager to work with Potable Water to come up with a plan to reduce the costs associated with the chemicals used to treat the water.

After several meetings and discussions between plant members and the company, Potable Water has set forth several different water treatment alternatives. Each water treatment alternative has a potential cost savings, as well as an increase in risk to the public associated with the quality of the water supplied to the residents. That is, each alternative will incur a different amount of operating cost savings to the plant and has a different risk associated with the quality of the water that the water plant provides to the residents of Sparky City. The greater the cost savings, the greater the risk. Although the National Water Association states that a public water supply should have less than 3,200 microorganisms per billion gallons of water, Potable Water Chemical Company has warned that anything above 2,300 microorganisms per billion gallons of water may significantly affect the very old, very young, or health impaired individuals. This reduced threshold for

microorganisms per billion gallons of water is attributable to the use of the new water treatment chemical.

Manipulation

Controlling

In the past, Sparky City Council is known to be controlling and rigid with their decisions related to cost savings. They strive to maximize cost savings irrespective of the warning from Potable Water Chemical Company. They focus on making decisions that are within an acceptable range for standards of water quality, and consider only quantifiable metrics in their decision-making process.

Flexibility

In the past, the Sparky City Council is known to be flexible and adaptable with their decisions related to cost savings. They strive to maximize cost savings, but also consider warnings from Potable Water Chemical Company. They focus on making decisions that are within an acceptable range for standards of water quality, and consider quantifiable metrics and qualitative factors in their decision-making process.

On the following screen, you will review the different water treatment alternatives available and choose whether to implement a water treatment alternative for the coming year.

[Treatment 1: Fixed salary]

As General Manager, you need to make a decision about which water treatment alternative to implement.

Below are nine water treatment alternatives that are available.

Recall the water quality standards currently state that a public water supply should have less than 3,200 microorganisms per billion gallons of water. Over the past three years the City has averaged 2,197 microorganisms per billion gallons of water.

Potable Water Chemical Company has warned that anything above 2,300 microorganisms per billion gallons of water may significantly affect the very old, very young, or health impaired individuals. This reduced threshold for microorganisms per billion gallons of water is attributable to the use of the new water treatment chemical.

Controlling

Recall that Sparky City Council is known to be controlling and rigid with their decisions related to cost savings. They strive to maximize cost savings irrespective of the warning from Potable Water Chemical Company. They focus on making decisions that are within an acceptable range for standards of water quality, and consider only quantifiable metrics in their decision-making process.

Flexibility

Recall that Sparky City Council is known to be flexible and adaptable with their decisions related to cost savings. They strive to maximize cost savings, but also consider warnings from Potable Water Chemical Company. They focus on making decisions that are within an acceptable range for standards of water quality, and consider quantifiable metrics and qualitative factors in their decision-making process.

As General Manager, your compensation for the coming year is a fixed salary of 100,000 Lira.

Please review these alternatives.

Alternative	Cost savings to the plant	Microorganisms per Billion (% Decrease in Water Quality)	Your Compensation (Salary)
1	100,000 Lira	2,219 (1.0%)	100,000 Lira
2	200,000 Lira	2,230 (1.5%)	100,000 Lira
3	300,000 Lira	2,252 (2.5%)	100,000 Lira
4	400,000 Lira	2,296 (4.5%)	100,000 Lira
5	500,000 Lira	2,373 (8.0%)	100,000 Lira
6	600,000 Lira	2,483 (13.0%)	100,000 Lira
7	700,000 Lira	2,636 (20.0%)	100,000 Lira
8	800,000 Lira	2,845 (29.5%)	100,000 Lira
9	900,000 Lira	3,109 (41.5%)	100,000 Lira

Which water treatment alternative would you like to implement?

(Note that once you make a decision and continue to the next screen, you will not be able to go back and change your answer.)

[Treatment 2: Percentage of cost savings]

As General Manager, you need to make a decision about which water treatment alternative to implement.

Below are nine water treatment alternatives that are available.

Recall the water quality standards currently state that a public water supply should have less than 3,200 microorganisms per billion gallons of water. Over the past three years the City has averaged 2,197 microorganisms per billion gallons of water.

Potable Water Chemical Company has warned that anything above 2,300 microorganisms per billion gallons of water may significantly affect the very old, very young, or health impaired individuals. This reduced threshold for microorganisms per billion gallons of water is attributable to the use of the new water treatment chemical.

Controlling

Recall that Sparky City Council is known to be controlling and rigid with their decisions related to cost savings. They strive to maximize cost savings irrespective of the warning from Potable Water Chemical Company. They focus on making decisions that are within an acceptable range for standards of water quality, and consider only quantifiable metrics in their decision-making process.

Flexibility

Recall that Sparky City Council is known to be flexible and adaptable with their decisions related to cost savings. They strive to maximize cost savings, but also consider warnings from Potable Water Chemical Company. They focus on making decisions that are within an acceptable range for standards of water quality, and consider quantifiable metrics and qualitative factors in their decision-making process.

As General Manager, your compensation for the year is a performance bonus, which is 20% of the total cost savings to the plant. If you choose a water treatment alternative that can generate more cost savings to the water plant, you will receive a greater amount of bonus.

Please review these alternatives.

