

Spring 2018

# Two Essays on Value Co-Creation

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TWO ESSAYS ON VALUE CO-CREATION

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A Dissertation Submitted to the Faculty of  
Old Dominion University in Partial Fulfillment of the  
Requirements for the Degree of

DOCTOR OF PHILOSOPHY

BUSINESS ADMINISTRATION-MARKETING  
(MINOR IN INTERNATIONAL BUSINESS)

OLD DOMINION UNIVERSITY  
May 2018

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# ABSTRACT

## TWO ESSAYS ON VALUE CO-CREATION

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In the past few decades, customer co-creation has received a significant amount of attention in both practice and academics. Prahalad and Ramaswamy (2000) advocated co-opting customer competence as a competitive strategy. The purpose of this dissertation is to investigate how to engage customers and employees into the value co-creation process. This dissertation is composed of two essays. Essay 1 focuses on customer co-creation behaviors and Essay 2 examines employee co-creation behaviors.

Motivating customers to participate in the value co-creation process can help the firm achieve their long-term financial successes. However, the psychological mechanism underlying customer co-creation behavior is still not fully understood. Particularly, the goal-driven nature of customer co-creation is largely ignored in the literature. The objective of the first essay is to examine the *dual* role of goal self-concordance in customer co-creation behavior. Two studies will be conducted to examine each role respectively. Using four experiments, Study 1 examines the motivational power of goal self-concordance on customer co-creation behavior. Specifically, goal self-concordance is positively related to customers' trying to participate in the co-creation process and anticipatory self-enhancement fully mediates the above relationship. Moreover, the results find that goal specificity weakens the relationship between goal self-concordance and anticipatory self-enhancement. In Study 2, three experiments are conducted to test the moderating effect of goal self-concordance on the relationship between co-creation goal

achievement and customers' perceived self-enhancement. The results find that customers' perceived self-enhancement after co-creation goal achievement is positively related to customer satisfaction and their future co-creation behaviors and goal self-concordance mainly focuses on the direct effect to self-enhancement. Therefore, the moderating effect of goal self-concordance is not supported in this study. Theoretical and practical implications are also discussed.

Essay 2 focuses on employee co-creation behaviors. Although customer co-creation has received a significant amount of attention in both practice and academics, most of the previous studies were conducted from the customer perspective while little is known about how employees are involved in the value co-creation process. To shed new light on employee co-creation behavior, a scale of employee co-creation behavior is developed first, and then a theoretical model that investigates the antecedents and consequences of employee co-creation behavior is tested. To test the hypothesized model, a self-administered survey of 225 employees from a major Auto 4S store chain in China was conducted. The results find that both customer orientation and perceived organizational support are positively associated with employee co-creation behavior, which in turn influences employees' job satisfaction and job stress. Moreover, firm cross-functional cooperation strengthens the relationships between perceived organizational support and employee co-creation behavior. The findings of the study will provide implications to managers regarding how to measure employee co-creation behavior and how to engage employees into the value co-creation process.

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This dissertation is dedicated to the five people who fill my heart with love and perfuse my life with happiness: My kind father and mother, loving wife and two precious daughters.

## ACKNOWLEDGMENTS

There are many people who have contributed to the successful completion of this dissertation. I extend many, many thanks to my committee members, Dr. Chuanyi Tang, Dr. Yuping Liu-Thompkins, and Dr. George Steven Rhiel, for their patience and hours of guidance on my research and editing of this manuscript.

I am especially grateful to Dr. Chuanyi Tang, my dissertation committee chair, mentor, and dear friend, for his invaluable guidance, support, and encouragement throughout four years in the doctoral program. With his keen research sensitivity and intelligence, Dr. Tang always graciously dedicated his time to meet with me and help me improve my research project. More importantly, his relentless quest for knowledge in the form of conducting high-quality research and publishing sets a standard for me to follow in my future career. And this learning experience from Dr. Tang can also provide me with an exceptional opportunity to continue my intellectual growth and reach my career goal.

I am also very thankful to Dr. Yuping Liu-Thompkins for her kind help and support in my research, teaching and during the time when I was in the job market. I would like to convey my gratitude to Dr. Rhiel who kindly helped with my research as one of my dissertation committee members and taught Multivariate Statistics class which ignited my passion for statistics.

I would also like to thank Dr. John Ford. I would like to say Dr. Ford is one of the greatest treasures and assets in our Strome College of Business at Old Dominion University. Since from the first day of this doctoral program, Dr. Ford continuously guided me, helped me

and motivated me to do research and improve our teaching skills. I am truly grateful for Dr. Ford's constant help and support at every step in my doctoral period.

During the first two years of this doctoral program, I was fortunate enough to take seminars and courses that broaden my understanding of international business, marketing theory and marketing research methods. For that, I would also like to thank Dr. John Ford, Dr. Yuping Liu-Thompkins, Dr. George Steven Rhiel, Dr. Kiran Karande, Dr. Mahesh Gopinath, Dr. Edward Markowski, Dr. John Doukas, Dr. George White, Dr. Jing Zhang and Dr. Bill Judge.

Last but not least, I am very grateful to my family. During this learning process, my family was always there for supporting me. For all of that, I am thankful to my father and mother, my sisters and my wife for their unconditional love and support. I am especially want to thank my wonderful wife, Lijun Yang, and our two precious daughters, Boyan (Bonnie) Xu and Boyang (Yvonne) Xu. You're always there for me through both the good times and the bad. You're always there to laugh with, or to help me when I'm sad or the paper was rejected. I love all of you!!!



## TABLE OF CONTENTS

	Page
LIST OF TABLES .....	i
LIST OF FIGURES .....	ii
ESSAY 1 .....	1
INTRODUCTION .....	1
LITERATURE REVIEW AND THEORETICAL BACKGROUND .....	3
Customer Co-creation Literature .....	3
The Antecedents of Customer Co-Creation .....	3
The Outcomes of Customer Co-creation .....	6
Motivation Literature .....	9
Expectancy Theory and Customer Co-creation .....	9
Equity Theory and Customer Co-creation .....	10
Self-Determined Theory (SDT) and Customer Co-creation .....	11
Research Gaps .....	14
STUDY 1: THE MOTIVATIONAL MECHANISM OF GOAL SELF-CONCORDANCE.....	15
Theoretical Framework .....	16
Hypotheses Development .....	17
Research Design.....	21
Experiment 1a .....	22
Experiment 1b.....	28
Experiment 2a .....	32
Experiment 2b.....	36
STUDY 2: THE MODERATED MECHANISM OF GOAL SELF-CONCORDANCE .....	39
Theoretical Framework.....	39
Hypotheses Development .....	40
Research Design.....	43
Experiment 3 .....	44
Experiment 4a .....	50
Experiment 4b.....	53
GENERAL DISCUSSION .....	57
Theoretical Implications .....	59

Managerial Implications .....	60
Limitations and Future Research .....	61
REFERENCES .....	62
TABLES AND FIGURES .....	68
APPENDIX.....	77
Appendix 1: Scenarios along with the Survey Instrument for Experiment 1a .....	77
Appendix 2: Scenarios along with the Survey Instrument for Experiment 1b .....	81
Appendix 3: Scenarios along with the Survey Instrument for Experiment 2a .....	85
Appendix 4: Scenarios along with the Survey Instrument for Experiment 2b .....	89
Appendix 5: Scenarios along with the Survey Instrument for Experiment 3 .....	93
Appendix 6: Scenarios along with the Survey Instrument for Experiment 4a .....	96
Appendix 7: Scenarios along with the Survey Instrument for Experiment 4b .....	100
ESSAY 2.....	104
INTRODUCTION .....	104
LITERATURE REVIEW AND RESEARCH GAP.....	105
Co-creation Literature Review.....	105
Research Gaps.....	110
STUDY 1: EMPLOYEE CO-CREATION BEHAVIOR SCALE DEVELOPMENT.....	111
Item Generation and Purification.....	111
Scale Validation .....	112
STUDY 2: ANTECEDENTS AND CONSEQUENCES OF EMPLOYEE CO-CREATION BEHAVIOR.....	113
Conceptual Framework and Hypotheses Development.....	114
Data Collection .....	119
Measures .....	120
Employee Co-creation Behavior Scale Validation .....	121
Full Measurement Model.....	122
Hypotheses Testing.....	124
Additional Mediation Test .....	125
DISCUSSION.....	127
Summary of the Findings.....	127
The Two-dimensional Employee Co-creation Behavior Scale.....	127
The Influence of Organizational Strategies on Employee Co-creation .....	128
The Moderating Role of Cross-functional Cooperation .....	129
The Influence of Employee Co-creation on Job Satisfaction and Job Stress .....	130

Theoretical Implications .....	131
Managerial Implications .....	133
Limitations and Future Research .....	134
REFERENCES .....	136
TABLES AND FIGURES .....	140
VITA .....	150

## LIST OF TABLES

Table	Page
1. Different Mediating Mechanisms underlying the Relationship between Customer Participation and Customer Satisfaction.....	68
2. Study 1 Descriptive Statistics of the Sample Firms (N=178).....	140
3. Study 1 Employee Co-creation Behavior Scale Summary .....	141
4. Study 2 Descriptive Statistics of the Sample Firms (N=225).....	142
5. Means, Standard Deviation, and Correlations .....	143
6. Construct Measures and Reliability Index.....	144
7. Summary Results of Hypotheses Testing.....	146
8. Summary Results of Direct and Indirect Effects .....	147

## LIST OF FIGURES

Figure	Page
1. The Motivational Mechanism of Goal Self-Concordance .....	69
2. The Moderating Effect of Goal Specificity in Experiment 2a.....	70
3. The Moderating Effect of Goal Specificity in Experiment 2b.....	71
4. The Moderated Mechanism of Goal Self-Concordance .....	72
5. The Result of the Path Model in Experiment 3.....	73
6. The Alternative Model of Co-creation Achievement and Individual Outcome Variables in Experiment 3 .....	74
7. The Moderating Effect of Goal Self (Competence) Concordance in Experiment 4a .....	75
8. The Moderating Effect of Goal Self (Autonomy) Concordance in Experiment 4b.....	76
9. Theoretical Framework .....	148
10. Result of the Structure Model .....	149

## **ESSAY 1**

# **CUSTOMER PARTICIPATION IN THE VALUE CO-CREATION PROCESS: THE SELF-CONCORDANCE APPROACH**

## **INTRODUCTION**

Motivating customers to participate in the value co-creation process can help the firm or company achieve their long-term financial successes. Its significance is reflected on the Marketing Science Institute's ranking of "Understanding customers and the customer experience and identifying value of alternative sources of insight generation to drive innovation (e.g., crowdsourcing, co-creation, and employee input)" as a top-tier research topic (MSI, 2014-2016 Research Priorities). Furthermore, some previous research concluded that customer co-creation has a positive effect on firm performance and urged firms to use customers to increase productivity (Lovelock & Young, 1979; Vargo & Lusch, 2004). Schneider and Bowen (1985) suggested that firms should use customers' talents to deliver superior service quality. Recently, Prahalad and Ramaswamy (2000) advocated co-opting customers' competence as a competitive strategy. However, being customer-oriented is not enough for a company to be fully competent. Many studies argued that firms must learn to collaborate with customers to create value that meets the customer needs (Prahalad & Ramaswamy, 2000). Encouraging customer co-creation may represent the next frontier in gaining competitive effectiveness (Bendapudi & Leone, 2003), and it reflects a major shift from a goods-centered to a service-centered logic view of marketing (Vargo & Lusch, 2004). This new service-dominant logic views customers as proactive co-

creators rather than as passive receivers and treats companies as facilitators of the value co-creation process instead of the standardized value producer (Payne, Storbacka, & Frow, 2008).

Although nowadays customers are increasingly involved in the value co-creation process, the psychological mechanism underlying customer co-creation behavior is still not fully understood. Particularly, the goal-driven nature of customer co-creation is largely ignored in the literature. To fill in these gaps, this study attempts to examine how goal self-concordance drives customer co-creation behavior and furthermore moderates the relationship between customers' co-creation goal achievement and perceived benefits. "Goal self-concordance" reflects the extent of which the selected goals are consistent with the person's intrinsic interests and core values (Sheldon & Elliot, 1998, 1999; Sheldon & Houser-Marko, 2001). In Study 1, we intend to explore that goal self-concordance positively relates to customers' trying to participate in the co-creation process. Our Study 2 suggests that goal self-concordance moderated the relationship between goal achievement and customers' perceptions of self-enhancement.

This study contributes to marketing research and practice in several ways. First, employing goal self-concordance model (Sheldon & Elliot, 1998, 1999; Sheldon & Houser-Marko, 2001), we examine the important role played by goal self-concordance in customer co-creation, which has been largely neglected in the co-creation literature. Moreover, we extend the original goal self-concordance model by testing the mediating effects of customers' anticipatory self-enhancement on the relationship between goal self-concordance and trying to participate. Thirdly, by proposing that customers' self-enhancement mediates the relationship between customer co-creation goal achievement and customer satisfaction, this study suggests an alternative theoretical explanation regarding the relationship between customer participation and customer satisfaction.

## LITERATURE REVIEW AND THEORETICAL BACKGROUND

### Customer Co-creation Literature

Previous research has defined customer co-creation from different perspectives. For example, customer co-creation refers to customers' involvement in company based tasks that are related to sharing innovation, design, and/or ideas generations (Grewal, Lilien, & Mallapragada, 2006; Gruner & Homburg, 2000). While, Chan, Yim, and Lam (2010) defined customer co-creation as a behavioral construct that measures the extent to which customers will provide or share information, make suggestions, and become involved in decision making during the service co-creation and delivery process. Focusing on the service recovery context, Dong, Evans, and Zou (2008) defined customer co-creation as the degree to which the customer is involved in companies' actions to respond to a service failure. Following Prahalad and Ramaswamy (2004), in this study, we define customer co-creation as "the joint creation of value by the company and the customer; allowing the customer to co-construct the service experience to suit their context" (Prahalad & Ramaswamy, 2004, p. 8).

### The Antecedents of Customer Co-Creation

Based on a review of existing customer co-creation literature, we summarized the antecedents of customer co-creation identified in the prior research. The antecedents explain why some consumers are more willing and able to engage productively in the value co-creation process than the others (Dong & Sivakumar, 2017; Etgar, 2008; Füller, 2010). We classified all the antecedents into two categories including personal and organizational factors.

*Personal factors:* According to self-determination theory, consumers' motives to participate in the co-creation process can be considered a function of either intrinsic motivation



or extrinsic motivation (Deci & Ryan, 2000; Füller, 2010). Consumers are intrinsically motivated if they value an activity for its own sake; they are extrinsically motivated if they focus on the contingent outcomes separate from the activity per se.

In terms of intrinsic motivation, co-creation may generate excitement in consumers and satisfy their variety seeking needs (Ratner, Kahn, & Kahneman, 1999), such as the sense of self-expression and pride (Csikszentmihalyi, 1997; Etgar, 2008), creative achievements (Burroughs & Glen Mick, 2004) and the enjoyment of contribution (Evans & Wolf, 2005; Nambisan & Baron, 2009). Moreover, some consumers may participate in the co-production or service process purely driven by a sense of altruism (Nambisan & Baron, 2009). Bhattacharya and Sen (2003) introduced the social identity approach into the customer research and developed a conceptual framework for customer-company identification (CCI). According to CCI framework, customers with high identity to an organization are more likely to involve in the co-creation process. Experiencing the organization's successes or failures as their own, these customers are motivated to participate in the service delivery to ensure the best possible outcome for both themselves and the firm. In addition, they are more likely to understand the rationale behind the firm's internal processes, rules, and norms and participate to the full extent as they allow (Nambisan & Baron, 2009). In sum, the feeling of autonomy, competence, task enjoyment and sense of community will promote co-creation experience, which will drive customers' participants interest in future participation (Füller, Hutter, & Faullant, 2011; Guo, Arnould, Gruen, & Tang, 2013; Rosenbaum, Ostrom, & Kuntze, 2005).

In terms of extrinsic motivation, co-creation may offer consumers opportunities to obtain some valuable outcomes, such as monetary benefits and financial compensations (Füller, 2010; Holbrook, 2006; Knee & Zuckerman, 1996; Lusch, Brown, & Brunswick, 1992). Song and

Adams (1993) concluded that monetary incentive can be an effective motivational tool to encourage customers to participate in the service delivery process. Villarroel Fernandez and Tucci (2010) also found that the desire to earn money appears to be the most likely predictor of consumers' participation and contribution to co-creation. Boudreau, Lacetera, and Lakhani (2011) concluded that "winning cash is the most conspicuous motivation" to participate in TopCoder, an online crowdsourcing community to test a variety of algorithmic approaches.

*Organizational factors:* Previous studies identified several organizational factors that directly influence customer co-creation including perceived organizational support, organizational socialization, customer satisfaction, perceived organizational justice/interactional justices and client–advisor communication.

One major factor that drives customers to participate is *perceived organizational support (POS)*. Eisenberger, Huntington, Hutchison, and Sowa (1986) developed the concept of perceived organizational support (POS) to explain the development of employee commitment to an organization. They proposed that "employees develop global beliefs concerning the extent to which the organization values their contributions and cares about their well-being" (Eisenberger et al. p. 503). According to the notions of social exchange perspective (Homans, 1958; Thibaut & Walker, 1978), the greater perceived organizational support will engender a sense of obligation for employees to reciprocate with cooperative behaviors to provide better service to its customers and actively engage their customers' into the value co-creation process since customer co-creation helps enhance the performance of the organization (Bettencourt, 1997; Shore & Wayne, 1993). In addition, *organizational socialization*, the process by which an individual adapts to appreciate the values, norms, and certain behavior patterns to an organization (Schein, 1971), can be utilized to provide well-organized customers service with specific behavioral

guidelines. The findings from previous studies suggested that customer organizational socialization leads to more accurate role perceptions in consumers and a higher level of willingness to participate the co-creation process (Guo et al., 2013; Kelley, 1992; Kelley, Donnelly Jr, & Skinner, 1990). Previous service marketing literature suggests that satisfied customers are likely to provide effective feedback and information that are beneficial to the organization (Bhattacharya, Rao, & Glynn, 1995; Zeithaml, Berry, & Parasuraman, 1996). Therefore, *customer satisfaction* is another major factor that influences consumers' value co-creation behavior. In addition, previous studies also found that both perceived organizational justice/interactional justices (Augusto de Matos, Vargas Rossi, Teixeira Veiga, & Afonso Vieira, 2009; Auh, Bell, McLeod, & Shih, 2007; Yi & Gong, 2008) and client–advisor communication (Auh et al., 2007) are the organizational antecedents of customer co-creation.

#### The Outcomes of Customer Co-creation

As to the outcomes of customer co-creation, prior research has explored both the bright and the dark sides of customer co-creation. In the following section, we will discuss the benefits and problems that customer co-creation brings to both firms and consumers.

For the bright side of customer co-creation, previous studies showed that both organizations and customers can benefit from economic values and relational/social values (Chan et al., 2010). Economic values refer to the economic benefits of the product or service, whereas relational/social values entail the value derived from emotional or relational bonds between customers and employees (Chan et al., 2010). Moreover, marketing practitioners and researchers have increasingly recognized that customer co-creation has positive effects on firm performance by increasing productivity and decreasing costs (Prahalad & Ramaswamy, 2000; Prahalad & Ramaswamy, 2004). The improvement in firm performance arises from various

sources: cost-minimization caused by customers serving as partial employees (Bitner & Brown, 2008; Chase, 1978; Lovelock & Young, 1979), greater repurchases and referrals (Cermak, File, & Prince, 1994; Shahin & Nikneshan, 2008; Valarie & Bitner, 2000), better brand image (Woisetschläger, Hartleb, & Blut, 2008), faster response to service failures (Dong et al., 2008; Hibbert, Piacentini, & Hogg, 2012), and improved service/product development and innovation (Hippel, 2001; Kaufmann, Lehner, & Tödttling, 2003; Tether & Tajar, 2008). From the customer perspective, customers can accrue economic value through the co-creation process as they benefit from cost reductions and discounts (Jo Bitner, Faranda, Hubbert, & Zeithaml, 1997; Prahalad & Ramaswamy, 2004; Valarie & Bitner, 2000).

Relational/social values derived from the emotional or relational bonds between the customer and the organization may also be a positive consequence for the firm. Co-created products are often shown to improve customer satisfaction (Bloemer, De Ruyter, & Wetzels, 1999; Marzocchi & Zammit, 2006) and enhance customer loyalty and trust (Auh et al., 2007; Dabholkar & Sheng, 2012; Rosenbaum et al., 2005). A friendly service climate of co-created products/services can increase positive product evaluations (Troye & Supphellen, 2012), positive word of mouth (Maru File, Judd, & Prince, 1992; Woisetschläger et al., 2008) and enriched two-way communication (Claycomb, Lengnick-Hall, & Inks, 2001; Kelley et al., 1990; Lovelock & Young, 1979; Mills & Morris, 1986). From the customer perspective, the co-creation process may enhance customers' skills (Lengnick-Hall, 1996), customer enjoyment (Bateson, 1985; Nambisan & Baron, 2009) and their networking capabilities (Cova & Salle, 2008; Etgar, 2008).

Instead of investigating the direct effort from customer participation to customer satisfaction, some scholars believe that customer participation contribute to customer satisfaction via different mediating mechanisms, such as self-congruity (Chang, Chen, & Huang, 2009),

economic value and relationship value (Chan et al., 2010), enjoyment (Yim, Chan, & Lam, 2012), perceived equity (Roggeveen, Tsiros, & Grewal, 2012) and service quality (Ennew & Binks, 1999; Gallan, Jarvis, Brown, & Bitner, 2013). Table 1 summarized the different mediating mechanisms proposed in previous studies.