Alternative	Cost savings to the plant	Microorganisms per Billion (% Decrease in Water Quality)	Your Compensation (Bonus)
1	100,000 Lira	2,219 (1.0%)	20,000 Lira
2	200,000 Lira	2,230 (1.5%)	40,000 Lira
3	300,000 Lira	2,252 (2.5%)	60,000 Lira
4	400,000 Lira	2,296 (4.5%)	80,000 Lira
5	500,000 Lira	2,373 (8.0%)	100,000 Lira
6	600,000 Lira	2,483 (13.0%)	120,000 Lira
7	700,000 Lira	2,636 (20.0%)	140,000 Lira
8	800,000 Lira	2,845 (29.5%)	160,000 Lira
9	900,000 Lira	3,109 (41.5%)	180,000 Lira

Which water treatment alternative would you like to implement?

(Note that once you make a decision and continue to the next screen, you will not be able to go

back and change your answer.)

[Feedback Screen]

Your water treatment decision has now been implemented.

Thus, for the coming year, the Water Treatment Plant will experience a cost savings of [value] Lira.

This will result in a decrease in water quality to the residents of Sparky of [value] (percent).

Treatment 1

As General Manager, your compensation for the year is a fixed salary of 100,000 Lira. Thus, your total compensation will be [value] Lira.

Treatment 2

As General Manager, your compensation for the coming year is a performance bonus, which is 20% of the total cost savings to the plant. Thus, your total compensation will be [value] Lira.

[Manipulation Check Questions]

Sparky City Council is known to be controlling and rigid with their decisions related to cost saving.

Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sparky City Council focuses on making decisions that are within an acceptable range for standards of water quality, and consider only quantifiable metrics in their decision making process.

Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sparky City Council is known to be flexible and adaptable with their decision related to cost savings.

Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Sparky City Council focuses on making decisions that are within an acceptable range for standards of water quality, and consider quantifiable metrics and qualitative factors in their decision-making process.

Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I focused on the tradeoff between the cost saving and my personal compensation when making my water treatment alternative decision.

Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide explanations to the City Council on your reason for choosing your water treatment alternative

To what extent are you familiar with current water treatment issues in this country?

I am very unfamiliar	I am unfamiliar	I am somewhat unfamiliar	I am neither unfamiliar nor familiar	I am somewhat familiar	I am familiar	I am very familiar
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

If you are familiar with current water treatment issues, please write the name of the City and State below where issues exist.

[Demographic Questions]

Please answer the following questions about yourself.

What is your gender?

- Male
- Female

What is your country of origin?

- Canada
- China
- India
- US
- Others

What is the highest level of education that you have completed?

- Less than high school
 - High school or equivalent
 - Associates degree
 - Bachelor's degree
 - Master's degree
 - Doctorate degree
-

Do you have work experience in the public sector (i.e., governmental organization, hospital, university, public educational institution, etc.)?

- Yes
- No

How many years of overall work experience do you have?

How many years have you worked in the public sector, if applicable?

What is your current job title?

How many years have you been at your current job?

What is your annual household income?

- Less than \$20,000
 - \$20,000 - \$40,000
 - \$41,000 - \$70,000
 - \$71,000 - \$100,000
 - Greater than \$100,000
 - Prefer not to answer
-

Do you consider your political views to be: (Select only one)

- More Liberal
- More Conservative

What ethnic group do you consider yourself? (Check only one)

- African
- African/American
- Asian
- Caucasian/White (non-Hispanic)
- Hispanic
- Middle Eastern/Arabic
- Multi-Racial
- Native American
- Other/ Please specify
- Prefer not to answer

[Conclusion]

You have completed this study. We appreciate your time and thank you for your participation!

Please proceed to the next screen to exit this study and receive your validation code for payment.

In order to receive payment, please copy the **4 digit validation code on the next screen** for your record. Thank you.

0000

APPENDIX J: IRB APPROVALS



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: UCF Institutional Review Board #1
FWA00000351, IRB00001138

To: Kazeem Olalekan Akinyele

Date: December 19, 2016

Dear Researcher:

On 12/19/2016, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: Organizational Value Statements: The Effect of Economic Incentives on Employee's Decisions.
Investigator: Kazeem Olalekan Akinyele
IRB Number: SBE-16-12710
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Kamille Chaparro on 12/19/2016 02:40:14 PM EST

IRB Coordinator



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: UCF Institutional Review Board #1
FWA00000351, IRB00001138

To: Kazeem Olalekan Akinyele

Date: April 18, 2017

Dear Researcher:

On 04/18/2017, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: The Impact of Incentive Systems and the Method of Delivery of
Organizational Value Statement on Employees' Performance
Investigator: Kazeem Olalekan Akinyele
IRB Number: SBE-17-13040
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

A handwritten signature in black ink, appearing to read "Patria Davis".

Signature applied by Patria Davis on 04/18/2017 10:04:39 AM EDT

IRB Manager



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Kazeem Olalekan Akinyele**

Date: **June 02, 2017**

Dear Researcher:

On 06/02/2017, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: The Effects of the Incentive Systems and Organizational Culture
on Strategy Surrogation
Investigator: Kazeem Olalekan Akinyele
IRB Number: SBE-17-13212
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the [Investigator Manual](#).

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

A handwritten signature in black ink that reads "Renea C Carver".

Signature applied by Renea C Carver on 06/02/2017 04:00:08 PM EDT

IRB Coordinator