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Insert Table 1 about here

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Like a coin has two sides, the benefits of customer co-creation for a firm do not come without cost. Some service organizations fail to educate their customers on how to effectively participate in the service system. As a result, these unknowledgeable customers may slow down the service process leading them to feel less satisfied with the service (Fang, 2008; Kelley et al., 1990; Valarie & Bitner, 2000). Some scholars believe that customer co-creation can cause unnecessary uncertainty for service organizations (Jo Bitner et al., 1997; Valarie & Bitner, 2000) and customers may also become the potential competitors to the sellers by gaining the necessary skills to create the offerings independently (Fodness, Pitegoff, & Truly Sautter, 1993). Research also shows that employees tend to suffer from some frustrated customers in the co-creation process emotionally, which may make the employees feel less motivated/productive or even likely to quit (Kelley et al., 1990; Valarie & Bitner, 2000). Furthermore, the complexity requirements from consumers may increase employees' perceived workloads and job stress (Chan et al., 2010; Hsieh, Yen, & Chin, 2004). Due to the self-serving bias, the customer may not appraise the service providers, especially, when the outcomes are better than expected (Bendapudi & Leone, 2003). A customer always gives him- or herself credit for a positive outcome and blames for a negative outcome to the firm, which in turn may affect his/her satisfaction with the service. As a result, when an outcome is better than expected, a customer

who participates in production with the firm will be less satisfied with the firm than the customer who does not participate (Bendapudi & Leone, 2003; Heidenreich, Wittkowski, Handrich, & Falk, 2015).

## **Motivation Literature**

According to the above review on customer co-creation literature, engaging customers into the value co-creation process has become increasingly important to marketing managers. It is critical to understand how to motivate customers to participate in the production or service delivery process. Bagozzi and Dholakia (1999) contended that most behavior is goal-directed. However, in order to reach their desired goals, individuals must have some sorts of impetus to move forward. This impetus is known as motivation. Motivation is defined as “the drives, urges, wishes, or desires which initiate the sequence of events known as behavior” (Bayton, 1958, p. 252). In the following section, we review three basic motivation theories and discuss how they can be used to explain why customers engage in the value co-creation process.

### Expectancy Theory and Customer Co-creation

Expectancy theory (Vroom, 1964; Vroom & Jago, 1978) indicates that an individual will act in a certain way based on his/her expectation that the act will be followed by a given outcome. Vroom (1964) proposed the valence-instrumentality-expectancy (VIE) model to evaluate the motivation forces (MF), in which,  $MF = \text{expectancy} * \text{instrumentality} * \text{valence}$ . In this equation, expectancy is the probability or belief that one's effort will result in the achievement of desired goals; accordingly, it will drive individuals to exert effort to improve their performance (Gatewood, Shaver, Powers, & Gartner, 2002). Therefore, the association between the individual's expectancy and behavioral intentions is partially dependent on whether

the prior outcomes meet the individual's expectancy (DeCarlo, Teas, & McElroy, 1997; Johnston & Kim, 1994; Teas & McElroy, 1986).

In the marketing field, expectancy theory has been used to explain what motivates consumers to collaborate with firms, "because the consumer should or could expect a benefit prior to collaborating with a firm on a value co-creation initiative and believe the benefit is achievable" (Roberts, Hughes & Kertbo, 2014, p. 154). Empirical studies have concluded that customers may invest their time and effort to achieve economic value and social/relational value from the co-creation process and experiences (Chan et al., 2010; Holbrook, 2006; Yim et al., 2012). Normally, before customers invest resources such as knowledge, skills, time, and efforts to co-create value, they will have certain expectations. If the outcomes are better than expected, the customer may not appreciate the service providers, because people tend to attribute positive outcomes to themselves but attribute negative ones to external factors (Bendapudi & Leone, 2003).

#### Equity Theory and Customer Co-creation

According to equity theory, individuals are motivated by fairness, and if they identify inequities in the input or output ratios of themselves and their referent group, they will seek to adjust their inputs to reach their perceived equity (Adams, 1963, 1965). Moreover, the greater the inequity the individual perceives, the more distress the individual feels (Adams, 1965). In other words, perceived inequity is an important source to motivate individuals to restore equity or fairness.

In the marketing field, equity theory can help to understand the reasons why individuals willing to involve customer-company interactions (Füller, 2010; Wikström, 1996). Bendapudi and Leone (2003) found that customers' assessment of their own input in the production process

would influence their assessment of overall satisfaction with the company. When customers feel that their contribution is not fairly credited, their satisfaction with the company will decrease (Grisseemann & Stokburger-Sauer, 2012). Under the umbrella of equity theory, social exchange theory (Blau, 1964) suggests that satisfied customers are likely to reciprocate the favorable treatment from a service firm by actively participating in the service delivery process, providing or sharing information, and making constructive suggestions (Bagozzi, 1995). Moreover, Roggeveen et al. (2012) adopted justice theory to argue that co-creation can lead people to view the overall encounter as fairer and found that equity has been restored to the customer-company relationship.

#### Self-Determined Theory (SDT) and Customer Co-creation

Self-determined theory (SDT)'s approach is an organismic, building on the assumption that people have evolved predispositions for growing, mastering challenges and integrating new experiences into a coherent sense of oneself (Ryan & Deci, 2000). SDT suggests that social contexts can either support or thwart the natural tendencies for active engagement and psychological growth (Ryan & Deci, 2000). Thus, SDT connects motivation and well-being, suggesting that motivation and psychological well-being share the same underlying mechanisms. SDT originated in research on the intrinsic and various extrinsic sources of motivation (Deci & Ryan, 1985).

*Intrinsic motivation.* Intrinsic motivation arises whenever people find enjoyment and interest in a task (Deci & Ryan, 1985). The concept of intrinsic motivation describes the natural tendencies that are fundamental to individuals' cognitive and social development, and constitute a source of enjoyment throughout life (Deci & Ryan, 1985). In SDT, needs specify "innate psychological nutrients that are essential for ongoing psychological growth, integrity and well-



being” (Deci & Ryan, 2000, p. 229). The concept of innate psychological needs builds the foundation to understand and make predictions about individuals’ motivation and behavior (Deci & Ryan, 2000). Three basic psychological needs are particularly useful in explaining intrinsic motivations – competence, autonomy and relatedness. The need for competence is individuals’ inherent desire to feel effective in interacting with the environment (Deci & Ryan, 2000). Autonomy is found when individuals engage in a specific action that they enact willingly (Deci & Ryan, 2000). They feel their actions emanate from their own values and interests and their experience is grounded in a sense of choice and freedom. Finally, relatedness concerns the basic need for belonging (Deci & Ryan, 2000).

In the marketing field, Thomson (2006) found that when a brand enhances a person's feelings of autonomy and relatedness, the person is likely to become more strongly attached to the brand. Fiore, Lee, and Kunz (2004) indicated that consumers’ willingness to be involved into co-design is positively related to two motivations: creating a unique product and enjoying the exciting co-design experience. Both of the two motives are driven by the intrinsic needs of competence and autonomy rather than utilitarian “purposive” motives. Using a qualitative approach to identify the various customer with well-being outcomes in the co-creation process, Sharma, Conduit, and Rao Hill (2017) found that the fulfillment of autonomy, competence and relatedness acts as principal factors to foster eudemonic well-being.

*Extrinsic motivation.* Extrinsic motivation is present “whenever an activity is done to attain some separable outcomes” (Ryan & Deci, 2000, p. 60), where the outcome could be a reward, competition or punishment of some kind. Extrinsically motivated, individuals still can be authentically committed to an activity through internalization and integration. Therefore, the

various types of extrinsic motivations fall in the following continuum of internalization: external regulation, introjection, identification and integration (Ryan & Deci, 2000).

In the previous section (personal antecedent factors of customer co-creation), we have already summarized that an extrinsic reward (e.g., receiving a prize or a monetary incentive) could influence the motivation of consumers to participate in the co-creation process. However, after comparing the motivational effect of intrinsic motivation with that of extrinsic motivation, some empirical studies have already proved that customers may be more intrinsically motivated to participate in the co-creation process (Lüthje, 2004). According to one working paper (Ernst et al., 2017), “Virtual co-creation with customers in the early stages of new product development”, the non-significant effect of monetary rewards on idea quality further reinforces the notion that high levels of intrinsic rather than extrinsic motivation lead to high-quality ideas.

Self-concordance theory (SCT) is rooted in self-determination theory (SDT) (Sheldon & Houser-Marko, 2001). On the basis of self-determination theory, Sheldon and colleagues (Sheldon & Elliot, 1998, 1999) proposed the self-concordance model to explain how underlying initial motivation influences individuals’ goal-driven process, behavior, and well-being. In the self-concordance theory (SCT), the self-concordance refers to “the feeling of ownership that people have regarding their self-initiated goals” (Sheldon & Houser-Marko, 2001, p. 152). The shift enables researchers to examine proactive motivation and the research question of how individuals select global life initiatives among the potentially bewildering array of possibilities (Schwartz, 2000). The self-concordance model also extends SDT by explaining the mechanics of *conative* processes leading from goal adoption (initial motivation) to goal achievement (Sheldon & Elliot, 1999).

Consistent with SDT, the self-concordance model argues that individuals may pursue a goal for one or more of four types of reasons to perceive more linkages between their goals and their long-term values (Judge, Bono, Erez, & Locke, 2005; Ryan & Deci, 2000; Sheldon & Elliot, 1998; Sheldon & Houser-Marko, 2001):

- External regulation: pursuing a goal that bases on others' wishes or attains external rewards or punishments (e.g., performing a task to earn money);
- Introjected: pursuing a goal to avoid feelings of shame, guilt, or anxiety (e.g., organizing one's files out of a sense of guilt or obligation);
- Identified: pursuing a goal out of a belief that it is an important goal to have (e.g., helping a coworker with a computer problem out of a belief that it is important to help other employees); and
- Intrinsic: pursuing a goal because it provides the fun and enjoyment (e.g., setting aside time to chat with a coworker because one finds the conversation is enjoyable).

## **Research Gaps**

After reviewing the related literature, we found that some research gaps are remaining in the co-creation literature. First, although prior research found that goal self-concordance plays an important role in motivating goal-driven efforts and influencing individuals' subjective well-being (Sheldon & Elliot, 1999), the role played by goal self-concordance in customer co-creation has not been examined in the literature. Previous studies on customer co-creation largely rely on social exchange theory, which focused on the motivational power of companies' relationship investment (e.g., organizational support and customer satisfaction). This study enriched previous research by exploring the goal self-concordance mechanism in motivating customer co-creation. In addition, by proposing that customers' self-enhancement mediates the

relationship between customer co-creation and customer satisfaction, this study suggests an alternative theoretical explanation regarding the relationship between customer participation and customer satisfaction.

In order to investigate the dual role of goal self-concordance in customer co-creation, we conduct two studies to examine each role respectively. Specifically, study 1 focuses the motivational power of goal self-concordance on customer co-creation and study 2 focuses on the moderating effects of goal self-concordance on the relationship between customer co-creation goal achievement and its outcome variables.

## **STUDY 1: THE MOTIVATIONAL MECHANISM OF GOAL SELF-CONCORDANCE**

In this study, we employ the self-concordance model to examine the motivational mechanism of goal self-concordance in driving customer co-creation. By integrating goal self-concordance model and theory of trying (Bagozzi & Edwards, 1998; Sheldon & Elliot, 1998, 1999; Sheldon & Houser-Marko, 2001), we examine the positive effect of the goal self-concordance on customers' trying to participate in value co-creation process. Moreover, we extend the original self-concordance model by hypothesizing that the relationship between goal self-concordance and trying to participate is mediated by customers' anticipatory self-enhancement. In addition, we investigate the moderating effects of goal specificity on the relationship between goal self-concordance and their anticipatory self-enhancement. We conduct four experiments to test the hypotheses.

## Theoretical Framework

By integrating goal self-concordance model and theory of trying (Bagozzi & Edwards, 1998; Sheldon & Elliot, 1998, 1999; Sheldon & Houser-Marko, 2001), we establish a motivational model of customer co-creation. We propose that consumers' goal self-concordance increases their trying to participate in the production or service delivery process due to two anticipatory self-enhancement mechanisms (general self-efficacy enhancement and enjoyment). Moreover, we hypothesize that goal specificity moderates the relationship between goal self-concordance and their anticipatory self-enhancement. The framework of the motivational mechanism of goal self-concordance is presented in Figure 1.

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Insert Figure 1 about here

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Self-concordance model was developed based on the three basic needs proposed in the self-determination theory: competence, autonomy, and relatedness (Deci & Ryan, 1985, 2000). Competence refers to the feeling that one is effective and capable of certain behavior or task (White, 1959); autonomy refers to the feeling that one's behavior is self-chosen and meaningful (deCharms, 1968); and relatedness refers to the feeling that one is connected to or in harmony with important others (Baumeister & Leary, 1995). According to the result of our pilot study, none of the participants selected community support or friend-making (relatedness) as their motivations to participate in the co-creation process. Therefore, in this study, we focus on consumers' needs for competence and autonomy in value co-creation process. Consistently, we define goal self-concordance from the following two basic perspectives: the *goal self (competence) concordance* and the *goal self (autonomy) concordance*. The former one refers to

the degree to which people pursue the set of personal goals that are consistent with their intrinsic core values *improving and improving their own capabilities*. The later one reflects the degree to which people pursue the set of personal goals that are consistent with their intrinsic interests of *enjoying the freedom* (Dahl & Moreau, 2007; Sheldon & Elliot, 1999). Following the original goal self-concordance model, we hypothesize that both types of goal self-concordance lead to customers' trying to participate in value co-creation process.

We also extend the original self-concordance model by proposing that consumers' anticipatory self-enhancement mediates the relationship between goal self-concordance and their goal-pursuit efforts. In the context of customer co-creation, we identified two types of anticipatory self-enhancement that can explain the relationship between goal self-concordance and their goal-pursuit efforts. We define *anticipatory general self-efficacy enhancement* as a customer's expectation that his/her overall competence will be improved as the result of successfully obtaining the pre-set goal (Judge, Erea, & Bono, 1998) and *anticipatory enjoyment* refers to a customer's expectation that he/she will feel pleasure, enjoyment, and fun as the result of successfully achieving the pre-set goal (Dahl & Moreau, 2007).

The dependent variable in the framework is the customer's trying to participate. Trying is a process incorporating volitional, motivational, and cognitive elements to convert intentions into action (Bagozzi & Edwards, 1998). Consistent with the theory of trying (Bagozzi & Warshaw, 1990), we define *trying to participate* as the consumers' attempts or efforts to strive and achieve their co-creation goals.

## **Hypotheses Development**

According to Sheldon and Elliot (1999), when a person strives towards a goal of strong interest or self-identified personal convictions (i.e., self-concordant goals), he/she may tend to

exert sustained effort in pursuing the goal over time. In contrast, when goals are pursued only because of external pressure or feelings of guilt and anxiety that come from consumers' extrinsic interests (low self-concordant goals), the motivational power is likely to fade over time. In this condition, consumers are less likely to try hard to pursue their pre-set goals.

According to the goal self-concordance model, goal self (competence) concordance motivates consumers to pursue the set of personal goals, the obtaining of which will demonstrate and enhance their confidence in their own abilities. In the customer co-creation context, if consumers anticipate that successfully obtaining the co-creation goals will help to enhance their own competence, they are more likely to try hard in participating in the co-creation project. Recent signal research also provided the evidence to show that consumers not only behave to keep the same existing identities, but also actively use their behaviors to send "evidence/signal" to themselves or others to show their desired abilities (Bénabou & Tirole, 2011; Bodner & Prelec, 2003; Gneezy, Imas, Brown, Nelson, & Norton, 2012). Thus, as a motivational driver, if a consumer feels that a self (competence)-concordance goal can represent his/her feelings of intrinsic interest and signal their capabilities, the customer will be motivated to pursue the pre-set co-creation goal.

The self-efficacy theory proposed that "people can give up trying because they seriously doubt that they can do what is required or they may be assured of their capabilities but give up trying because they expect their efforts to produce no results due to the unresponsiveness, negative bias, or punitiveness of the environment" (Bandura, 1982, p.140). Under the co-creation research context, we assume that the higher the anticipatory general self-efficacy enhancement from the value co-creation process, the more likely consumer will try to participate in the co-creation process. Consumers will be highly involved in the co-creation process since these

behaviors lead to the achievement of their preset goals. As a result, the following hypotheses are offered:

*H1a: Goal self (competence) concordance is positively related to customers' trying to participate in the co-creation process.*

*H1b: Anticipatory general self-efficacy enhancement mediates the relationship between goal self (competence) concordance and customers' trying to participate in the co-creation process.*

Goal self (autonomy) concordance refers to consumers prefer to pursue the set of personal goals that allow them to enjoy the freedom of making choices and decisions at their own will. Consistently, in the customer co-creation context, if consumers expect that the achievement of the pre-set co-creation goal leads to autonomy and the enjoyment of freedom, which is consistent with their basic needs and core values, they will try hard in participating in the co-creation process.

When people are motivated to verify, validate, and sustain their existing self-concepts, they intend to behave in the ways of consistently with how they keep searching activities for the sake of the person's own interest or personal value (Swarm Jr, 1983). As discussed above, autonomy is one of the most important basic consumer needs, because autonomy can give individuals the feeling of not being forced and heighten their intrinsic in behavioral change (Amabile, 1993; Deci & Ryan, 1987). In the customer co-creation context, if the participants can capture the experiential nature of anticipatory enjoyment, such as fun, excitement and freedom during the process of goal pursuit, they will perceive a closer linkage between their goals and the anticipatory enjoyment.



Previous studies have provided evidence that many consumers engage in the co-creation process for their own sake and enjoyment (Bateson, 1985; Belk, Ger, & Askegaard, 2000). According to expectancy theory (Vroom, 1964; Vroom & Jago, 1978), the consumer may expect to receive certain benefits prior to collaborating with a firm on a value co-creation initiative and believe that the benefit is achievable and enjoyable. Especially, the expected fun and enjoyable experience could be generated more when consumers' role shifts from distanced spectators to value co-creator in the value co-creation process (Dabholkar & Bagozzi, 2002; Vargo & Lusch, 2004). Above all, the expected enjoyment contributes to consumers' trying to participate in the co-creation process. As a result, the following hypotheses are offered:

*H2a: Goal self (autonomy) concordance is positively related to customers' trying to participate in the co-creation process.*

*H2b: Anticipatory enjoyment mediates the relationship between goal self (autonomy) concordance and customers' trying to participate in the co-creation process.*

Both marketing and management literature suggests that whether a consumer is able to achieve his/her pre-set goals (e.g., losing weight and saving money) largely depends on how specific and clear their pre-set goals are (Scott & Nowlis, 2013). Consistent with the previous studies, we define *goal specificity* as the extent of which a goal is clearly defined (Locke & Latham, 1990; Scott & Nowlis, 2013).

We hypothesize that the relationships between goal self-concordance and customers' anticipatory perception in the co-creation process are moderated by goal specificity. Scott and Nowlis (2013) suggested that goal specificity increases individuals' goal-pursuit motivation because individuals are able to accurately estimate the goal pursuit outcomes. In other words, a specific goal would generate clearer anticipatory self-enhancement as a result of goal

achievement than a vague goal. As a result, with a specific goal, individuals are likely to exert more efforts in their goal-pursuit processes. In the customer co-creation context, compared to vague goals, specific goals will strengthen the relationship between goal self (competence) concordance and customers' anticipatory general self-efficacy enhancement since consumers with specific goals know better about the amount of efforts needed in the goal pursuit process and the outcomes they are likely to obtain (Schunk, 1990). Moreover, specific goals can also strengthen the relationship between goal self (autonomy) concordance and customers' anticipatory enjoyment since specific goals provides clear information regarding how much fun and enjoyment consumers will experience after goal achievement (Woodruff & Flint, 2006). As a result, the following hypotheses are offered:

*H3a: The effect of goal self (competence) concordance on customers' anticipatory general self-efficacy enhancement is greater when goal specificity is high than when goal specificity is low.*

*H3b: The effect of goal self (autonomy) concordance on customers' anticipatory enjoyment is greater when goal specificity is high than when goal specificity is low.*

## **Research Design**

We tested our hypotheses in four experiments. Experiment 1a was conducted to test the relationship between goal self (competence) concordance and customers' trying to participate in the co-creation process (H1a) and the mediating effect of anticipatory general self-efficacy in this relationship (H1b). Experiment 1b was conducted to test the relationship between goal self (autonomy) concordance and customers' trying to participate in the co-creation process (H2a) and the mediating effect of anticipatory enjoyment in the relationship (H2b). Experiment 2a was conducted to examine the moderating effects of goal specificity on the relationship between goal

self (competence) concordance and customers' anticipatory general self-efficacy enhancement (H3a). Finally, Experiment 2b was conducted to examine the moderating effect of goal specificity on the relationship between goal self (autonomy) concordance and customers' anticipatory enjoyment (H3b).

#### Experiment 1a

The main purpose of this experiment is to test the hypothesis that goal self (competence) concordance enhances customers' trying to participate in the co-creation process and anticipatory general self-efficacy enhancement mediates the above relationship (H1a).

A scenario-based experiment was employed to test the hypothesis. In this experiment, the independent variable goal self (competence) concordance was manipulated (high vs. low) and the dependent variable of trying to participate was measured. To better capture the meaning of goal self (competence) concordance, we created a special approach to manipulate goal self (competence) concordance. We first measured the importance of competence enhancement to each participant. Based on the median, we divided the participants into two groups (highly vs. not highly). We then created two manipulation scenarios. In one scenario, the participants were informed that the co-creation behavior helps to enhance their competence while in the other scenario; the participants were informed that the co-creation behavior does not increase their competence. Then, we divided participants into two groups (high vs low goal concordance) by matching the competence improvement manipulation and the self-reported importance of competence measurement. The high goal self (competence) concordance group includes the participants who reported that competence is highly important to them and are assigned to the competence improvement condition. The low goal self (competence) concordance group

includes the participants who reported that competence is highly important to them and are assigned to the no competence improvement condition.

### Participants

Eighty undergraduate students from a middle-sized university were invited to participate in the study in return for extra credits. During the recruiting process, we informed the students that the objective of the study is to help a craft company test a new game.

### Procedure

We used the folding cranes as the research context since folding cranes is a customer co-creation behavior and this context is adapted from previous literature (Norton, Mochon, & Ariely, 2012). When folding cranes, customers need to follow the guideline provided by the company and co-create value with the company. At the beginning of the experiment, participants were first asked to answer three questions about their importance of competence. Then, they were assigned to two different scenarios (competence improvement vs. no competence improvement).

Participants who were assigned to the competence improvement scenario were provided with the following information: “*A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is not only a good game for **children’s** developing minds but also **helps adults** develop hand-eye coordination. Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and an instruction sheet. Image that your task is to follow the*

instruction sheet to fold an origami crane and then tell us your feeling and evaluation about the product?

Participants in the no competence improvement scenario were provided with the following information: “A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is a good game **just for children’s** developing minds, but **doesn’t help adults** develop hand-eye coordination. Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and an instruction sheet. Image that your task is to follow the instruction sheet to fold an origami crane and then tell us your feeling and evaluation about the product?

After reading the assigned scenario (See Appendix 1), participants were asked to complete a survey instrument. The manipulation and realistic check questions were asked first, followed by the measures of anticipatory enjoyment, anticipatory general self-efficacy enhancement and the trying to participate in the value co-creation process. To exclude other potential explanations that are not the focus of the study, we measured product familiarity, product experience, attitudes toward the activity, gender, age, education and income as the control variables. After the experiment, participants were debriefed and thanked. Please see Appendix 1 for the scenarios along with the survey instrument.

### Measures

*Importance of competence.* Participants’ evaluations of the importance of competence were measured by three questions adapted from Sheldon, Elliot, Kim & Kasser (2001). Sample

items include “The hand-eye coordination is very important to me” and “I felt that mastering hand-eye coordination is very important to me.” Participants responded to all items on a 7-point Likert scale (1= strongly disagree, 7= strongly agree).

*Anticipatory enjoyment.* The four measures of anticipatory enjoyment were adapted from Franke and Schreier (2010). Sample items include “I expect to enjoy folding the origami crane in the product test” and “I expect that folding the origami crane in the product test will be very fun.” Participants responded to all items on a 7-point Likert scale (1= strongly disagree, 7= strongly agree).

*Anticipatory general self-efficacy enhancement.* The eight measures of anticipatory general self-efficacy enhancement were adapted from Chen, Gully, and Eden (2001). Sample items include “I expect that I will be able to achieve most of the goals that I have set for myself” and “I expect that I will be able to successfully overcome many challenges.” Participants responded to all items on a 7-point Likert scale (1= strongly disagree, 7= strongly agree).

*Trying to participate in the value co-creation process.* The measures of trying to participate in the value co-creation process were adapted from previous literature (Mathur, 1998; Bechwati, Nada Nasr, & Lan Xia, 2003). It was measured by five questions on a 7-point Likert scale. The first question is to ask the participants how much they will try (1 = never want to try, 7 = try every time) and the rest four questions are about to what extent the participants agree or disagree with a statement (1=strongly disagree, 7 = strongly agree). Sample items include “I will put a lot of effort into folding the origami crane in the product test” and “I will work hard in folding the origami crane in the product test.”

*Product familiarity.* The measure of product familiarity was adapted from Franke, Keinz and Schreier (2009). On a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), participants will be asked to what extent they agree the following statement of “I am familiar with the process of folding the origami crane.”

*Product experience.* The measure of product experience was adapted from Franke, Keinz and Schreier (2009). On a five-point Likert scale ranging from 1 (never) to 5 (all the time), participants were asked the following question “How often do you fold the origami crane?”

*Attitudes toward the activity.* We measured participants' attitudes toward the activity using three seven-point semantic differential scales (the anchors were "like" vs. "dislike," "good" vs. "bad," and "appealing" vs. "not appealing") adapted from the scale used in Franke, Keinz and Steger (2009).

## Results and Discussion

*Manipulation check.* To check our manipulation for competence improvement, participants were asked to what extent they agree or disagree with the statement of “Folding the origami crane helps adults improve hand-eye coordination” on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). The result of the *t*-test revealed that participants in the competence improvement condition reported a significantly higher score on the above statement than participants in the no competence improvement condition (5.98 vs. 3.68;  $t(74) = 6.28, p < .01$ ). This result suggested that the manipulation was successful. To investigate the realism of the experimental design, we included one realism check question in the questionnaire. On a 7-point scale, participants indicated that the scenario was realistic ( $M = 5.54, SD = 1.23$ ).

*Hypotheses testing.* To test H1a, we conducted the analysis of covariance (ANCOVA) with trying to participate as the dependent variable, goal self (competence) concordance as the independent variable and product familiarity, product experience, attitudes toward the activity, gender, age, education and income as the covariates. We coded the high goal self (competence) concordance group as “1” to represent the participants who reported that improving competence is important and are assigned to the competence improvement condition and the low goal self (competence) concordance group as “0” to represent the participants who reported that improving competence is important and are assigned to the no competence improvement condition.

According to the results of ANCOVA, goal self (competence) concordance was significantly related to customers’ trying to participate ( $F(1,50)= 9.81, p < .01$ ). We also found that participants in the high goal self (competence) concordance condition reported a significantly higher trying to participate than those in the low goal self (competence) concordance condition (5.83 vs. 4.45,  $p < .01$ ). In addition, the results of linear regression also confirmed our ANCOVA results and found that goal self (competence) concordance has a positive effect on consumers’ trying to participate ( $\beta = 1.37, p < .01$ ). Thus, our findings supported H1a.

To further examine whether anticipatory general self-efficacy enhancement mediates the relationship between goal self (competence) concordance and trying to participate (H1b), Hayes’ approach of mediating test was adopted (Hayes, 2012, Process model 4). This study's 5000 resamples generate 95% confidence intervals (percentile) for the mediator. According to the results, the indirect effect of goal self (competence) concordance on customers’ trying to participate via anticipatory general self-efficacy enhancement was significant ( $\beta = 1.17, CI =$



[.4362, 2.3322]). The direct effect of goal self (competence) concordance on customers' trying to participate was nonsignificant ( $\beta = .57$ ,  $CI = [-.0884, 1.2264]$ ). As a result, our results lended support to H1b, which suggests that anticipatory general self-efficacy enhancement is a full mediator of the relationship between goal self (competence) concordance and customers' trying to participate.

*Discussion.* Above all, the findings of Experiment 1a lended support to our hypothesis that goal self (competence) concordance is positively related to customers' trying to participate in the co-creation process (H1a). More important, we found that anticipatory general self-efficacy enhancement fully mediated the relationship between goal self (competence) concordance and customers' trying to participate (H1b). These findings suggest that goal self (competence) concordance provides the motivational power for customers' co-creation behaviors. Anticipatory general self-efficacy enhancement is the psychological mechanism underlying the motivational power. In the following Experiment 1b, we plan to test whether the relationship between goal self-concordance and trying to participate in the co-creation process is mediated by customers' anticipatory emotional self-enhancement mechanism (e.g. anticipatory enjoyment).

## Experiment 1b

The main purpose of this experiment is to test the hypothesis that goal self (autonomy) concordance enhances customers' trying to participate in the co-creation process and anticipatory enjoyment mediates the above relationship (H2a). We used the similar scenario and procedure as in Experiment 1a, because the manipulation of this experiment focused on goal self (autonomy) concordance instead of goal self (competence) concordance. We made the following changes to the experimental procedure.

First, we measured the importance of autonomy instead of the importance of competence. Second, we manipulated another factor autonomy (improvement vs. no improvement) instead of competence (improvement vs. no improvement).

Participants who were assigned to autonomy improvement scenario were provided with the following information: “A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, **although individuals need to follow the instruction provided by the company to fold the crane, individuals are provided with multiple choices that individuals can choose from to express their own interests.** Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and **five different** crane instruction sheets. You can **choose any instruction that you are interested in.** Imagine that your task is to follow the instruction sheet that **you choose** to fold an origami crane and then tell us your feeling and evaluation about the product.”

Participants in the no autonomy improvement scenario were provided with the following information: “A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is a game in which **individuals need to follow the instruction provided by the company to fold the crane. Individuals do not have the choice to fold the crane in a way to express their own interests.** Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and **only one** crane instruction sheet. You need to **strictly follow the instruction** and **can't choose a way that you are interested in to fold the crane.** Imagine that your task is to follow the

instruction sheet provided by the company to fold an origami crane and then tell us your feeling and evaluation about the product”.

Third, we also changed the manipulation check for autonomy improvement. We used the same measures for the rest variables and followed the same experimental procedure as in Experiment 1a. Please see Appendix 2 for the scenarios along with the survey instrument. Eighty undergraduate students from a middle-sized university were invited to participate in the study in return for extra credits.

### Results and Discussion

*Manipulation check.* To check our manipulation for autonomy improvement, participants were asked to what extent they agree or disagree with the statement of “I have choices to express my own interest when folding the origami crane in the product test” on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). The result of the *t*-test revealed that participants in the autonomy improvement condition reported a significantly higher score on the above statement than participants in the no autonomy improvement condition (6.19 vs. 2.89;  $t(63) = 11.95, p < .01$ ). This result suggested that the manipulation was successful. To investigate the realism of the experimental design, we included one realism check question in the questionnaire. On a 7-point scale, participants indicated that the scenario was realistic ( $M = 5.21, SD = 1.51$ ).

*Hypotheses testing.* To test H2a, we conducted the analysis of covariance (ANCOVA) with trying to participate as the dependent variable, goal self (autonomy) concordance as the independent variable and product familiarity, product experience, attitudes toward the activity, gender, age, education and income as the covariates. We used the same approach in Experiment 1a to code goal self (autonomy) concordance. According to the results of ANCOVA, goal self

(autonomy) concordance was significantly related to customers' trying to participate ( $F(1,54)=163.51, p < .01$ ). We also found that participants in the high goal self (autonomy) concordance condition reported a significantly higher trying to participate than those in the low goal self (autonomy) concordance condition (5.76 vs. 2.67,  $p < .01$ ). In addition, the results of linear regression also confirmed our ANCOVA results and found that goal self (autonomy) concordance has a positive effect on consumers' trying to participate ( $\beta = 3.13, p < .01$ ). Thus, our findings supported H1b.

To further examine whether anticipatory enjoyment mediates the relationship between goal self (autonomy) concordance and trying to participate (H2b), Hayes' approach of mediating test was adopted (Hayes, 2012, Process model 4). This study's 5000 resamples generate 95% confidence intervals (percentile) for the mediator. According to the results, the indirect effect of goal self (autonomy) concordance on customers' trying to participate via anticipatory enjoyment was significant ( $\beta = 2.81, CI = [2.1422, 3.5961]$ ). The direct effect of goal self (autonomy) concordance on customers' trying to participate was nonsignificant ( $\beta = .25, CI = [-.3583, .8664]$ ). As a result, our results lended support to H2b, which suggests that anticipatory enjoyment is a full mediator of the relationship between goal self (autonomy) concordance and customers' trying to participate.

*Discussion.* Above all, the findings of Experiment 1b lended support to our hypothesis that goal self (autonomy) concordance is positively related to customers' trying to participate in the co-creation process (H2a). More important, we found that anticipatory general enjoyment fully mediates the relationship between goal self (autonomy) concordance and customers' trying to participate (H2b). The findings from Experiment 1a and 1b together suggest that goal self-concordance provides the motivational power for customers' co-creation behaviors. Anticipatory

general self-efficacy enhancement and enjoyment are two psychological mechanisms that fully mediate the motivational effects, which indicates that the motivational power of goal-self concordance comes from customers' anticipated self-enhancement resulting from the co-creation behavior.

In the following section, we plan to conduct another two experiments (Experiment 2a and Experiment 2b) to investigate the moderating effects of goal specificity on the relationship between goal self-concordance and anticipatory self-enhancement.

#### Experiment 2a

The purpose of this experiment is to test the moderating effect of goal specificity on the relationship between goal self (competence) concordance and customers' anticipatory general self-efficacy enhancement. To achieve this research objective, we employed a 2 (goal self 'competence'-concordance: high vs. low) \* 2 (goal specificity: specific vs. unspecific) between subjects design.

We used the similar scenario and procedure as in Experiment 1a to manipulate goal self (competence) concordance. The goal specificity was manipulated by the following two different scenarios. In the specific goal scenario, participants were provided with the following information, "You have 10 minutes and your goal is to fold three origami cranes in the 10 minutes"; and in the un-specific goal scenario, participants were provided with the following information, "You have 10 minutes and your goals is to try your best to fold as many origami cranes as you can". Moreover, in the survey instrument, we added a manipulation check for goal specificity. We used the same measures for the rest variables as in Experiment 1a. Please see Appendix 3 for the scenarios along with the survey instrument. One hundred and thirty participants were recruited from Amazon Mechanical Turk (MTURK). Moderate monetary

incentives were provided to the participants. Once the participants were recruited from the MTURK, they were directed to the Quattrics link and randomly assigned to four different scenarios.

## Results and Discussion

*Manipulation check.* To check our manipulation for competence improvement, participants were asked to what extent they agree or disagree with the statement of “Folding the origami crane helps adults improve hand-eye coordination” on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). The result of the *t*-test revealed that participants in the competence improvement condition reported a significantly higher score on the above statement than participants in the no competence improvement condition (5.62 vs. 2.92;  $t(111) = 8.93, p < .01$ ). This result suggested that our manipulation was successful. To investigate the realism of the experimental design, we included one realism check question in the questionnaire. On a 7-point scale, participants indicated that the scenario was realistic ( $M = 5.20, SD = 1.12$ ).

To check our manipulation for goal specificity, participants were asked to what extent they agree or disagree with the following statement, “My goal of folding the origami cranes within 10 minutes is very specific” on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). The result of the *t*-test revealed that participants in the specific goal condition reported a significantly higher score on the above statement than participants in the un-specific goal condition (5.54 vs. 4.23;  $t(111) = 3.71, p < .01$ ). This result suggested that our manipulation was successful.

*Hypotheses testing.* To test H3a, we conducted the analysis of covariance (ANCOVA) with anticipatory general self-efficacy enhancement as the dependent variable, goal self (competence) concordance and goal specificity as the independent variables and product

familiarity, product experience, attitudes toward the activity, gender, age, education and income as the covariates. We used the same approach in Experiment 1a to code goal self (competence) concordance. According to the results of ANCOVA, the effect of the interaction between goal self (competence) concordance and goal specificity on anticipatory general self-efficacy enhancement was significant ( $F(1, 55) = 18.41, p < .01$ ). We also found a significant main effect for goal self (competence) concordance ( $F(1, 55) = 16.65, M_{\text{high}}=5.72, M_{\text{low}}=3.76; p < .01$ ) and goal specificity ( $F(1, 55) = 13.84, M_{\text{specific}}=5.61, M_{\text{un-specific}}=3.87; p < .01$ ). An examination of the mean suggests that goal self (competence) concordance has no impact on anticipatory general self-efficacy enhancement under the specific goal condition ( $M_{\text{high GC}} = 5.55$  vs.  $M_{\text{low GC}} = 5.67, p > .10$ ) but has a positive impact on anticipatory general self-efficacy enhancement under the un-specific goal condition ( $M_{\text{high GC}} = 5.89$  vs.  $M_{\text{low GC}} = 1.84, p < .01$ ) (See Figure 2). Therefore, our results could not lend support to our H3a.

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Insert Figure 2 about here

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We tested a moderated mediation model to examine whether the indirect effect of goal self (competence) concordance on trying to participate depended on goal specificity (Hayes, 2012, Process model 7). In particular, we used trying to participate as the dependent variable, goal self (competence) concordance as the independent variables, anticipatory general self-efficacy enhancement as the mediator variable, goal specificity as the moderated variable, and product familiarity, product experience, attitudes toward the activity, gender, age, education and income as the covariates. The results of moderated mediation test showed a significant conditional indirect effect of the anticipatory general self-efficacy enhancement mediator in the un-specific goal condition ( $\beta = 3.07, CI = [2.0964, 4.1401]$ ), and a non-significant conditional

indirect effect of the mediator in the specific goal condition ( $\beta = .06$ ,  $CI = [-.5312, 1.0265]$ ). We also found that the direct effect of goal self (competence) concordance on trying to participate was nonsignificant ( $\beta = .40$ ,  $CI = [-.0456, .8466]$ ). This result confirmed the findings from Experiment 1a, which suggests that anticipatory general self-efficacy enhancement fully mediates the relationship between goal self (competence) concordance and customers' trying to participate.

*Discussion.* The findings reported in Experiment 2a could not lend support to our moderating hypothesis that goal self (competence) concordance on customers' anticipatory general self-efficacy enhancement is greater when goal specificity is high than when goal specificity is low (H3a). Instead of that, we found the opposite direction. In other words, under the un-specific goal condition, goal self (competence) concordance is significantly associated with anticipatory general self-efficacy enhancement; whereas under the specific goal condition, the above effect is nonsignificant. One possible reason for this opposite direction is that when an un-specific goal (e.g. try your best to fold as many origami cranes as you can) is provided or targeted, the consumer may not be sure about the process and outcome of this value co-creation activity. Under this situation, if the consumer feels the goal is concordant to his/her competence improvement, he/she may expect more anticipatory general self-efficacy enhancement if he/she can achieve this goal. Furthermore, the results of moderated mediation test showed that anticipatory general self-efficacy enhancement acted as a full mediator of the effect of goal self (competence) concordance on trying to participate but that this effect was moderated by the un-specific goal manipulation. In other words, the effect of goal self-concordance enhances trying to participate via anticipatory general self-efficacy enhancement matters more when they have general goal instead of the specific goal. In the following experiment 2b, we plan to investigate



the moderating effects of goal specificity on the relationship between goal self (autonomy) concordance and their anticipatory enjoyment.

## Experiment 2b

The purpose of this study is to test the moderating effect of goal specificity on the relationship between goal self (autonomy) concordance and customers' anticipatory enjoyment. To achieve this research objective, we employed a 2 (goal self 'autonomy'-concordance: high vs. low) \* 2 (goal specificity: specific vs. unspecific) between subjects design.

We used the similar scenario and procedure as in Experiment 1b to manipulate goal self (autonomy) concordance. And we used the similar scenario and procedure as in Experiment 2a to manipulate goal specificity. Moreover, in the survey instrument, we added a manipulation check for goal specificity. We used the same measures for the rest variables as in Experiment 1b. Please see Appendix 4 for the scenarios along with the survey instrument. One hundred and thirty participants were recruited from Amazon Mechanical Turk (MTURK). Moderate monetary incentives were provided to the participants. Once the participants were recruited from the MTURK, they were directed to the Quatrics link and randomly assigned to four different scenarios.

## Results and Discussion

*Manipulation check.* To check our manipulation for autonomy improvement, participants were asked to what extent they agree or disagree with the statement of "I have choices to express my own interest when folding the origami crane in the product test" on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). The result of the *t*-test revealed that participants in the autonomy improvement condition reported a significantly higher score on the above statement

than participants in the no autonomy improvement condition (5.66 vs. 2.91;  $t(110) = 12.87, p < .01$ ). This result suggested that our manipulation was successful. To investigate the realism of the experimental design, we included one realism check question in the questionnaire. On a 7-point scale, participants indicated that the scenario was realistic ( $M = 5.36, SD = 1.22$ ).

To check our manipulation for goal specificity, participants were asked to what extent they agree or disagree with the following statement, “My goal of folding the origami cranes within 10 minutes is very specific” on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). The result of the  $t$ -test revealed that participants in the specific goal condition reported a significantly higher score on the above statement than participants in the un-specific goal condition (5.40 vs. 3.67;  $t(110) = 5.04, p < .01$ ). This result suggested that our manipulation was successful.

*Hypotheses testing.* To test H3b, we conducted the analysis of covariance (ANCOVA) with anticipatory enjoyment as the dependent variable, goal self (autonomy) concordance and goal specificity as the independent variables and product familiarity, product experience, attitudes toward the activity, gender, age, education and income as the covariates. We used the same approach in Experiment 1a to code goal self (autonomy) concordance. According to the results of ANCOVA, the effect of the interaction between goal self (autonomy) concordance and goal specificity on anticipatory enjoyment was nonsignificant ( $F(1, 45) = .08, p > .10$ ). And the main effect of the goal self (autonomy) concordance was significant ( $F(1, 45) = 4.38, M_{\text{high}} = 5.33, M_{\text{low}} = 4.64; p < .05$ ) and the main effect of the goal specificity was nonsignificant ( $F(1, 45) = .09, M_{\text{specific}} = 4.94, M_{\text{un-specific}} = 5.03; p > .10$ ). Thus, our findings could not lend support to our H3b (See Figure 3).

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Insert Figure 3 about here

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Since the effect of the interaction between goal self (autonomy) concordance and goal specificity on anticipatory enjoyment was nonsignificant, we further adopted Hayes' approach of mediating test (Hayes, 2012, Process model 4) instead of Hayes' approach of moderated mediating test (Hayes, 2012, Process model 7) to confirm whether anticipatory enjoyment mediates the relationship between goal self (autonomy) concordance and trying to participate (H2b). This study's 5000 resamples generate 95% confidence intervals (percentile) for the mediator. According to the results, the indirect effect of goal self (autonomy) concordance on customers' trying to participate via anticipatory enjoyment enhancement was significant ( $\beta = .23$ ,  $CI = [.0275, .6304]$ ). The direct effect of goal self (autonomy) concordance on customers' trying to participate was nonsignificant ( $\beta = .54$ ,  $CI = [-.0711, 1.0440]$ ). As a result, our results lended support to H2b, which suggests that anticipatory enjoyment is a full mediator of the relationship between goal self (autonomy) concordance and customers' trying to participate.

*Discussion.* Above all, the findings reported in this Experiment 2b could not lend support to our hypothesis that the effect of goal self (autonomy) concordance on customers' anticipatory enjoyment is greater when goal specificity is high than when goal specificity is low (H3b). A possible reason for this nonsignificant moderating effect is that when a specific goal (e.g. three origami cranes in the 10 minutes) is provided or targeted, the consumer may feel certain about the outcome of an event. Under these conditions, the consumer may feel less visualize surprises or other enjoyable experiences, and then expect less anticipatory enjoyment. This explanation is also consistent with some previous research, which showed that consumers might perceive higher enjoyment when no instructions are provided and no target outcome is given (Dahl &

Moreau, 2007; Mandel & Nowlis, 2008). Although the findings could not lend support to our moderating hypothesis (H3b), we still confirmed that goal self (autonomy) concordance can provide the motivational power for customers' co-creation behaviors (H2a) and anticipatory general enjoyment is the psychological mechanism underlying the motivational power (H2b).

## **STUDY 2: THE MODERATED MECHANISM OF GOAL SELF-CONCORDANCE**

According to the self-concordance theory (SCT), the self-concordance of goals can play a *dual role in consumer' goal-driven behaviors* (Sheldon & Elliot, 1999). On the one hand, individuals who pursue self-concordant goals are likely to put sustained effort into the goal pursuit process. As a result, they are more likely to obtain their goals. On the other hand, consumers' personal well-being will increase higher when they obtain a self-concordant goal than a non-concordant goal (Sheldon & Elliot, 1999). In this study, we focus on the moderating effect of goal self-concordance on the relationship between goal achievement and consumers' perceived self-enhancement. In addition, we propose that consumers' perceived self-enhancement after goal achievement is positively related to customer satisfaction with the product or service and their future co-creation behaviors. We conducted three experiments to examine the hypothesized moderating mechanism of goal self-concordance.

### **Theoretical Framework**

By integrating goal self-concordance model and self-worth theory (Covington, 1984; Sheldon & Elliot, 1999), we propose that if consumers achieve their co-creation goals, their feelings of personal worth will be enhanced (Sedikides & Strube, 1997). The self-enhancement will in turn increase customers' satisfaction with the product or service and enhance their future

participation behaviors. Moreover, we hypothesize that the more they obtained goal reflects one's self-identity or core value, the more the goal achievement leads to the perceptions of self-enhancement. The framework of moderating effect of goal self-concordance in customer co-creation is presented in Figure 4.

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Insert Figure 4 about here

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### **Hypotheses Development**

According to Covington (1984, p. 8), "one's sense of worth depends heavily on one's accomplishments." Specifically, self-worth theory suggests that the highest human priority is the search for self-acceptance and "one's worth often come to depend on the ability to achieve competitively" (Covington, 1998, p. 78). Consistently, if an individual is able to achieve his/her valuable personal goals, he/she is likely to establish and maintain a sense of self-worth.

In the customer co-creation context, the self-worth theory can be used to explain the relationship between co-creation goal achievement and self-enhancement. Previous literature revealed that after consumers successfully achieved their value co-creation goal, their perceptions regarding their capabilities are likely to be enhanced (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004; Nambisan & Baron, 2009). Moreover, successfully obtaining a pre-set valuable personal goal could be a pleasant and exciting experience (Nambisan & Baron, 2009). According to self-worth theory, mastery goals can motivate consumers to participate in moderately challenging tasks, persist in tackling failure, and enjoy taking tasks (Covington, 1984). Thus, we anticipate that if customers achieve their co-creation goals, consumers may

perceive the enjoyment since they can determine their own way to achieve the co-creation goal based on visual information. As a result, the following hypotheses are offered:

*H4a: The achievement of a co-creation goal leads to the enhancement of consumers' general self-efficacy perceptions.*

*H4b: The achievement of a co-creation goal leads to the enhancement of consumers' enjoyment perceptions.*

We propose that goal self (competence) concordance will moderate the relationship between customer co-creation goal achievement and perceived general self-efficacy enhancement. When customer co-creation leads to the achievement of consumers' pre-set goals, the co-creation success can make the customer feel more competent (e.g. "I made it myself effect", Troye & Supphellen, 2012). The effect could be even stronger when customers achieve the goals that are highly consistent with their fundamental needs of general self-efficacy enhancement (i.e., goal self-competence concordance). In contrast, people would perceive lower general self-efficacy enhancement, when they achieved none or low self-competence concordance goals in this participation process. This is because these goals may originate from external pressure, or feelings of guilt and anxiety, which do not consist of customers' core value and true self.

We also propose that goal self (autonomy) concordance will strengthen the relationship between customer co-creation goal achievement and enjoyment. Sheldon and Elliot (1999) found that goal self-concordance strengthens the relationship between goal achievement and personal well-being. Moreover, they suggested that compared to non-concordant goals, the achievement of concordant goals leads to higher enhancement of personal well-being because the achievement of concordant goals can satisfy consumers' basic needs (Sheldon & Elliot, 1999). Following the

same logic in customer co-creation context, when a concordant (autonomy) goal is achieved, consumers' basic need for autonomy will be satisfied, which leads to a higher level of enjoyment. In other words, when the obtained goal is a concordant goal, consumers' may enjoy the freedom of making their own decisions in the successful co-creation process. In contrast, if the goal is not concordant, consumers' may not be able to perform its own co-creation behaviors at their own will. Then, consumers may not enjoy the co-creation process. As a result, the following hypotheses are offered:

*H5a: Goal self (competence) concordance strengthens the relationship between customer co-creation goal achievement and general self-efficacy enhancement.*

*H5b: Goal self (autonomy) concordance strengthens the relationship between customer co-creation goal achievement and enjoyment.*

We propose that competence will increase customer satisfaction and future participation. Previous research has revealed that competence helps strengthen a person's belief in their ability to successfully conduct a behavior (Bandura, 1982). Empirical research in co-creation supports that when individuals with a high level of competence tend to have the feeling of self-fulfillment after they obtain their co-creation goals, which lead to greater customer satisfaction (Dong, Evans, & Zou, 2008). Consistently, Prebensen and Xie (2017) found that adventure tourists' perceptions of their skill mastery (i.e., competence) affected their perceived value and satisfaction. Moreover, when the consumer believes that the customer co-creation contributes to the enhancement of their competence perceptions, they will be willing to participate in the next co-creation process. As a result, the following hypotheses are offered:

*H6a: General self-efficacy enhancement has a positive relationship with customer satisfaction.*

*H6b: General self-efficacy enhancement has a positive relationship with future participation.*

Previous research also supports the positive effect of enjoyment on customer satisfaction and future participation. Positive consumption emotions, such as delight and happiness, have a positive impact on customer satisfaction (Phillips & Baumgartner, 2002). Consistently, it is expected that the enjoyment obtained from goal achievement also increases customer satisfaction. Moreover, enjoyment, as a motivational power, will also drive consumers to participate in future co-production process because enjoyable tasks or experiences offer a state of "jouissance" that people try to maintain (Füller, Mühlbacher, Matzler, & Jaweck, 2009; Yim et al., 2012). Empirically, Zhang, Lu, Wang, and Wu (2015) found that enjoyable co-creation experiences are positively related to consumers' intention to participate in future value co-creation. As a result, the following hypotheses are offered:

*H7a: Enjoyment has a positive relationship with customer satisfaction.*

*H7b: Enjoyment has a positive relationship with future participation.*

## **Research Design**

We tested the above hypotheses in three experiments. Experiment 3 was conducted to test that consumers' co-creation goal achievement positively leads to their perceived general self-efficacy enhancement (H4a) and enjoyment (H4b), and then increases customers' satisfaction with the product or service (H6a and H7a) and their future participation behaviors (H6b and H7b). Experiment 4a was conducted to test to examine the moderating effects of goal self (competence) concordance on the relationship between customer co-creation goal achievement and general self-efficacy enhancement (H5a). Finally, Experiment 4b was conducted to examine



the moderating effect of goal self (autonomy) concordance on the relationship between customer co-creation goal achievement and enjoyment (H5b).

### Experiment 3

The main purpose of this experiment is to test consumers' co-creation goal achievement positively leads to their perceived general self-efficacy enhancement and enjoyment, and then increases customers' satisfaction with the product or service and their future participation behaviors.

#### Participants

One hundred undergraduate students from a middle-sized university were invited to participate in the study in return for extra credits. During the recruiting process, we informed students that the objective of the study is to evaluate customers' experience in furniture assembly.

#### Procedure

At the beginning of this experiment, participants were randomly assigned to two different scenarios (goal achievement vs. goal un-achievement). We used the self-furniture assembly as the research context.

Participants who were assigned to goal achievement scenario were provided with the following information: *“Image that you just moved into a new apartment. You found that you needed a shelf in your living room. You then ordered one online and received the shelf parts in a big box this afternoon. You planned to follow the instruction provided by the company to assemble the shelf by yourself tonight and your goal was to have the shelf assembled before you*

go to bed. You spent the whole night on the project. By strictly following the steps provided in the instruction, you finally **achieved your pre-set goal** and **successfully put the shelf together**”.

Participants in the goal un-achievement scenario were provided with the following information: “Image that you just moved into a new apartment. You found that you needed a shelf in your living room. You then ordered one online and you received the shelf parts in a big box this afternoon. You planned to follow the instruction provided by the company to assemble the shelf by yourself tonight and your goal was to have the shelf assembled before you go to bed. You strictly followed the step provided in the instruction, but you **could not assemble the shelf together and failed in obtaining your pre-set goal**”.

After reading the assigned scenario (See Appendix 5), participants were asked to complete a survey instrument. The manipulation and realistic check questions were asked first, followed by the measures of perceived enjoyment and perceived general self-efficacy enhancement, customer satisfaction and future participation. To exclude other potential explanations that are not the focus of the study, we measured product familiarity, product experience, attitudes toward the activity, gender, age, education and income as the control variables. After the experiment, participants were debriefed and thanked. Please see Appendix 5 for the scenarios along with the survey instrument.

### Measures

*Perceived enjoyment.* The four measures of perceived enjoyment were adapted from Franke and Schreier (2010). Sample items included “I think assembling the shelf would be very fun” and “Assembling the shelf would be quite enjoyable.” Participants responded to all items on a 7-point Likert scale (1= strongly disagree, 7= strongly agree).

*Perceived general self-efficacy enhancement.* The eight measures of perceived general self-efficacy enhancement were adapted from Chen, Gully, and Eden (2001). Sample items included “I will be able to achieve most of the goals that I have set for myself” and “I will be able to successfully overcome many challenges.” Participants responded to all items on a 7-point Likert scale (1= strongly disagree, 7= strongly agree).

*Customer satisfaction.* The four measures of customer satisfaction were adapted from previous studies (Cronin, Brady & Hult, 2000; Chan et al., 2010). Sample items included “I am satisfied with the shelf I just bought” and “The shelf meets my expectations.” Participants responded to all items on a 7-point Likert scale (1= strongly disagree, 7= strongly agree).

*Future participation.* The three measures of future participation were adapted from previous studies (Füller, Hans Mühlbacher, Kurt Matzler & Gregor Jawecki, 2010; Füller, Hutter, & Faullant, 2011). Sample items included “I would like to assemble furniture (e.g. shelf) again in the future” and “I will be interested in assembling furniture (e.g. shelf) in the future.” Participants responded to all items on a 7-point Likert scale (1= strongly disagree, 7= strongly agree).

*Product familiarity.* The measure of product familiarity was adapted from Franke, Keinz and Schreier (2009). On a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), participants were asked to what extent they agree on the following statement “I am familiar with how to assemble a shelf by myself.”

*Product experience.* The measure of product experience was adapted from Franke, Keinz and Schreier (2009). On a five-point Likert scale ranging from 1 (never) to 5 (all the time),

participants were asked the following question “How often have you assembled furniture (e.g. shelf)?”

*Attitudes toward the activity.* We measured participants' attitudes toward the activity using three seven-point semantic differential scales (the anchors were "like" vs. "dislike," "good" vs. "bad," and "appealing" vs. "not appealing") adapted from the scale used in Franke, Keinz and Steger (2009).

## Results and Discussions

*Manipulation check.* To check our manipulation for co-creation goal achievement, participants were asked to what extent they agree or disagree with a statement “In the scenario, I have achieved my goal of assembling the shelf” on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). The result of the *t*-test revealed that participants in the goal achievement condition reported a significantly higher score on the above statement than participants in the goal un-achievement condition (5.90 vs. 2.24;  $t(75) = 12.57, p < .01$ ). This result suggested that the manipulation was successful. To investigate the realism of the experimental design, we included one realism check question in the questionnaire. On a 7-point scale, participants indicated that the scenario was realistic ( $M = 5.68, SD = 1.18$ ).

*Hypotheses testing.* Since path analysis is common where a small sample size limits the use of full structural equation models (c.f., Chaudhuri & Holbrook, 2001; Li & Calantone, 1998), in this study, we adopted the path analysis to test the hypotheses. For the variables with multiple indicators, an average of the indicators was used in the path analysis. The overall fit statistics indicated a good fit of the model ( $\chi^2(5) = 17.296, p < .01$ ; CFI = .97; IFI = .97; GFI = .95; RMSEA = .08). According to the result of path analysis, we found that co-creation goal

achievement positively associated with their perceived general self-efficacy enhancement ( $\beta = .20, p < .05$ ) and enjoyment ( $\beta = .48, p < .01$ ), which supported our H4a and H4b. We also found that perceived general self-efficacy enhancement positively associated with their satisfaction ( $\beta = .31, p < .05$ ) and future participation behaviors ( $\beta = .12, p < .05$ ), which supported our H6a and H6b. In addition, we also found that perceived enjoyment positively associated with their satisfaction ( $\beta = .41, p < .01$ ) and future participation behaviors ( $\beta = .44, p < .05$ ), which supported our H7a and H7b. The result of path model was presented in Figure 5.

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Insert Figure 5 about here

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To further double check whether customers' self-enhancement mediates the relationship between customer co-creation goal achievement and customer satisfaction/future participation behaviors, Hayes' approach of mediating test was adopted (Hayes, 2012, Process model 4). This study's 5000 resamples generate 95% confidence intervals (percentile) for the mediator. In particular, we used customer satisfaction as the dependent variable, co-creation goal achievement as the independent variable, perceived general self-efficacy enhancement and enjoyment as the mediator variables, and product familiarity, product experience, attitudes toward the activity, gender, age, education and income as the covariates. According to the results, the indirect effect of goal achievement on customer satisfaction via enjoyment was significant ( $\beta = .24, CI = [.0329, .5599]$ ) and the indirect effect of goal achievement on customer satisfaction via perceived general self-efficacy enhancement was also significant ( $\beta = .14, CI = [.0001, .4235]$ ). The direct effect of goal achievement on customer satisfaction was still significant ( $\beta = .67, CI = [.2745, 1.0658]$ ). As a result, both enjoyment and perceived general self-efficacy enhancement have a partial mediating effect on goal achievement and customer satisfaction.

Using the same approach instead of using future participation as the dependent variable, we also found that the indirect effect of goal achievement on future participation via enjoyment was significant ( $\beta = .25$ , CI = [.0614, .5712]) and the indirect effect of goal achievement on future participation via perceived competence enhancement was nonsignificant ( $\beta = .06$ , CI = [-.0131, .2548]). The direct effect of goal achievement on future participation was still significant ( $\beta = .39$ , CI = [.0249, .7547]). As a result, only enjoyment has a partial mediating effect on goal achievement and future participation. The alternative model of co-creation goal achievement and individual outcome variables was presented in Figure 6.

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Insert Figure 6 about here

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*Discussion.* Above all, the findings of Experiment 3 lended support to our hypothesis that consumers' co-creation goal achievement positively leads to their perceived competence enhancement (H4a) and enjoyment (H4b), and then increases customers' satisfaction with the product or service (H6a and H7a) and their future participation behaviors (H6b and H7b). To compare the strength of the path from goal achievement to general self-efficacy and the path from goal achievement to enjoyment, a model comparison approach was conducted. We first ran the basic model (free model), then set the "equality constraint" for the two paths (constraint model), and finally compared the free model and the constraint model by testing the  $\chi^2$  differences. We found that the effect of co-creation goal achievement on perceived enjoyment is relatively stronger than that of perceived general self-efficacy enhancement ( $\beta: .48^{***} > .20^{**}$ ,  $\Delta\chi(1)^2 = 6.91$ ,  $p < .01$ ). Although both perceived general self-efficacy enhancement and perceived enjoyment have a significantly positive effect both on customer satisfaction, perceived enjoyment has a relatively stronger effect on customer satisfaction than perceived general self-

efficacy enhancement ( $\beta: .41^{***} > .31^{**}$ ,  $\Delta\chi(1)^2 = 4.12$ ,  $p < .01$ ). Using the same approach, we found that perceived enjoyment also has a relatively stronger effect on future participation than perceived general self-efficacy enhancement ( $\beta: .44^{**} > .12^{**}$ ,  $\Delta\chi(1)^2 = 7.12$ ,  $p < .01$ ). Though not hypothesized, we also uncovered that enjoyment has a partial mediating effect on goal achievement and customer satisfaction/future participation and perceived general self-efficacy enhancement only has the partial mediating effect on goal achievement and customer satisfaction. Overall, these findings imply that the consumers' co-creation goal achievement increases their individual outcomes variables (e.g. customer satisfaction and future participation) due to two self-enhancement mechanisms (general self-efficacy enhancement and enjoyment) and the impact of consumers' perceived emotional enhancement (e.g. enjoyment) is stronger than consumers' perceived cognitive enhancement (e.g. general self-efficacy).

#### Experiment 4a

The purpose of this experiment is to test the hypothesis that the moderating effect of goal self (competence) concordance on the relationship between customer co-creation goal achievement and general self-efficacy enhancement (H5a). To achieve this research objective, we employed a 2 (goal self 'competence'-concordance: high vs. low) \* 2 (goal achievement: achievement vs. un-achievement) between subjects design.

We used the similar scenario and procedure as in Experiment 3 to manipulate co-creation goal achievement. And we used the similar scenario and procedure as in Experiment 1a to manipulate goal self (competence) concordance. We used the same measures for the rest variables as in Experiment 3. One hundred and thirty participants were recruited from Amazon Mechanical Turk (MTURK). Moderate monetary incentives were provided to the participants. Once the participants were recruited from the MTURK, they were directed to the Quatrics link

and randomly assigned to four different scenarios. Please see Appendix 6 for the scenarios along with the survey instrument.

## Results and Discussion

*Manipulation check.* To check our manipulation for competence improvement, participants were asked to what extent they agree or disagree with the statement of “Assembling furniture (e.g. shelf) help adults improve DIY ability” on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). The result of the *t*-test revealed that participants in the competence improvement condition reported a significantly higher score on the above statement than participants in the no competence improvement condition (5.87 vs. 2.96;  $t(112) = 9.63, p < .01$ ). This result suggested that our manipulation was successful. To investigate the realism of the experimental design, we included one realism check question in the questionnaire. On a 7-point scale, participants indicated that the scenario was realistic ( $M = 5.53, SD = .97$ ).

To check our manipulation for co-creation goal achievement, participants were asked to what extent they agree or disagree with a statement “In the scenario, I have achieved my goal of assembling the shelf” on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). The result of the *t*-test revealed that participants in the goal achievement condition reported a significantly higher score on the above statement than participants in the goal un-achievement condition (6.03 vs. 3.57;  $t(112) = 8.54, p < .01$ ). This result suggested that our manipulation was successful.

*Hypotheses testing.* To test H5a, we conducted the analysis of covariance (ANCOVA) with perceived general self-efficacy enhancement as the dependent variable, goal self (competence) concordance and goal achievement as the independent variables and product familiarity, product experience, attitudes toward the activity, gender, age, education and income



as the covariates. We used the same approach in experiment 1a to code goal self (competence) concordance. According to the results of ANCOVA, the effect of the interaction between goal self (competence) concordance and goal achievement on perceived general self-efficacy enhancement was nonsignificant ( $F(1, 61) = 1.80, p > .10$ ). And the main effect of the goal self (competence) concordance was significant ( $F(1, 61) = 5.54, M_{\text{high}} = 5.85, M_{\text{low}} = 5.12; p < .05$ ) and the main effect of the goal achievement was nonsignificant ( $F(1, 61) = 2.99, M_{\text{achieve}} = 5.73, M_{\text{un-achieve}} = 5.33; p > .05$ ). Thus, our findings could not lend support to our H5a (See Figure 7).

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Insert Figure 7 about here

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Another path analysis was adopted to confirm the original findings in Experiment 3. The overall fit statistics indicated a good fit of the model ( $\chi^2(5) = 4.501, p < .01; CFI = .92; IFI = .92; GFI = .91; RMSEA = .06$ ). According to the results of path analysis, we found that perceived general self-efficacy enhancement positively associated with their satisfaction ( $\beta = .22, p < .05$ ) and future participation behaviors ( $\beta = .12, p < .10$ ), which confirmed our H6a and H6b. In addition, we also found that perceived enjoyment positively associated with their satisfaction ( $\beta = .71, p < .01$ ) and future participation behaviors ( $\beta = .86, p < .05$ ), which confirmed our H7a and H7b. Surprisingly, we found that the effect of co-creation goal achievement on their perceived general self-efficacy enhancement and enjoyment were nonsignificant, which could not lend support to our H4a and H4b.

*Discussion.* Above all, the findings reported in Experiment 4a could not lend support to our hypothesis that goal self (competence) concordance strengthens the relationship between customer co-creation goal achievement and general self-efficacy enhancement. And we also found that the main effect of goal achievement was nonsignificant. A possible reason for these

nonsignificant effects is that instead of playing the moderating role, goal self-concordance mainly focuses on the direct effect to improve self-enhancement in the customer co-creation test.

Except for these nonsignificant results, we confirmed the main effect of the goal self (competence) concordance, which suggests that goal self (competence) concordance is positively related to customers' perceived general self-efficacy enhancement. In addition, we also found that although both perceived general self-efficacy enhancement and perceived enjoyment have a significantly positive effect both on customer satisfaction, perceived enjoyment has a relatively stronger effect on customer satisfaction than perceived general self-efficacy enhancement ( $\beta: .71^{***} > .22^{**}, \Delta\chi^2 = 7.54, p < .01$ ). Using the same approach, we found that perceived enjoyment also has a relatively stronger effect on future participation than perceived general self-efficacy enhancement ( $\beta: .86^{**} > .12^*, \Delta\chi^2 = 6.86, p < .01$ ). These results also are consistent with the findings that the impact of consumers' perceived emotional enhancement (e.g. enjoyment) to the individual outcome is stronger than consumers' perceived cognitive enhancement (e.g. general self-efficacy).

#### Experiment 4b

The purpose of this experiment is to test the hypothesis that the moderating effect of goal self (autonomy) concordance on the relationship between customer co-creation goal achievement and general self-efficacy enhancement (H5b). To achieve this research objective, we employed a 2 (goal self 'autonomy'-concordance: high vs. low) \* 2 (goal achievement: achievement vs. un-achievement) between subjects design.

We used the similar scenario and procedure as in Experiment 3 to manipulate co-creation goal achievement. And we used the similar scenario and procedure as in Experiment 1a to manipulate goal self (autonomy) concordance. We used the same measures for the rest variables

as in Experiment 3. One hundred and thirty participants were recruited from Amazon Mechanical Turk (MTURK). Moderate monetary incentives were provided to the participants. Once the participants were recruited from the MTURK, they were directed to the Quatrics link and randomly assigned to four different scenarios. Please see Appendix 7 for the scenarios along with the survey instrument.

## Results and Discussion

*Manipulation check.* To check our manipulation for autonomy improvement, participants were asked to what extent they agree or disagree with the statement of “I have choices to express my own interest when assembling furniture (e.g. shelf)” on a 7-point Likert scale (1= strongly disagree, 7= strongly agree). The result of the *t*-test revealed that participants in the autonomy improvement condition reported a significantly higher score on the above statement than participants in the no autonomy improvement condition (6.10 vs. 3.14;  $t(114) = 10.68, p < .01$ ). This result suggested that our manipulation was successful. To investigate the realism of the experimental design, we included one realism check question in the questionnaire. On a 7-point scale, participants indicated that the scenario was realistic ( $M = 5.63, SD = 1.25$ ).

To check our manipulation for co-creation goal achievement, participants were asked to what extent they agree or disagree with a statement “In the scenario, I have achieved my goal of assembling the shelf” on a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). The result of the *t*-test revealed that participants in the goal achievement condition reported a significantly higher score on the above statement than participants in the goal un-achievement condition (5.93 vs. 3.67;  $t(114) = 7.25, p < .01$ ). This result suggested that our manipulation was successful.

*Hypotheses testing.* To test H5b, we conducted the analysis of covariance (ANCOVA) with perceived enjoyment as the dependent variable, goal self (autonomy) concordance and goal achievement as the independent variables and product familiarity, product experience, attitudes toward the activity, gender, age, education and income as the covariates. We used the same approach in experiment 1a to code goal self (autonomy) concordance. According to the results of ANCOVA, the effect of the interaction between goal self (autonomy) concordance and goal achievement on enjoyment were nonsignificant ( $F(1, 76) = .91, p > .10$ ). And the main effect of the goal self (autonomy) concordance was nonsignificant ( $F(1, 76) = 3.85, M_{\text{high}} = 5.26, M_{\text{low}} = 4.84; p > .05$ ) and the main effect of the goal achievement was also nonsignificant ( $F(1, 76) = .50, M_{\text{achieve}} = 5.12, M_{\text{un-achieve}} = 4.99; p > .05$ ). Thus, our findings could not lend support to our H5b (see Figure 8).

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Insert Figure 8 about here

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Another path analysis was adopted to confirm the original findings in Experiment 3. The overall fit statistics indicated a good fit of the model ( $\chi^2(5) = 3.241, p < .01; CFI = .99; IFI = .99; GFI = .99; RMSEA = .02$ ). According to the results of path analysis, we found that perceived general self-efficacy enhancement positively associated with their satisfaction ( $\beta = .20, p < .05$ ), which confirmed our H6a. However, we found that the effect of perceived general self-efficacy enhancement on their future participation behaviors was nonsignificant, which could not confirm our H6b. In addition, we also found that perceived enjoyment positively associated with their satisfaction ( $\beta = .66, p < .01$ ) and future participation behaviors ( $\beta = .78, p < .05$ ), which confirmed our H7a and H7b. Surprisingly, we still found that the effect of co-creation goal

achievement on their perceived general self-efficacy enhancement and enjoyment were nonsignificant, which could not confirm our H4a and H4b.

*Discussion.* Above all, the findings reported in Experiment 4b could not lend support to our hypothesis that goal self (autonomy) concordance strengthens the relationship between customer co-creation goal achievement and enjoyment. In addition, we found that the main effect of goal achievement and goal self (autonomy) concordance were nonsignificant. One possible reason for these nonsignificant effects is that many subjects, even they achieve their furniture assembly goals, they still do not consider such goal achievement as an important stimulation to improve their general self-efficacy and enjoyment.

In addition, we also found that although both perceived general self-efficacy enhancement and perceived enjoyment have a significantly positive effect both on customer satisfaction, perceived enjoyment has a relatively stronger effect on customer satisfaction than perceived general self-efficacy enhancement ( $\beta: .66^{***} > .20^{**}$ ,  $\Delta\chi^2 = 6.22$ ,  $p < .01$ ). Using the same approach, we found that perceived enjoyment also has a relatively stronger effect on future participation than perceived general self-efficacy enhancement ( $\beta: .78^{**} > .12$ ,  $\Delta\chi^2 = 10.46$ ,  $p < .01$ ). These results also consistent with the findings that the impact of consumers' perceived emotional enhancement (e.g. enjoyment) to the individual outcome is stronger than consumers' perceived cognitive enhancement (e.g. general self-efficacy).

## GENERAL DISCUSSION

According to self-concordance theory (SCT), the self-concordance of goals (i.e., their consistency with the person's developing interests and core values) plays a dual role in consumer' goal-driven behaviors (Sheldon & Elliot, 1999). First, individuals pursuing self-concordant goals put more sustained effort into achieving those goals; second, individuals who attain self-concordant goals reap greater well-being benefits from their attainment (Sheldon & Elliot, 1999). Noting very little empirical work has been conducted in the consumer behavior literature on the dual role of goal self-concordance, researchers have emphasized the need for more consumer research in such areas (Sheldon & Elliot, 1999; Sheldon, & Houser-Marko, 2001). The present research seeks to redress this gap in the co-creation literature to better understand the dual role of goal self-concordance in customer co-creation. Specifically, the present research attempts to examine how goal self-concordance drives customer co-creation behavior and furthermore moderates the relationship between customers' co-creation goal achievement and perceived benefits.

Consistent with the previous research (Sheldon & Elliot, 1999; Sheldon, & Houser-Marko, 2001), the results of Study 1 demonstrated the motivational power of goal self-concordance, which suggests the positive effect of goal self-concordance on customers' trying to participate in the co-creation process (Study 1: Experiment 1a and Experiment 1b). Although previous research (Sheldon & Elliot, 1999; Sheldon, & Houser-Marko, 2001) have already tested the moderating effect of goal self-concordance, the moderating effect of goal self-concordance on the relationship between co-creation goal achievement and customers' perceived self-

enhancement was not supported (Study 2: Experiment 4a and Experiment 4b). Our findings suggest that instead of playing the moderating effect in some general and life important context (e.g. individuals' well-being and happiness), goal self-concordance mainly focuses on the direct power to self-enhancement in the customer co-creation context.

Beyond investigating the motivational power of goal self-concordance, we also found that both anticipatory general self-efficacy enhancement and anticipatory enjoyment fully mediate the relationship between goal self-concordance and customers' trying to participate (Study 1: Experiment 1a and Experiment 1b). Our findings suggest that anticipatory general self-efficacy enhancement and enjoyment are two psychological mechanisms that fully mediate the motivational effects, which indicates that the motivational power of goal-self concordance comes from customers' anticipated self-enhancement resulting from the co-creation behavior.

In addition, we also investigate the moderating effects of goal specificity on the relationship between goal self-concordance and their anticipatory self-enhancement (Study 1: Experiment 2a and Experiment 2b). Previous research (Scott & Nowlis, 2013; Woodruff & Flint, 2006) have already concluded that specific goal would generate more efforts in their goal-pursuit processes. Instead of mainly focusing on the main effect of goal specificity, we found that goal specificity weakens the relationship between goal self-concordance and anticipatory self-enhancement. Specifically, the results of Experiment 2a in Study 1 found that under the un-specific goal condition, goal self (competence) concordance is significantly associated with anticipatory general self-efficacy enhancement; whereas under the specific goal condition, the above effect is nonsignificant. This finding suggests that the effect of goal self-concordance enhances anticipatory general self-efficacy enhancement matters more when they have general goal instead of the specific goal.

Finally, except for the nonsignificant moderating effect of goal self-concordance in Study 2, we still found that consumers' co-creation goal achievement increases their individual outcomes variables (e.g. customer satisfaction and future participation) due to two self-enhancement mechanisms (general self-efficacy enhancement and enjoyment). In addition, the impact of consumers' perceived emotional enhancement (e.g. enjoyment) is stronger than consumers' perceived cognitive enhancement (e.g. general self-efficacy).

### **Theoretical Implications**

This paper makes several implications for marketing research. First, employing goal self-concordance model (Sheldon & Elliot, 1998, 1999; Sheldon & Houser-Marko, 2001), we examine the important role played by goal self-concordance in customer co-creation, which extend the co-creation literature by exploring another important psychological mechanism to understand customer co-creation behavior.

Second, we also extend the original goal self-concordance model by testing the mediating effects of customers' anticipatory self-enhancement on the relationship between goal self-concordance and trying. Moreover, instead of measuring general goal self-concordance, we take an initial step to create a special approach to manipulate goal self-concordance into two different perspectives (e.g. goal self (competence) concordance and goal self (autonomy) concordance). To the best of our knowledge, this is the first study to manipulate goal self-concordance, which broaden our understanding of the causal relationship between goal self-concordance and customer co-creation behavior. This kind of special manipulation approach can be used in future research both in goal self-concordance and co-creation research.

Third, previous study have investigated that customer participation contribute to customer satisfaction via different mediating mechanisms, such as self-congruity (Chang et al.,



2009), economic value and relationship value (Chan et al., 2010), enjoyment (Yim et al., 2012), perceived equity (Roggeveen et al., 2012) and service quality (Ennew & Binks, 1999; Gallan et al., 2013). Following this track, by examining that customers' self-enhancement mediates the relationship between customers' co-creation goal achievement and customer satisfaction, this study suggests an alternative theoretical explanation regarding the relationship between customer participation and customer satisfaction.

### **Managerial Implications**

This study provides several important implications for marketing managers. Firstly, given that the main task of a company is to support customers' value creation activities, this study helps managers to understand how to facilitate customer's co-creation behavior. Our study shows that both goal self-concordance, general self-efficacy enhancement, and enjoyment can influence customers' trying to participate in the co-creation process. Companies, therefore, need to provide experiences that allow participants to gain a sense of self-efficacy and mastery. The likelihood that users will incorporate their personal creativity and devote time and effort increases when their co-creation experience is characterized by autonomy, enjoyment, and competence.

In addition, our study also shows that after involving customer into the co-creation process, perceived enjoyment has a relatively stronger effect on customer satisfaction/future participation than perceived general self-efficacy enhancement. And the enjoyment experience is important not only for activities in pre-set goal settings but also for after co-creation goal achievement. Therefore, managers need to determine the optimal degree to which customers want to engage in the creation of services and avoid overburdening them. Management should further explore opportunities to elicit feelings of fun and enjoyment through value co-creation process.

## **Limitations and Future Research**

The findings of this study have their limitations. First, we collected data either from under-graduate students or from Amazon Mechanical Turk, and we created our particular scenarios to represent a trade-off between experimental control and external validity. Therefore, we suggest future research to create a real context to re-test and investigate the dual role of goal self-concordance on customer co-creation behavior. Second, since current research calls attention to the psychological mechanism to understand how to engage customers into the co-creation process, future studies should investigate other variables or mechanisms that may influence and motivate customers' co-creation behavior. For example, the self-congruity effect (fit with the brand or product's personality with the consumer's self) may also play an especially prominent role in motivating customers to participate in the self-design process. Finally, in this study, we focus on the moderating effect of goal self-concordance on the relationship between co-creation goal achievement and customers' perceived self-enhancement. Future research could identify and examine other important moderators of the relationship between co-creation goal achievement and customers' behavioral variables.

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## TABLES AND FIGURES

Table 1: Different Mediating Mechanisms underlying the Relationship between Customer Participation and Customer Satisfaction

Author	Mediator	Key Findings
Chang, Chen, & Huang (2009)	Self-congruity	This work demonstrates that customer participation leads to higher satisfaction. Additionally, self-congruity plays a mediating role in the customer participation–satisfaction relationship.
Chan, Yim, & Huang (2010)	Economic value; relationship value	Customer participation drives performance outcomes (i.e., customer satisfaction, employee job satisfaction, and employee job performance) through the creation of economic and relational values.
Yim, Chan, & Huang (2012)	Customer participation enjoyment	Customer participation enjoyment mediates the impact of customer participation on customer satisfaction such that a higher level of customer participation leads to greater customer satisfaction through the creation of customer participation enjoyment.
Roggeveen, Tsiros, & Huang Grewal (2012)	Perceived equity	Equity played the underlying process between co-creation and customer satisfaction.
Ennew & Binks (1999); Gallan, Jarvis, Brown, & and Bitner (2013)	Service quality (Technical quality and functional quality)	Customer participation’s effect on customer satisfaction will be mediated by (a) technical service quality (b) functional service quality.

Figure 1: The Motivational Mechanism of Goal Self-Concordance

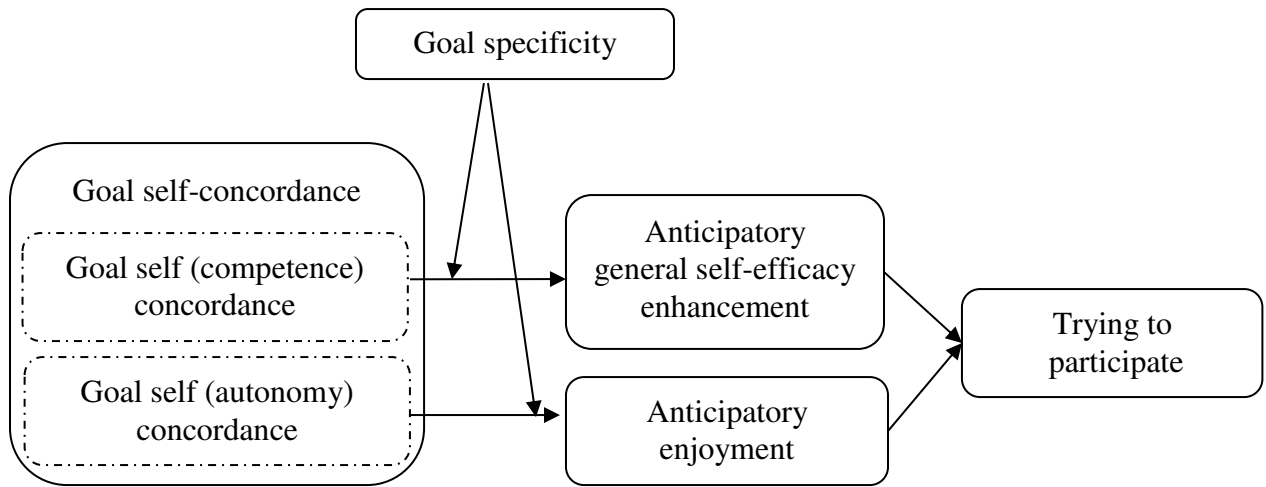


Figure 2: The Moderating Effect of Goal Specificity in Experiment 2a

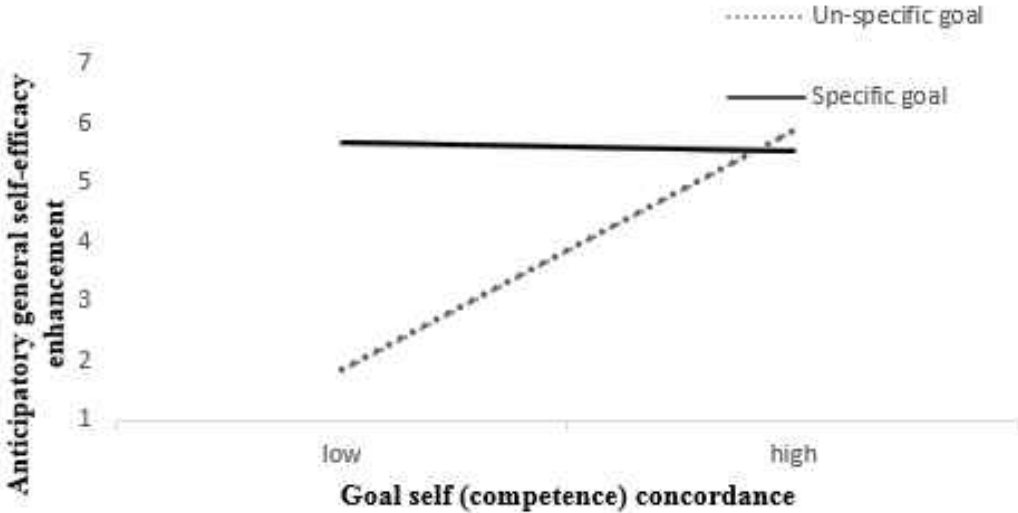


Figure 3: The Moderating Effect of Goal Specificity in Experiment 2b

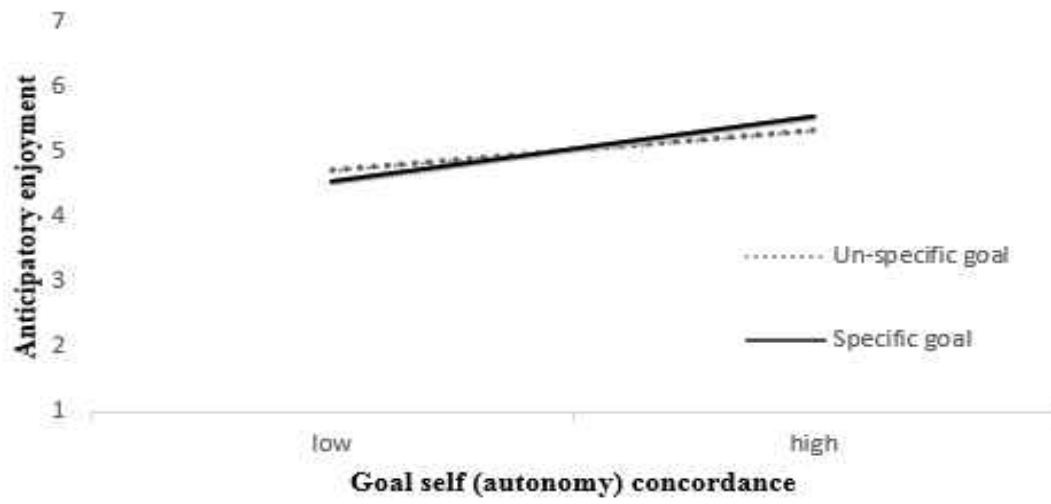


Figure 4: The Moderated Mechanism of Goal Self-Concordance

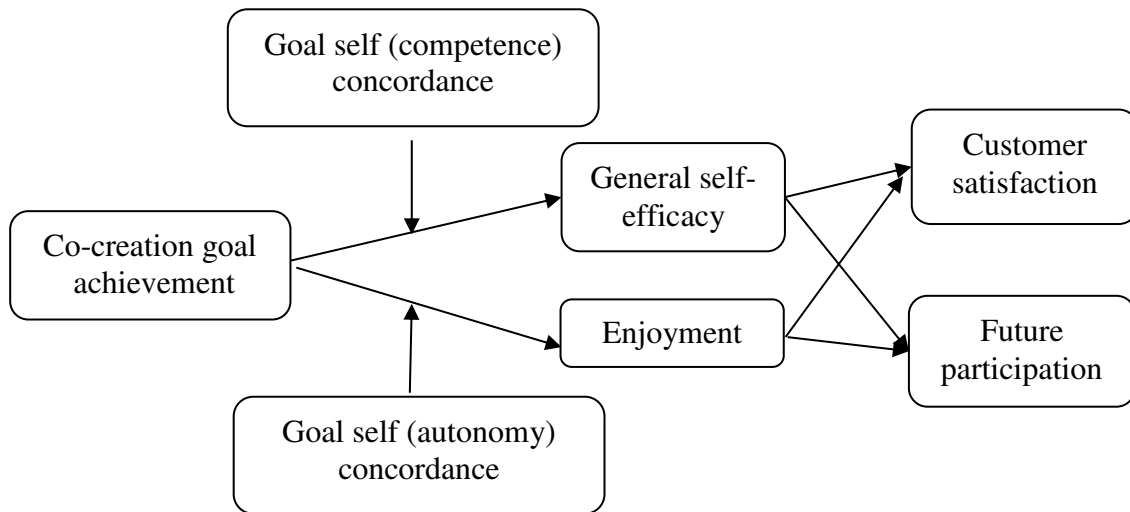


Figure 5: The Result of the Path Model in Experiment 3

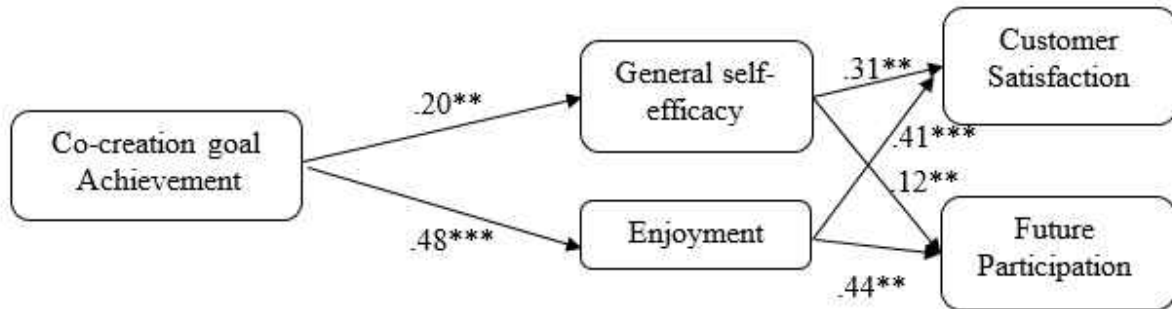


Figure 6: The Alternative Model of Co-creation Achievement and Individual Outcome Variables in Experiment 3

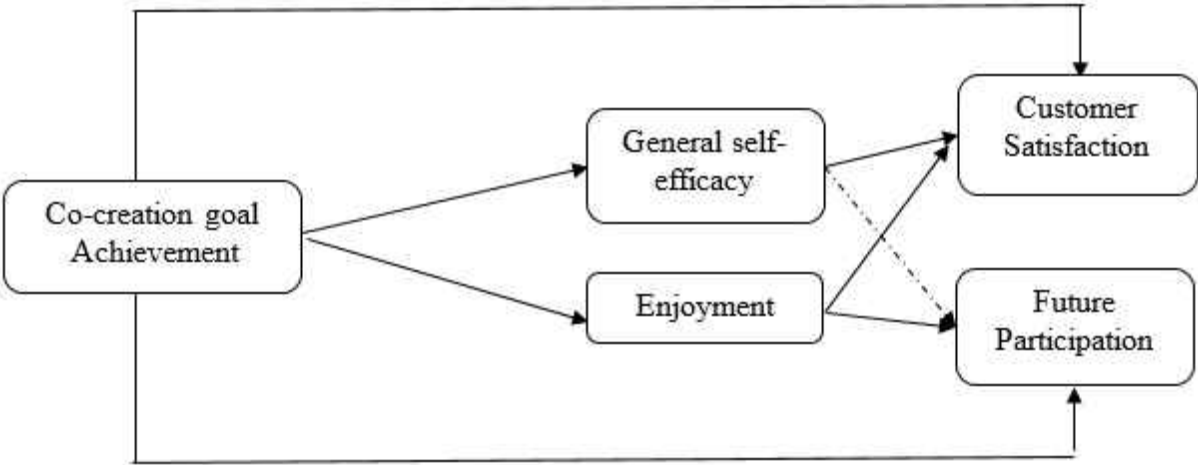


Figure 7: The Moderating Effect of Goal Self (Competence) Concordance in Experiment 4a

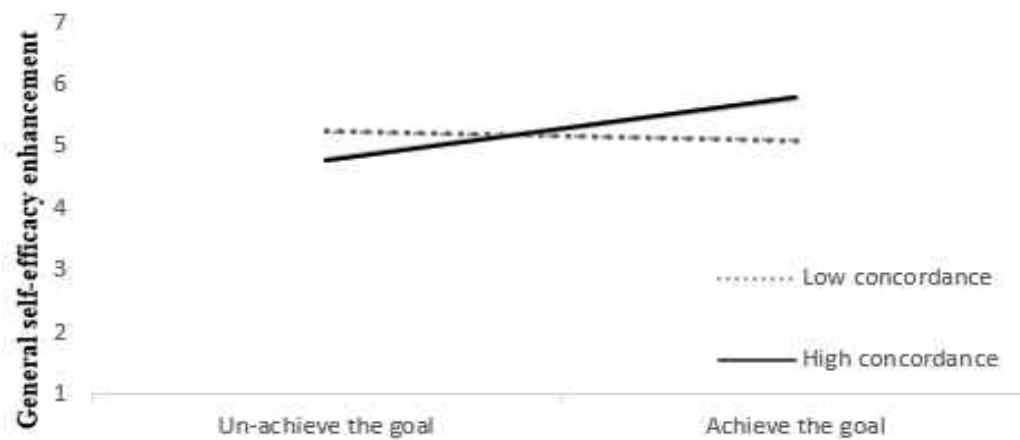
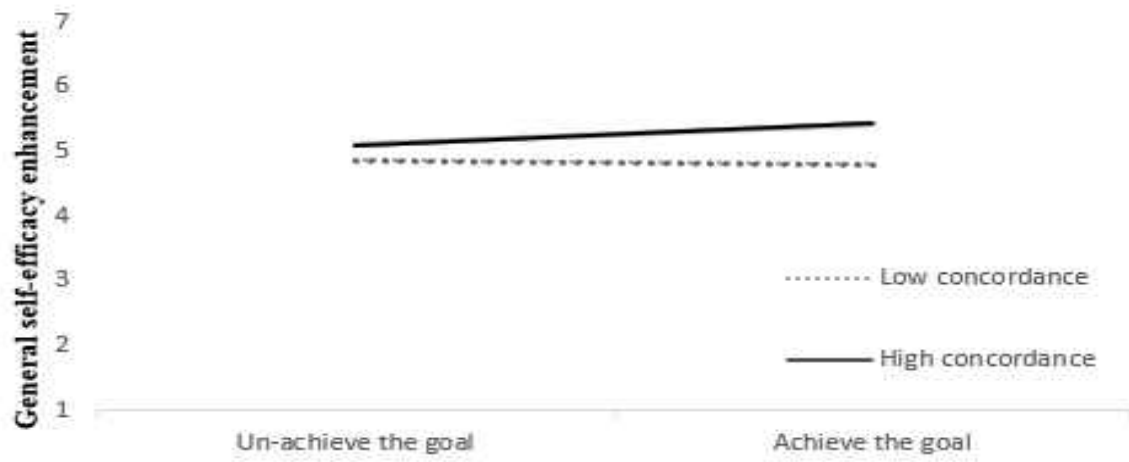




Figure 8: The Moderating Effect of Goal Self (Autonomy) Concordance in Experiment 4b



## APPENDIX

### Appendix 1: Scenarios along with the Survey Instrument for Experiment 1a

#### Study 1- Experiment 1a

Thank you for participating in this study. The objective of the experiment is to help a craft company test a new game. Before the study, please answer a question about yourself below.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. The hand-eye coordination is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. I felt that mastering hand-eye coordination is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. Usually, to improve hand-eye coordination is critical to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

Then, please read the scenario carefully and answer the following questions.

**Competence improvement condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is not only a good game for children's developing minds, but also helps adults develop hand-eye coordination.

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and an instruction sheet. Image that your task is to follow the instruction sheet to fold an origami crane and then tell us your feeling and evaluation about the product.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. Folding the origami crane helps <b>adults</b> improve hand-eye coordination.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. The description of the situation in the scenario is very realistic.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. I expect to enjoy folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
4. I expect that folding the origami crane in the product test will be very fun.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
5. I expect that folding the origami crane in the product test will be very enjoyable.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
6. I expect that folding the origami crane in the product test will be very interesting.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

7. I expect that I will be able to achieve most of the goals that I have set for myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
8. When facing difficult tasks, I expect that I will accomplish them.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
9. In general, I expect that I can obtain outcomes that are important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
10. I expect that I can succeed at most any endeavor to which I set my mind.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
11. I expect that I will be able to successfully overcome many challenges.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
12. I expect that I am confident to perform effectively on many different tasks.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
13. Compared to other people, I expect that I can do most tasks very well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
14. Even when things are tough, I expect that I can perform quite well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Not at all	Very little effort	Litter effort	Moderate effort	Large effort	Very large effort	Extreme effort
15. Rate the extent of the effort that you will try to put on folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
16. I will put a lot of effort into folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
17. I will work hard in folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
18. I will strive as hard as I can in folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
19. I <b>do not plan</b> to exert a lot of effort in folding the origami crane in the product test.[reversed code]	[1]	[2]	[3]	[4]	[5]	[6]	[7]
20. I am familiar with the process of folding the origami crane.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Never	Rarely	Occasionally	Sometimes	Frequently		
21. How often do you fold the origami crane?	[1]	[2]	[3]	[4]	[5]		

22. What is your attitude toward folding the origami crane?

	Extremely Negative	Quite Negative	Neither negative nor positive	Quite Positive	Extremely Positive	
Dislike	1	2	3	4	5	Like
Bad	1	2	3	4	5	Good
Not Appealing	1	2	3	4	5	Appealing

23. What is your gender? Male / Female (Circle one)
24. What is the highest degree or level of education you have completed? (Select one)
- |  |   |
|--|---|
| <input type="checkbox"/> 1. Less than high school      | <input type="checkbox"/> 4. Associate degree or other two-year degree |
| <input type="checkbox"/> 2. High school diploma or GED | <input type="checkbox"/> 5. Bachelor's degree                         |
| <input type="checkbox"/> 3. Some college, no degree    | <input type="checkbox"/> 6. Graduate degree                           |
25. What is your current age? (Select one)
- |  |                                   |   |
|--|-----------------------------------|---|
| <input type="checkbox"/> 1. 18 and younger | <input type="checkbox"/> 4. 35-44 | <input type="checkbox"/> 7. 65 and over |
| <input type="checkbox"/> 2. 19-24          | <input type="checkbox"/> 5. 45-54 |   |
| <input type="checkbox"/> 3. 25-34          | <input type="checkbox"/> 6. 55-64 |   |

**Thanks for your participation!**

## Study 1- Experiment 1a

**Competence not improvement condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is a good game **just for children's** developing minds, but **doesn't help adults** develop hand-eye coordination.

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and an instruction sheet. Image that your task is to follow the instruction sheet to fold an origami crane and then tell us your feeling and evaluation about the product.

## Appendix 2: Scenarios along with the Survey Instrument for Experiment 1b

### Study 1- Experiment 1b

Thank you for participating in this study. The objective of the experiment is to help a craft company test a new game. Before the study, please answer a question about yourself below.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. Having choices that based on my true interests and values is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. The freedom of doing things in own way is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. Usually, I want to enjoy some free choices to express my 'true self'.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

Then, please read the scenario carefully and answer the following questions.

**Autonomy improvement condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, although **individuals need to follow the instruction provided by the company to fold the crane, individuals are provided with multiple choices that individuals can choose from to express their own interests.**

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and **five different** crane instruction sheets. You can **choose any instruction that you are interested in.** Imagine that your task is to follow the instruction sheet that **you choose** to fold an origami crane and then tell us your feeling and evaluation about the product.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. I have choices to express <b>my own interest</b> when folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. The description of the situation in the scenario is very realistic.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. I expect to enjoy folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
4. I expect that folding the origami crane in the product test will be very fun.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
5. I expect that folding the origami crane in the product test will be very enjoyable.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
6. I expect that folding the origami crane in the product test will be very interesting.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

7. I expect that I will be able to achieve most of the goals that I have set for myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
8. When facing difficult tasks, I expect that I will accomplish them.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
9. In general, I expect that I can obtain outcomes that are important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
10. I expect that I can succeed at most any endeavor to which I set my mind.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
11. I expect that I will be able to successfully overcome many challenges.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
12. I expect that I am confident to perform effectively on many different tasks.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
13. Compared to other people, I expect that I can do most tasks very well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
14. Even when things are tough, I expect that I can perform quite well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Not at all	Very little effort	Litter effort	Moderate effort	Large effort	Very large effort	Extreme effort
15. Rate the extent of the effort that you will try to put on folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
16. I will put a lot of effort into folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
17. I will work hard in folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
18. I will strive as hard as I can in folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
19. I <b>do not plan</b> to exert a lot of effort in folding the origami crane in the product test.[reversed code]	[1]	[2]	[3]	[4]	[5]	[6]	[7]
20. I am familiar with the process of folding the origami crane.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Never	Rarely	Occasionally	Sometimes	Frequently		
21. How often do you fold the origami crane?	[1]	[2]	[3]	[4]	[5]		

22. What is your attitude toward folding the origami crane?

	Extremely Negative	Quite Negative	Neither negative nor positive	Quite Positive	Extremely Positive	
Dislike	1	2	3	4	5	Like
Bad	1	2	3	4	5	Good
Not Appealing	1	2	3	4	5	Appealing

23. What is your gender? Male / Female (Circle one)
24. What is the highest degree or level of education you have completed? (Select one)
- |  |   |
|--|---|
| <input type="checkbox"/> 1. Less than high school      | <input type="checkbox"/> 4. Associate degree or other two-year degree |
| <input type="checkbox"/> 2. High school diploma or GED | <input type="checkbox"/> 5. Bachelor's degree                         |
| <input type="checkbox"/> 3. Some college, no degree    | <input type="checkbox"/> 6. Graduate degree                           |
25. What is your current age? (Select one)
- |  |                                   |   |
|--|-----------------------------------|---|
| <input type="checkbox"/> 1. 18 and younger | <input type="checkbox"/> 4. 35-44 | <input type="checkbox"/> 7. 65 and over |
| <input type="checkbox"/> 2. 19-24          | <input type="checkbox"/> 5. 45-54 |   |
| <input type="checkbox"/> 3. 25-34          | <input type="checkbox"/> 6. 55-64 |   |

**Thanks for your participation!**



## Study 1- Experiment 1b

**Autonomy not improvement condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is a game in which **individuals need to follow the instruction provided by the company to fold the crane. Individuals do not have the choice to fold the crane in a way to express their own interests.**

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and **only one** crane instruction sheet. You need to **strictly follow the instruction** and **can't choose a way that you are interested in to fold the crane.** Imagine that your task is to follow the instruction sheet provided by the company to fold an origami crane and then tell us your feeling and evaluation about the product.

### Appendix 3: Scenarios along with the Survey Instrument for Experiment 2a

#### Study 1- Experiment 2a

Thank you for participating in this study. The objective of the experiment is to help a craft company test a new game. Before the study, please answer a question about yourself below.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. The hand-eye coordination is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. I felt that mastering hand-eye coordination is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. Usually, to improve hand-eye coordination is critical to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

Then, please read the scenario carefully and answer the following questions.

**Competence improvement and goal specificity condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is not only a good game for children's developing minds, but also helps adults develop hand-eye coordination.

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and an instruction sheet. Image that your task is to follow the instruction sheet to fold an origami crane and then tell us your feeling and evaluation about the product.

You have **10 minutes** and your goal is to fold **three origami cranes in the 10 minutes**.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. Folding the origami crane helps <b>adults</b> improve hand-eye coordination.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. The description of the situation in the scenario is very realistic.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. My goal of folding the origami crane in the product test is very specific.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
4. My goal of folding three origami cranes within 10 minutes is very specific.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
5. My goal of folding three origami cranes within 10 minutes is very difficult to achieve.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
6. I expect to enjoy folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
7. I expect that folding the origami crane in the product test will be very fun.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

8. I expect that folding the origami crane in the product test will be very enjoyable.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
9. I expect that folding the origami crane in the product test will be very interesting.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
10. I expect that I will be able to achieve most of the goals that I have set for myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
11. When facing difficult tasks, I expect that I will accomplish them.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
12. In general, I expect that I can obtain outcomes that are important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
13. I expect that I can succeed at most any endeavor to which I set my mind.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
14. I expect that I will be able to successfully overcome many challenges.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
15. I expect that I am confident to perform effectively on many different tasks.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
16. Compared to other people, I expect that I can do most tasks very well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
17. Even when things are tough, I expect that I can perform quite well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Not at all	Very little effort	Litter effort	Moderate effort	Large effort	Very large effort	Extreme effort
18. Rate the extent of the effort that you will try to put on folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
19. I will put a lot of effort into folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
20. I will work hard in folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
21. I will strive as hard as I can in folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
22. I <b>do not plan</b> to exert a lot of effort in folding the origami crane in the product test.[reversed code]	[1]	[2]	[3]	[4]	[5]	[6]	[7]
23. I am familiar with the process of folding the origami crane.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Never	Rarely	Occasionally	Sometimes	Frequently		
24. How often do you fold the origami crane?	[1]	[2]	[3]	[4]	[5]		

25. What is your attitude toward folding the origami crane?

	Extremely Negative	Quite Negative	Neither negative nor positive	Quite Positive	Extremely Positive	
Dislike	1	2	3	4	5	Like
Bad	1	2	3	4	5	Good
Not Appealing	1	2	3	4	5	Appealing

26. What is your gender? Male / Female (Circle one)

27. What is the highest degree or level of education you have completed? (Select one)

- |  |   |
|--|---|
| <input type="checkbox"/> 1. Less than high school      | <input type="checkbox"/> 4. Associate degree or other two-year degree |
| <input type="checkbox"/> 2. High school diploma or GED | <input type="checkbox"/> 5. Bachelor's degree                         |
| <input type="checkbox"/> 3. Some college, no degree    | <input type="checkbox"/> 6. Graduate degree                           |

28. What is your current age? (Select one)

- |  |                                   |   |
|--|-----------------------------------|---|
| <input type="checkbox"/> 1. 18 and younger | <input type="checkbox"/> 4. 35-44 | <input type="checkbox"/> 7. 65 and over |
| <input type="checkbox"/> 2. 19-24          | <input type="checkbox"/> 5. 45-54 |   |
| <input type="checkbox"/> 3. 25-34          | <input type="checkbox"/> 6. 55-64 |   |

**Thanks for your participation!**

## Study 1- Experiment 2a

**Competence not improvement and goal specificity condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is a good game **just for children's** developing minds, but **doesn't help adults** develop hand-eye coordination.

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and an instruction sheet. Image that your task is to follow the instruction sheet to fold an origami crane and then tell us your feeling and evaluation about the product.

You have **10 minutes** and your goal is to fold **three origami cranes in the 10 minutes.**

**Competence improvement and goal un-specificity condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is not only a good game **for children's** developing minds, but also **helps adults** develop hand-eye coordination.

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and an instruction sheet. Image that your task is to follow the instruction sheet to fold an origami crane and then tell us your feeling and evaluation about the product.

You have **10 minutes** and your goal is to try your best to fold **as many origami cranes as you can.**

**Competence not improvement and goal un-specificity condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is a good game **just for children's** developing minds, but **doesn't help adults** develop hand-eye coordination.

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and an instruction sheet. Image that your task is to follow the instruction sheet to fold an origami crane and then tell us your feeling and evaluation about the product.

You have **10 minutes** and your goal is to try your best to fold **as many origami cranes as you can.**

## Appendix 4: Scenarios along with the Survey Instrument for Experiment 2b

### Study 1- Experiment 2b

Thank you for participating in this study. The objective of the experiment is to help a craft company test a new game. Before the study, please answer a question about yourself below.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. Having choices that based on my true interests and values is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. The freedom of doing things in own way is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. Usually, I want to enjoy some free choices to express my 'true self'.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

Then, please read the scenario carefully and answer the following questions.

**Autonomy improvement and goal specificity condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, although **individuals need to follow the instruction provided by the company to fold the crane, individuals are provided with multiple choices that individuals can choose from to express their own interests.**

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and **five different** crane instruction sheets. You can **choose any instruction that you are interested in.** Imagine that your task is to follow the instruction sheet that **you choose** to fold an origami crane and then tell us your feeling and evaluation about the product.

You have **10 minutes** and your goal is to fold **three origami cranes in the 10 minutes.**

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. I have choices to express <b>my own interest</b> when folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. The description of the situation in the scenario is very realistic.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. My goal of folding the origami crane in the product test is very specific.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
4. My goal of folding three origami cranes within 10 minutes is very specific.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
5. My goal of folding three origami cranes within 10 minutes is very difficult to achieve.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
6. I expect to enjoy folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

7. I expect that folding the origami crane in the product test will be very fun.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
8. I expect that folding the origami crane in the product test will be very enjoyable.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
9. I expect that folding the origami crane in the product test will be very interesting.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
10. I expect that I will be able to achieve most of the goals that I have set for myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
11. When facing difficult tasks, I expect that I will accomplish them.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
12. In general, I expect that I can obtain outcomes that are important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
13. I expect that I can succeed at most any endeavor to which I set my mind.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
14. I expect that I will be able to successfully overcome many challenges.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
15. I expect that I am confident to perform effectively on many different tasks.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
16. Compared to other people, I expect that I can do most tasks very well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
17. Even when things are tough, I expect that I can perform quite well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Not at all	Very little effort	Litter effort	Moderate effort	Large effort	Very large effort	Extreme effort
18. Rate the extent of the effort that you will try to put on folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
19. I will put a lot of effort into folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
20. I will work hard in folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
21. I will strive as hard as I can in folding the origami crane in the product test.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
22. I <b>do not plan</b> to exert a lot of effort in folding the origami crane in the product test.[reversed code]	[1]	[2]	[3]	[4]	[5]	[6]	[7]
23. I am familiar with the process of folding the origami crane.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Never	Rarely	Occasionally	Sometimes	Frequently		
24. How often do you fold the origami crane?	[1]	[2]	[3]	[4]	[5]		

25. What is your attitude toward folding the origami crane?

	Extremely Negative	Quite Negative	Neither negative nor positive	Quite Positive	Extremely Positive	
Dislike	1	2	3	4	5	Like
Bad	1	2	3	4	5	Good
Not Appealing	1	2	3	4	5	Appealing

26. What is your gender? Male / Female (Circle one)

27. What is the highest degree or level of education you have completed? (Select one)

- |  |   |
|--|---|
| <input type="checkbox"/> 1. Less than high school      | <input type="checkbox"/> 4. Associate degree or other two-year degree |
| <input type="checkbox"/> 2. High school diploma or GED | <input type="checkbox"/> 5. Bachelor's degree                         |
| <input type="checkbox"/> 3. Some college, no degree    | <input type="checkbox"/> 6. Graduate degree                           |

28. What is your current age? (Select one)

- |  |                                   |   |
|--|-----------------------------------|---|
| <input type="checkbox"/> 1. 18 and younger | <input type="checkbox"/> 4. 35-44 | <input type="checkbox"/> 7. 65 and over |
| <input type="checkbox"/> 2. 19-24          | <input type="checkbox"/> 5. 45-54 |   |
| <input type="checkbox"/> 3. 25-34          | <input type="checkbox"/> 6. 55-64 |   |

**Thanks for your participation!**



## Study 1- Experiment 2b

**Autonomy not improvement and goal specificity condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is a game in which **individuals need to follow the instruction provided by the company to fold the crane. Individuals do not have the choice to fold the crane in a way to express their own interests.**

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and **only one** crane instruction sheet. You need to **strictly follow the instruction** and **can't choose a way that you are interested in to fold the crane.** Imagine that your task is to follow the instruction sheet provided by the company to fold an origami crane and then tell us your feeling and evaluation about the product.

You have **10 minutes** and your goal is to fold **three origami cranes in the 10 minutes.**

**Autonomy improvement and goal un-specificity condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, although **individuals need to follow the instruction provided by the company to fold the crane, individuals are provided with multiple choices that individuals can choose from to express their own interests.**

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and **five different** crane instruction sheets. You can **choose any instruction that you are interested in.** Imagine that your task is to follow the instruction sheet that **you choose** to fold an origami crane and then tell us your feeling and evaluation about the product.

You have **10 minutes** and your goal is to try your best to fold **as many origami cranes as you can.**

**Autonomy not improvement and goal un-specificity condition:** A craft company just developed a new origami kit to teach people how to fold the origami crane and is currently testing the new product. According to the recent findings in psychology, folding the origami crane is a game in which **individuals need to follow the instruction provided by the company to fold the crane. Individuals do not have the choice to fold the crane in a way to express their own interests.**

Now, you are invited to participate in the product test. In the test, the craft company will provide each participant a square piece of origami paper and **only one** crane instruction sheet. You need to **strictly follow the instruction** and **can't choose a way that you are interested in to fold the crane.** Imagine that your task is to follow the instruction sheet provided by the company to fold an origami crane and then tell us your feeling and evaluation about the product.

You have **10 minutes** and your goal is to try your best to fold **as many origami cranes as you can.**

## Appendix 5: Scenarios along with the Survey Instrument for Experiment 3

### Study 2- Experiment 3

Thank you for participating in this study. The objective of the experiment is to evaluate customers' experience in furniture assembly. Please read the scenario carefully and answer the following questions.

**Goal achievement condition:** Image that you just moved into a new apartment. You found that you needed a shelf in your living room. You then ordered one online and received the shelf parts in a big box this afternoon. You planned to follow the instruction provided by the company to assemble the shelf by yourself tonight and your goal was to have the shelf assembled before you go to bed. You spent the whole night on the project. By strictly following the steps provided in the instruction, you finally ***achieved your pre-set goal*** and ***successfully put the shelf together***.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. In the scenario, I have achieved my goal of assembling the shelf.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. The description of the situation in the scenario is very realistic.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. I will be able to achieve most of the goals that I have set for myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
4. When facing difficult tasks, I am certain that I will accomplish them.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
5. In general, I think that I can obtain outcomes that are important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
6. I believe I can succeed at most any endeavor to which I set my mind.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
7. I will be able to successfully overcome many challenges.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
8. I am confident that I can perform effectively on many different tasks.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
9. Compared to other people, I can do most tasks very well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
10. Even when things are tough, I can perform quite well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
11. I think I would enjoy assembling the shelf.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

12. I think assembling the shelf would be very fun.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
13. Assembling the shelf would be quite enjoyable.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
14. Assembling the shelf would be very interesting.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
15. I am satisfied with the shelf I just bought.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
16. The shelf meets my expectations.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
17. My choice to purchase this shelf is a wise one.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
18. I will be interested in assembling furniture (e.g. shelf) by myself in the future.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
19. I would like to assemble furniture (e.g. shelf) by myself again in the future.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
20. I have a strong intention to assemble furniture (e.g. shelf) by myself in the future.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
21. I am familiar with how to assemble a shelf by myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Never	Rarely	Occasionally	Sometimes	Frequently		
22. How often have you assembled furniture (e.g. shelf)?	[1]	[2]	[3]	[4]	[5]		

23. What is your attitude toward assembling furniture (e.g. shelf)?

	Extremely Negative	Quite Negative	Neither negative nor positive	Quite Positive	Extremely Positive	
Dislike	1	2	3	4	5	Like
Bad	1	2	3	4	5	Good
Not Appealing	1	2	3	4	5	Appealing

24. What is your gender?

Male / Female (Circle one)

25. What is the highest degree or level of education you have completed? (Select one)

- |                                     |  |
|-------------------------------------|--|
| _____ 1. Less than high school      | _____ 4. Associate degree or other two-year degree |
| _____ 2. High school diploma or GED | _____ 5. Bachelor's degree                         |
| _____ 3. Some college, no degree    | _____ 6. Graduate degree                           |

26. What is your current age? (Select one)

- |                         |                |                      |
|-------------------------|----------------|----------------------|
| _____ 1. 18 and younger | _____ 4. 35-44 | _____ 7. 65 and over |
| _____ 2. 19-24          | _____ 5. 45-54 |                      |
| _____ 3. 25-34          | _____ 6. 55-64 |                      |

**Thanks for your participation!**

### Study 2- Experiment 3

**Goal un-achievement condition:** Image that you just moved into a new apartment. You found that you needed a shelf in your living room. You then ordered one online and you received the shelf parts in a big box this afternoon. You planned to follow the instruction provided by the company to assemble the shelf by yourself tonight and your goal was to have the shelf assembled before you go to bed. You strictly followed the step provided in the instruction, but you **could not assemble the shelf together and failed in obtaining your pre-set goal!**

## Appendix 6: Scenarios along with the Survey Instrument for Experiment 4a

### Study 2- Experiment 4a

Thank you for participating in this study. The objective of the experiment is to evaluate customers' experience in furniture assembly. Before the study, please answer a question about yourself below.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. The DIY (Do it yourself) ability is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. I felt that mastering DIY ability is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. Usually, to improve DIY ability is critical to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

Then, please read the scenario carefully and answer the following questions.

**Competence improvement and goal achievement condition:** Imagine that you just moved into a new apartment. You found that you needed a shelf in your living room. You then ordered one online and you received the shelf parts in a big box this afternoon. You planned to follow the instruction provided by the company to assemble the shelf by yourself tonight and your goal was to have the shelf assembled before you go to bed. You spent the whole night on the project and finally you **achieved your pre-set goal** and **successfully put the shelf together**.

It is widely believed that assembling furniture (e.g. shelf) **helps** adults to **improve their DIY (Do it yourself) ability**. A recently published study provided empirical evidence that assembling furniture (e.g. shelf) **is an effective way** for adults to **improve their DIY capability**.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. In the scenario, I have achieved my goal of assembling the shelf.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. Assembling furniture (e.g. shelf) help adults improve DIY ability.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. The description of the situation in the scenario is very realistic.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
4. I will be able to achieve most of the goals that I have set for myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
5. When facing difficult tasks, I am certain that I will accomplish them.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
6. In general, I think that I can obtain outcomes that are important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

7. I believe I can succeed at most any endeavor to which I set my mind.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
8. I will be able to successfully overcome many challenges.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
9. I am confident that I can perform effectively on many different tasks.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
10. Compared to other people, I can do most tasks very well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
11. Even when things are tough, I can perform quite well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
12. I think I would enjoy assembling the shelf.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
13. I think assembling the shelf would be very fun.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
14. Assembling the shelf would be quite enjoyable.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
15. Assembling the shelf would be very interesting.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
16. I am satisfied with the shelf I just bought.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
17. The shelf meets my expectations.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
18. My choice to purchase this shelf is a wise one.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
19. I will be interested in assembling furniture (e.g. shelf) by myself in the future.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
20. I would like to assemble furniture (e.g. shelf) by myself again in the future.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
21. I have a strong intention to assemble furniture (e.g. shelf) by myself in the future.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
22. I am familiar with how to assemble a shelf by myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Never	Rarely	Occasionally	Sometimes	Frequently		
23. How often have you assembled furniture (e.g. shelf)?	[1]	[2]	[3]	[4]	[5]		

24. What is your attitude toward assembling furniture (e.g. shelf)?

	Extremely Negative	Quite Negative	Neither negative nor positive	Quite Positive	Extremely Positive	
Dislike	1	2	3	4	5	Like
Bad	1	2	3	4	5	Good

Not Appealing      1                      2                      3                      4                      5                      Appealing

25. What is your gender?                      Male / Female (Circle one)

26. What is the highest degree or level of education you have completed? (Select one)

- |                                     |  |
|-------------------------------------|--|
| _____ 1. Less than high school      | _____ 4. Associate degree or other two-year degree |
| _____ 2. High school diploma or GED | _____ 5. Bachelor's degree                         |
| _____ 3. Some college, no degree    | _____ 6. Graduate degree                           |

27. What is your current age? (Select one)

- |                         |                |                      |
|-------------------------|----------------|----------------------|
| _____ 1. 18 and younger | _____ 4. 35-44 | _____ 7. 65 and over |
| _____ 2. 19-24          | _____ 5. 45-54 |                      |
| _____ 3. 25-34          | _____ 6. 55-64 |                      |

**Thanks for your participation!**

## Study 2- Experiment 4a

**Competence not improvement and goal achievement condition:** Image that you just moved into a new apartment. You found that you needed a shelf in your living room. You then ordered one online and you received the shelf parts in a big box this afternoon. You planned to follow the instruction provided by the company to assemble the shelf by yourself tonight and your goal was to have the shelf assembled before you go to bed. You spent the whole night on the project and finally you **achieved your pre-set goal** and **successfully put the shelf together**.

Although it is widely believed that assembling furniture (e.g. shelf) **helps** adults to **improve their DIY ability**, a recently published study showed empirical evidence that assembling furniture (e.g. shelf) **is not an effective way** for adults to **improve their DIY ability**.

**Competence improvement and goal un-achievement condition:** Image that you just moved into a new apartment. You found that you needed a shelf in your living room. You then ordered one online and you received the shelf parts in a big box this afternoon. You planned to follow the instruction provided by the company to assemble the shelf by yourself tonight and your goal was to have the shelf assembled before you go to bed. You spent the whole night on the project, **but you could not assemble the shelf together and failed in obtaining your pre-set goal**.

It is widely believed that assembling furniture (e.g. shelf) **helps** adults to **improve their DIY ability**. A recently published study provided empirical evidence that assembling furniture (e.g. shelf) **is an effective way** for adults to **improve their DIY capability**.

**Competence not improvement and goal un-achievement condition:** Image that you just moved into a new apartment. You found that you needed a shelf in your living room. You then ordered one online and you received the shelf parts in a big box this afternoon. You planned to follow the instruction provided by the company to assemble the shelf by yourself tonight and your goal was to have the shelf assembled before you go to bed. You spent the whole night on the project, **but you could not assemble the shelf together and failed in obtaining your pre-set goal**.

Although it is widely believed that assembling furniture (e.g. shelf) **helps** adults to **improve their DIY ability**, a recently published study showed empirical evidence that assembling furniture (e.g. shelf) **is not an effective way** for adults to **improve their DIY ability**.



## Appendix 7: Scenarios along with the Survey Instrument for Experiment 4b

### Study 2- Experiment 4b:

Thank you for participating in this study. The objective of the experiment is to evaluate customers' experience in furniture assembly. Before the study, please answer a question about yourself below.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. Having choices that based on my true interests and values is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. The freedom of doing things in own way is very important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. Usually, I want to enjoy some free choices to express my 'true self'.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

Then, please read the scenario carefully and answer the following questions.

Imagine that you just moved into a new apartment. You found that you needed a shelf in your living room. You then ordered one online and you received the shelf parts in a big box this afternoon. You planned to follow the instruction provided by the company to assemble the shelf by yourself tonight and your goal was to have the shelf assembled before you go to bed.

**Autonomy improvement and goal achievement condition:** According to a recently published study, although individuals *need to strictly follow* the instructions when assembling furniture (e.g. shelf) by themselves, the instruction provided by the company usually *provides choices for individuals to incorporate their own design and preferences into the furniture to express their own interests*. You spent the whole night on the project and you finally *achieved your pre-set goal* and *successfully put the shelf together*.

Please indicate the extent to which you agree or disagree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
1. In the scenario, I have achieved my goal of assembling the shelf.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
2. I have choices to express my own interest when assembling furniture (e.g. shelf).	[1]	[2]	[3]	[4]	[5]	[6]	[7]
3. The description of the situation in the scenario is very realistic.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
4. I will be able to achieve most of the goals that I have set for myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
5. When facing difficult tasks, I am certain that I will accomplish them.	[1]	[2]	[3]	[4]	[5]	[6]	[7]

6. In general, I think that I can obtain outcomes that are important to me.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
7. I believe I can succeed at most any endeavor to which I set my mind.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
8. I will be able to successfully overcome many challenges.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
9. I am confident that I can perform effectively on many different tasks.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
10. Compared to other people, I can do most tasks very well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
11. Even when things are tough, I can perform quite well.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
12. I think I would enjoy assembling the shelf.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
13. I think assembling the shelf would be very fun.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
14. Assembling the shelf would be quite enjoyable.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
15. Assembling the shelf would be very interesting.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
16. I am satisfied with the shelf I just bought.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
17. The shelf meets my expectations.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
18. My choice to purchase this shelf is a wise one.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
19. I will be interested in assembling furniture (e.g. shelf) by myself in the future.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
20. I would like to assemble furniture (e.g. shelf) by myself again in the future.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
21. I have a strong intention to assemble furniture (e.g. shelf) by myself in the future.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
22. I am familiar with how to assemble a shelf by myself.	[1]	[2]	[3]	[4]	[5]	[6]	[7]
	Never	Rarely	Occasionally	Sometimes	Frequently		
23. How often have you assembled furniture (e.g. shelf)?	[1]	[2]	[3]	[4]	[5]		

24. What is your attitude toward assembling furniture (e.g. shelf)?

Extremely    Quite    Neither negative    Quite    Extremely

	Negative	Negative	nor positive	Positive	Positive	
Dislike	1	2	3	4	5	Like
Bad	1	2	3	4	5	Good
Not Appealing	1	2	3	4	5	Appealing

25. What is your gender? Male / Female (Circle one)

26. What is the highest degree or level of education you have completed? (Select one)

- |  |   |
|--|---|
| <input type="checkbox"/> 1. Less than high school      | <input type="checkbox"/> 4. Associate degree or other two-year degree |
| <input type="checkbox"/> 2. High school diploma or GED | <input type="checkbox"/> 5. Bachelor's degree                         |
| <input type="checkbox"/> 3. Some college, no degree    | <input type="checkbox"/> 6. Graduate degree                           |

27. What is your current age? (Select one)

- |  |                                   |   |
|--|-----------------------------------|---|
| <input type="checkbox"/> 1. 18 and younger | <input type="checkbox"/> 4. 35-44 | <input type="checkbox"/> 7. 65 and over |
| <input type="checkbox"/> 2. 19-24          | <input type="checkbox"/> 5. 45-54 |   |
| <input type="checkbox"/> 3. 25-34          | <input type="checkbox"/> 6. 55-64 |   |

**Thanks for your participation!**

## Study 2- Experiment 4b

**Autonomy not improvement and goal achievement condition:** According to a recently published study, assembling furniture (e.g. shelf) by themselves **doesn't provide the choices for individuals to incorporate their own design and preferences into the furniture to express their own interests since individuals need to strictly follow the instruction** provided by the company. You spent the whole night on the project and you finally **achieved your pre-set goal** and **successfully put the shelf together**.

**Autonomy improvement and goal un-achievement condition:** According to a recently published study, although individuals **need to strictly follow** the instructions when assembling furniture (e.g. shelf) by themselves, the instruction provided by the company usually **provides choices for individuals to incorporate their own design and preferences into the furniture to express their own interests**. You spent the whole night on the project, **but you could not assemble the shelf together and failed in obtaining your pre-set goal**.

**Autonomy not improvement and goal un-achievement condition:** According to a recently published study, assembling furniture (e.g. shelf) by themselves **doesn't provide the choices for individuals to incorporate their own design and preferences into the furniture to express their own interests since individuals need to strictly follow the instruction** provided by the company. You spent the whole night on the project, **but you could not assemble the shelf together and failed in obtaining your pre-set goal**.

## ESSAY 2

### EXPLORING SERVICE EMPLOYEES' VALUE CO-CREATION BEHAVIOR: DIMENSIONS, ANTECEDENTS, AND CONSEQUENCES

#### INTRODUCTION

In the past few decades, customer co-creation has received a significant amount of attention in both practice and academics (Bendapudi & Leone, 2003; Chan, Yim, & Lam, 2010; Prahalad & Ramaswamy, 2000; Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). The significance of value co-creation is also reflected on the Marketing Science Institute's ranking of "Understanding customers and the customer experience and identifying the value of alternative sources of insight generation to drive innovation (e.g., crowdsourcing, co-creation, and employee input)" as a top-tier research topic (MSI, 2014-2016 Research Priorities). As we know, employees act as a conduit between the company and its customer base, sensing market demand, disseminating information to customers about offerings, and co-creating value with customers (Jaworski & Kohli, 1993; Narver & Slater, 1990). Thus, employees are critical in engaging customers into value co-creation and facilitating the value co-creation between the service organization and customers (Chan & Wan, 2012; Chan et al., 2010; Liao & Subramony, 2008). However, most of the previous studies focused on customers' involvement in value co-creation, little is known about how employees are involved in the value co-creation process.

To fill in the above gap, this study is set out to explore how service employees can interact with their customers in the value co-creation process and what organizational factors

influence employee co-creation behavior. In this study, we first develop a scale of employee co-creation behavior and identify different dimensions of this construct. Based on job demands-resources model (JD-R model) (Bakker & Demerouti, 2007; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), we then develop a theoretical framework to explain the major antecedents and outcomes of employee co-creation behavior.

This study contributes to marketing research and practice in several ways. First, diverting from the dominant research on value co-creation emphasizing on customer co-creation behavior, we focus on employee co-creation behavior and explore how service employees co-create value with customers. Second, we develop a scale of employee co-creation behavior. To the best of our knowledge, this is the first scale of employee co-creation behavior in the marketing literature. Given the important role played by employee co-creation behavior, the scale will benefit future research on value co-creation literature. Third, we investigate the antecedents and consequences of employee co-creation behavior to provide managers with a guidance on where to focus on the organizational resources and how to facilitate employee co-creation behavior.

## **LITERATURE REVIEW AND RESEARCH GAP**

### **Co-creation Literature Review**

Customer co-creation is defined as “the joint creation of value by the company and the customer; allowing the customer to co-construct the service experience to suit their context” (Prahalad & Ramaswamy, 2004, p. 8). Vargo and Lusch (2004) suggested that the “customer is always a co-creator,” which is one of the foundational premises of service-dominant logic (SD-Logic). Given the importance of the customer co-creation, many studies have been conducted on

this topic (Bendapudi & Leone, 2003; Bettencourt, 1997; Chan et al., 2010; Dahl & Moreau, 2007; Dong, Evans, & Zou, 2008; Fang, 2008; Prahalad & Ramaswamy, 2000; Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004). Previous studies on customer co-creation have been conducted from either the customer (Bendapudi & Leone, 2003; Bettencourt, 1997; Chan et al., 2010; Dahl & Moreau, 2007; Fang, 2008) or the employee perspective (Chan & Wan, 2012; Chan et al., 2010; Hsieh, Yen, & Chin, 2004). Most studies focused the motivation of customer co-creation behavior and the impact of customer co-creation behavior on firm performance. For example, previous studies consistently found that engaging customers into value co-creation increases productivity and decreases costs (Prahalad & Ramaswamy, 2000; Prahalad & Ramaswamy, 2004). Some studies found the customers' motivation of value co-creation, including sense of self-expression and pride (Csikszentmihalyi, 1997; Etgar, 2008), creative achievements (Burroughs & Glen Mick, 2004), the enjoyment of contribution (Evans & Wolf, 2005; Nambisan & Baron, 2009) and monetary benefits or financial compensations (Füller, 2010; Holbrook, 2006; Knee & Zuckerman, 1996; Lusch, Brown, & Brunswick, 1992).

Although research on co-creation behavior from the customer perspective has been well-established in the marketing literature (Bendapudi & Leone, 2003; Bettencourt, 1997; Chan et al., 2010; Dahl & Moreau, 2007; Dong et al., 2008; Fang, 2008; Prahalad & Ramaswamy, 2000; Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004), few studies has touched upon employee co-creation behavior in the literature. There are some studies exploring the impact of customer co-creation on employee's job satisfaction and performance. For example, Chan, Yim, and Lam (2010) found that customer participation strengthened relational bonds between customers and employees, but it also increased employees' job stress. In their follow-up research, they also found that a higher level of customer participation leads to greater employee job satisfaction

through the creation of employee participation enjoyment (Yim, Chan, & Lam, 2012). Except for these studies, how employees are involved in value co-creation and what is the major employee co-creation behavior's antecedents and outcomes have been rarely studied. Previous studies examined some related constructs, including employee engagement, organizational citizenship behaviors, and employees' customer orientation behaviors. In the following section, we reviewed the research on these constructs and demonstrated how these constructs are different from employee co-creation behavior.

Similar to employee co-creation behavior, employee engagement is defined as “an individual employee's cognitive, emotional, and behavioral state directed toward desired organizational outcomes” (Shuck & Wollard, 2010, p. 15). Previous studies explored the antecedents and consequences of employee engagement (Menguc, Auh, Fisher, & Haddad, 2013; Rich, Lepine, & Crawford, 2010; Saks, 2006; Shuck, Reio Jr, & Rocco, 2011). For example, some studies found that job fit, affective commitment, and psychological climate contribute to employee engagement (Shuck et al., 2011). Saks (2006) found that perceived organizational support and job characteristics (e.g. autonomy, task identity, skill variety, task significance, feedback from others, and feedback from the job) are positively related to employee engagement. Menguc, Auh, Fisher and Haddad (2013) also found that both supervisory support and supervisory developmental feedback positively are related to employee engagement. As to the outcomes of employee engagement, Harter, Schmidt, and Hayes (2002)'s meta-analysis reported that employee engagement is positively associated with customer satisfaction, customer loyalty, productivity, and profitability, and negatively associated with employee turnover. According to the domain of employee engagement, it mainly focuses on the employer and employee relationship or employees among themselves to deal with some work-related problems



(MacKenzie, Podsakoff, & Fetter, 1993). However, the relationships of employees' interactions with customers and employees' value co-creation process are largely ignored.

Organizational citizenship behaviors (OCBs) is also similar to the construct of employee co-creation behavior. Organizational citizenship behaviors (OCBs) is defined as “performance that supports the social and psychological environment in which task performance takes place” (Organ, 1997, p. 95). Organ (1988) originally proposed a five-factor OCB model, including altruism, courtesy, conscientiousness, civic virtue, and sportsmanship. Previous studies explored the antecedents and consequences of organizational citizenship behaviors (OCBs) (Organ, Podsakoff, & MacKenzie, 2005; Podsakoff, MacKenzie, Paine, & Bachrach, 2000). Podsakoff et al. (2000) found that there are four major categories of OCBs antecedents: individual characteristics (e.g. organizational commitment, trust in leader, role ambiguity and role conflict etc.), task characteristics (e.g. task feedback, task routinization and intrinsically satisfying task), organizational characteristics (e.g. organizational formalization, organizational inflexibility, spatial distance from leader and perceived organizational support etc.), and leadership behaviors (e.g. supportive leader behavior, leader-member exchange, contingent reward behavior and contingent punishment behavior etc.). In addition, OCBs may contribute to organizational success by: (a) enhancing coworker and managerial productivity; (b) freeing up resources so they can be used for more productive purposes; (c) reducing the need to devote scarce resources to purely maintenance functions; (d) helping to coordinate activities both within and across work groups; (e) strengthening the organization's ability to attract and retain the best employees; (f) increasing the stability of the organization's performance; and (g) enabling the organization to adapt more effectively to environmental changes (Podsakoff et al, 2000). OCBs also differ from employee co-creation behavior in that most of organizational behavior literature considered

OCBs as an important component of *extra-role behavior*, which means those positive and discretionary behaviors are not required by the organization but that are necessary to facilitate effective organizational functioning (Organ et al., 2005; Williams & Anderson, 1991). In contrast, employee co-creation behavior refers to both required (*in-role*) behavior (behavior necessary for successful value co-creation) and voluntary (*extra-role*) behavior (behavior provides extraordinary value to the firm).

Employees' customer orientation behaviors is also similar to the construct of employee co-creation behavior. Rafaeli, Ziklik and Doucet (2008, p. 241) defined employees' customer orientation behaviors as "employees' behaviors that indicate an *interest* in serving customers but are not a part of the employee's formal job description." After analyzing the transcripts of service encounters in a call center, Rafaeli, Ziklik, and Doucet (2008) concluded that there are five different categories of employees' customer orientation behaviors: anticipating customer requests, offering explanations/justifications, educating the customer, providing emotional support and offering personalized information. Liao and Subramony (2008) developed the 5 items employees' customer orientation scale to explore the antecedent variables of employees' customer orientation. They found that there is a positive relationship between the senior leadership team's customer orientation and employee customer orientation (Liao & Subramony 2008). Liaw, Chi, and Chuang (2010) found that the store-level transformational leadership influences service employees' customer orientation via two different mechanisms - supervisor support and co-worker support. They also found that employees' customer orientation leads to favorable employee service performance (Liaw, Chi & Chuang, 2010). Different from employees' customer orientation behaviors which refer to employees' efforts to understand customers' general demanding and create a long-term relationship with customers (Liao &

Subramony 2008), employee co-creation behavior mainly focuses on the degree to which employees are informally and formally involved into value co-creation process. Furthermore, although Rafaeli et al. (2008)'s five different categories of employees' customer orientation behaviors are close to the domain of employee co-creation behavior, these items cannot reflect employees' involvement in the value co-creation process.

Above all, although employee engagement, organizational citizenship behaviors (OCBs) and customer orientation behaviors are similar to employee co-creation behavior, they are distinct constructs. In this study, we define employee co-creation behavior as a behavioral construct that measures employees' collaboration with their customers into the value co-creation process during the service co-creation and delivery process (Chan et al., 2010; Hsieh et al., 2004).

## **Research Gaps**

After reviewing the literature on value co-creation, we identify several research gaps. First, most studies on value co-creation are conducted from the customer perspective. In contrast, there is a paucity of research examining how employees are involved in the service delivery process. Second, although employees' co-creation behavior is very important, there is a lack of an established scale on employee co-creation behavior. In addition, what organizational factors influence employees' co-creation behavior remains unclear.

To fill in these above gaps, in our first study, we develop a scale of employee co-creation behavior. In the second study, we examine the antecedents and consequences of employee co-creation behavior. The purpose of these two studies is to shed new light on employee co-creation behavior and provide implications to managers regarding how to measure employee co-creation behavior and how to engage employees into the value co-creation process.

## **STUDY 1: EMPLOYEE CO-CREATION BEHAVIOR SCALE DEVELOPMENT**

The purpose of study 1 is to develop a scale of employee co-creation behavior. When developing the scale, the procedures proposed by Churchill (1979) and Anderson and Gerbing (1988) are followed. The first step is to generate the initial item pool and assess the content validity of the item. The initial items are generated from a comprehensive literature review and 12 in-depth interviews with customer-contact employees. By employing a sample of 178 employees, these items are purified and the scale is validated. Finally, an 8-item, two-dimensional employee co-creation behavior scale is generated.

### **Item Generation and Purification**

To generate the items for the employee co-creation behavior scale, we conducted a comprehensive literature review as well as in-depth interviews with twelve frontline employees in a large port in the U.S. The employees were recruited from customer service group, sales department, and operations department. These employees represented a diverse range of work experience, tenure, customer type served, customer contact frequency, and customer contact mode. Based on the information collected, an initial pool of 18 items was identified. We then invited six marketing scholars to evaluate the content validity of the items, and 15 items were retained during this process. Since all measures were originally English-language scales, we followed the back-translation procedure recommended by Brislin (1980). We first translated the English items into Chinese, and then two bilingual speakers back-translated the Chinese items into English. When disagreements occurred, we discussed them with the speakers and then the items were revised again.

To purify the items and assess the reliability and validity of the construct, we conducted a survey with 298 employees in Southeast International airports, China. One hundred seventy-eight useable surveys were collected, producing a response rate of 59.7% (see Table 2 for a sample description). In order to be qualified for the study, the respondents need to have frequent interactions with their customers. We randomly divided the data into two halves to run exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) separately.

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Insert Table 2 about here

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An exploratory factor analysis with one-half of the subjects (N=89) was conducted first to identify the underlying dimensions and purify the items. From this analysis, items that had high cross-loadings above .40 on another dimension and items that loaded below .40 on their own dimensions were removed from the scale (Peterson, 2000). These two factors had eigenvalues ranging from 1.17 to 4.59 and accounted for 71.90% of the variance. Factor 1 was labeled as information provision (4 items) to capture the extent to which employees provide information to meet customers' needs in the value co-creation process. The second factor was labeled as customer co-creation engagement (4 items) to focus on how employees engage customers in the value co-creation process, such as joint problem solving, feedback provision and service delivery participation. The results of this exploratory factor analysis (EFA) are reported in the first column of Table 3.

### **Scale Validation**

To validate the underlying structure obtained from the EFA, we used the rest sample from the survey (N= 89) to conduct a confirmatory factor analysis (CFA). An 8-item, the two-factor model was confirmed. Inspection of model fit revealed a reasonable overall fit ( $\chi^2(18) =$

23.75,  $p < .01$ ; CFI = .99; TLI = .98; IFI = .99; GFI = .94; RMSEA = .06). The 8 items had standardized loadings ranging from .66 to .93 and hence were all retained. The results of this confirmatory factor analysis are reported in the last column of Table 3.

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Insert Table 3 about here

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We further evaluated the scale's convergent validity by examining the average variance extracted (AVE) for each dimension. The AVE measures the amount of variance captured by the items in each dimension. Researchers suggested that an AVE value of .50 or higher provides support for sufficient convergent validity (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). The AVEs for the two employee co-creation behavior dimensions were ranged from .57 to .70, lending support to the convergent validity of the scale. Discriminant validity of the two dimensions of our employee co-creation behavior scale was then tested through the approach suggested by Fornell and Larcker (1981). Specifically, discriminant validity between two factors is established when individual AVE for each factor exceeds the squared correlation between two factors. In this case, the pair of these two dimensions passed the test, suggesting sufficient discriminant validity of the two dimensions. Overall, the 8-item, two-dimensional employee co-creation behavior scale appeared to be a valid and reliable scale.

## **STUDY 2: ANTECEDENTS AND CONSEQUENCES OF EMPLOYEE CO-CREATION BEHAVIOR**

The purpose of the study 2 is to investigate the antecedents and consequences of employee co-creation behavior. Moreover, we use a larger sample to validate the scale developed in study 1. By adopting Job Demands-Resources Model (JD-R model) into co-creation literature, we examine the impact of organizational factors on employee co-creation behavior and the outcomes of employee co-creation behavior. A survey of 225 complete responses will be employed to test the hypothesized framework.

### **Conceptual Framework and Hypotheses Development**

Our theoretical framework was developed based on the Job Demands-Resources Model (JD-R model) (Bakker & Demerouti, 2007; Bakker, Demerouti, De Boer, & Schaufeli, 2003). Job Demands-Resources Model (JD-R model) is widely used to examine the interplay between job demands and job resources, which has underlined the motivational and wellness-promoting potential of job-related resources in an occupational context (Bakker & Demerouti, 2007). According to Bakker and Demerouti (2007, p. 312), “*Job demands* refer to physical, psychological, social, or organizational aspects of the job that require sustained physical and/or psychological (cognitive and emotional) effort or skills and are therefore associated with certain physiological and/or psychological costs, whereas *job resources* refer to those physical, psychological, social, or organizational aspects of the job that (a) are functional in achieving work goals, (b) reduce job demands and the associated physiological and psychological costs, either/or (c) stimulate personal growth, learning, and development”.

Our theoretical model is presented in Figure 9. The model describes the antecedents and consequences of employee co-creation behavior and investigates moderating effect of cross-functional cooperation. Specifically, we propose that both customer orientation and perceived organizational support are positively associated with employee co-creation behavior, which in

turn influences employees' job satisfaction and job stress. Moreover, we hypothesize that firm cross-functional cooperation strengthens the relationships between perceived organizational support/customer orientation and employee co-creation behavior.

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Insert Figure 9 about here

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*Job-resources: perceived organizational support (POS)*

Eisenberger, Huntington, Hutchison, and Sowa (1986) defined perceived organizational support (POS) as the “personified organization's readiness to reward increased work effort and to meet needs for praise and approval, employees develop global beliefs concerning the extent to which the organization values their contributions and cares about their well-being” (Eisenberger et al. 1986, p.501). Based on the above definition, perceived organizational support would work as a type of job-resources indicating an organization's investment in the relationship with its employees. According to the notions of social exchange perspective (Homans, 1958; Thibaut & Walker, 1978), the greater perceived organizational support will engender a sense of obligation for employees to reciprocate with cooperative behaviors to provide better service to its customers and actively engage their customers' into the value co-creation process since customer co-creation helps enhance the performance of the organization (Bettencourt, 1997; Shore & Wayne, 1993). Thus, a higher level of perceived organization support leads to a higher level of employees' involvement in the co-creation behavior (Bagozzi, 1995; Bettencourt, 1997).

Accordingly, we hypothesize:

*H1: Perceived organizational support is positively related to employee co-creation behavior.*

*Job-resources: customer orientation*



Deshpandé et al. (1993, p. 27) defined “customer orientation as the set of beliefs that puts the customer's interest first, while not excluding those of all other stakeholders such as owners, managers, and employees, in order to develop a long-term profitable enterprise”. In this study, consistent with Deshpandé, Farley, and Webster (1993), we proposed that customer orientation is a corporate culture variable, which is related to a firm’s overall value and business philosophy about the importance of serving customers’ needs. If employees identify with the organization’s customer-oriented philosophy, he or she may place the higher importance of working on customers' best interests and identifying the offerings that satisfy their needs (Terho, Eggert, Haas & Ulaga, 2015). As a part of serving their customers’ best interests, service employees need to provide necessary information and actively involve customers into the co-creation process as to generate the best value for their customers (Chan et al., 2010). Thus, when employees are customer-orientated, they are more likely to engage the customer into the value co-creation process to better satisfy customers’ needs and meet their expectations. Accordingly, we hypothesize:

*H2: Customer orientation is positively related to employee co-creation behavior.*

*Job-resources based outcome: job satisfaction*

In this study, we proposed that through the co-creation process, employees may not only gain more relational value (Chan et al., 2010) but also make their jobs enjoyable (Bitner et al. 1997; Yim et al., 2012), both of which would increase employees’ job satisfaction ultimately. Gremler and Gwinner (2000) found that building rapport with their customers contributes to employees’ job satisfaction, because employees can perceive greater relational value in enjoyable customer-employee interactions. Through the interactions between employees and customers, employees would evaluate their job positively if they find serving and helping

customers inherently enjoyable (Brown, Tom, Mowen, Donovan & Licata, 2002). Consistently, the Healthcare literature indicates that enjoyable and open relationships with patients contribute to clinicians' sense of appreciation and protect against frustration and burnout, which enhances their job satisfaction (Chan et al., 2010). Therefore, we expect the following hypothesis:

*H3: Employee co-creation behavior is positively related to employee's job satisfaction.*

*Job-demand based outcome: job stress*

In this study, we also proposed that through the co-creation process, the complexity and endless requirements from consumers may increase employees' job stress (Chan et al., 2010; Hsieh et al., 2004). Following the role theory (e.g., Heide & Wathne 2006), we conceptualize job stress as being composed of three job stressors: role ambiguity, role conflict, and work overload. Role ambiguity refers to an employee's perceived lack of information and uncertainty about how to perform his or her role adequately, role conflict taps incompatibility in the requirements of the role, and work overload occurs when cumulative role demands exceed an employee's abilities and motivation to perform the task (Singh, 1998).

Following the previous literature, employee co-creation behavior could create employees' job stress for the following reasons. First, employees involve customers into the value co-creation process may cause a loss of power and control over customers, which may lead to employees' role ambiguity. Because employees' perceptions of job duties may differ from customers' expectations, the ambiguity may cause employees' misunderstanding with the service script, and even worse could disrupt the smooth functioning of the service process (Chase, 1978), which ultimately increases the employees' job stress.

With regard to role conflict and work overload, employees involve customers into the value co-creation process may face with lots of customers' unexpected and special requests,

which may not be compatible with employees' original role scripts, as predefined by managers (Hsieh et al., 2004). When employees are facing incompatible expectations and over-demanding situation, they may need to spend more time and efforts on fulfilling the needs of both customers and supervisors. Thus, the role conflict and work overload will increase employees' job stress ultimately (Hsieh et al., 2004; Chan et al., 2010). Accordingly, we hypothesize:

*H4: Employee co-creation behavior is positively related to employee's job stress.*

*The moderator effects of cross-functional cooperation*

Both marketing and management literature has demonstrated the importance of cross-functional cooperation and integration in a variety of contexts (Homburg, Workman, & Krohmer, 1999; Luo, Slotegraaf, & Pan, 2006; Moorman & Rust, 1999). In this study, we define cross-functional cooperation as the degree of collaboration, the extent of representation, and the contribution of marketing, R&D, and other functional units to the business process (Li & Calantone, 1998; Ruekert & Walker Jr, 1987; Song, Montoya-Weiss, & Schmidt, 1997).

We hypothesize that the relationship between perceived organizational support and employee co-creation behavior is moderated by cross-functional cooperation, such that the above relationship is stronger when the extent of cross-functional cooperation is high than it is low. Cross-functional cooperation implies increased resource integration and information sharing effectively among different departments, a trust and cooperative climate will be developed, which will maximize the effectiveness and efficiency of the organizational support provided to employees (Troy, Hirunyawipada, & Paswan, 2008). As a result, perceived organizational support more likely leads to more employee co-creation behavior when cross-functional cooperation is high.

Moreover, we also suggest that a firm with customer orientation philosophy can better motivate employee co-creation behavior if the firm exhibits high levels of cross-functional cooperation. When the level of cross-functional cooperation is high, the importance of customer-oriented culture is more pronounced because the collective knowledge from this diversity of department may mainly focus on how to better serve customers' needs. The fluent transfer of customer based knowledge among interdependent units can help reduce the uncertainty and ambiguity of resource and information flows (Galunic & Rodan, 1998; Ruekert & Walker Jr, 1987). Thus, a combination of cross-functional cooperation and customer orientation may nurture productive interactions that facilitate internal efficiencies and stimulate employees' effort to understand customer need and involve customers into value co-creation process. Therefore, we expect the following hypotheses:

*H5a: The positive effect of perceived organizational support on employee co-creation behavior is stronger when firm cross-functional cooperation is higher than it is low.*

*H5b: The positive effect of customer orientation on employee co-creation behavior is stronger when firm cross-functional cooperation is higher than it is low.*

## **Data Collection**

To test the hypothesized framework, a self-administrative online survey with the employees is conducted via WJX, an online survey platform in China. The survey is conducted with the frontline employees of a major Auto 4S (Sale, Spare-part, Service, and Survey) store chain in China, which has shops located in Shanghai, Beijing, Tianjin, Chongqing, Xi'an, Changchun, Zhengzhou, Harbin, Shenyang, and Dalian. We first called the general manager of this franchised chain and explained the purpose of this research. After we received the permission, one of the vice-presidents helped us complete the data collection.

A contact list of 1,200 employees was provided by the human resource department of the store chain. To be eligible for the study, the respondents should at least have some service working experience with customers. An email invitation was sent to all contacts first. A random drawing for several gift card prizes was offered as an incentive for survey completion. A total of 250 complete questionnaires were collected and 25 uncompleted surveys were removed, resulting in a response rate of 18.8% (see Table 4 for a sample description).

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Insert Table 4 about here

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## Measures

In the survey, we used the 8-item employee co-creation behavior measure developed in Study 1. The measures for other constructs were adapted from previous studies (see Table 5 for the measurement items). All of these items used in the survey were measured on a 7-point scale anchored at “strongly disagree with the statement” (1) and “strongly agree with the statement” (7). Because all existing measures were originally in English, we created the Chinese version for all measures following the commonly used back translation procedure (Brislin, 1980).

*Perceived organizational support.* We adapted 4 items from Eisenberger, Armeli, Rexwinkel, Lynch, and Rhoades (2001) to measure perceived organizational support.

Cronbach’s alpha for the scale was .84.

*Customer orientation.* We adapted 3 items from previous literature (Brown, Mowen, Donovan, & Licata, 2002; Korschun, Bhattacharya, & Swain, 2014) to measure customer orientation. Cronbach’s alpha for the scale was .84.

*Cross-functional cooperation.* We adapted 6 items from previous literature (Luo et al., 2006; Strese, Meuer, Flatten, & Brettel, 2016) to measure cross-functional cooperation.

Cronbach's alpha for the scale was .93.

*Job satisfaction.* We adapted 2 items from Janssen and Van Yperen (2004) to measure job satisfaction. Cronbach's alpha for the scale was .88.

*Job stress.* We adapted 9 items from Chan et al. (2010) to measure job stress. Cronbach's alpha for the scale was .94.

*Control variables.* To rule out other potential alternative explanations that are not the focus of the study, we controlled employee age, gender, department, employee working experience and firm location. The age variable was measured by asking all respondents to indicate their current age. The gender variable was measured by asking all respondents to indicate their gender (male=1, female=0). The department variable was measured by asking all respondents to indicate the department they currently working in. The working experience variable was measured by the years they worked for the store chain. Finally, because our sample came from ten different cities in China, we created one firm location dummy variable to represent the store located in the north of China (coded as "1") with the store located in the south of China as the benchmark (coded as "0"). Table 5 presents the descriptive statistics of all variables.

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Insert Table 5 about here

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### **Employee Co-creation Behavior Scale Validation**

As mentioned earlier, one of the purposes of Study 2 was to verify the validity and reliability of the employee co-creation behavior scale developed in Study 1 with a larger sample

(N=225). Hence, before testing the full measurement model and the conceptual model, we conducted another confirmatory factor analysis (CFA) using responses to the employee co-creation behavior scale items. An 8-item, two-dimension model was estimated, and inspection of model fit revealed a reasonable overall fit ( $\chi^2 (18) = 22.80, p < .01$ ; CFI = .99; TLI = .99; IFI = .99; GFI = .98; RMSEA = .03). The 8 items showed standardized loadings ranging from .66 to .86, and the average variance extracted (AVE) for each dimension was .68 for information provision and .56 for customer co-creation engagement, all exceeding the .50 threshold for sufficient convergent validity (Bagozzi & Yi, 1988; Fornell & Larcker, 1981). We further found that each of the AVEs for the two employee co-creation behavior dimensions was larger than the squared correlations between two dimensions, suggesting the discriminant validity of the factors (Fornell & Larcker, 1981). Finally, the Cronbach's alphas were .86 for information provision and .81 for customer co-creation engagement, all exceeding the .70 threshold for acceptable reliability (Gerbing & Anderson, 1988).

### **Full Measurement Model**

We established the full measurement model by conducting a confirmatory factor analysis (CFA) on all latent constructs. The fit indexes ( $\chi^2 (435) = 759.37, p < .01$ ; CFI = .94; TLI = .93; IFI = .94; GFI = .93; RMSEA = .06) suggested that the measurement model fitted the data well (Bentler & Bonett, 1980; Cheung & Rensvold, 2002). The results of the measurement model are presented in Table 5. According to the criterion suggested by Anderson and Gerbing (1988), the Cronbach's alpha for every factor was above .81, indicating that all constructs have acceptable reliability. Moreover, all *t*-tests of the indicator were significant at the .001 level and all of their factoring loading above .66, indicating satisfactory convergent validity (Anderson & Gerbing, 1988). We also assessed each construct's validity based on composite reliability (CR) and

average variance extracted measure (AVE) (Hair, Black, Babin, Anderson, & Tatham, 1998).

The results are reported in Table 6, showing that all construct reliabilities and variance extracted measures were above the cutoff values of .70 and .50, respectively (Hair et al., 1998), also demonstrating evidence of convergent validity. Table 5 shows that the AVE for each construct exceeded the squared correlation between the construct and all other constructs in the measurement model (Fornell & Larcker, 1981), suggesting sufficient discriminant validity. In sum, measurement model in this research shows the good convergent validity and discriminant validity.

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Insert Table 6 about here

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To assess the potential common method bias, in this study, we employed the marker variable approach, which adopted the marker variable theoretically unrelated to any other variables (Lindell & Whitney, 2001). In this study, a single-item scale for the marker variable was incorporated into the questionnaire to capture the level of competition. Respondents were asked to answer the following question: “Please indicate the level of competition that your firm faces” (1 = very low, 7 = very high). Following the procedure proposed by Malhotra, Kim and Patil (2006), our results indicate that there is no notable differences between the two models (the model without additional marker variable vs. the model with additional marker variable):  $\chi^2(435) = 759.37$  vs.  $\chi^2(434) = 448.78$ , CFI = .939 vs. .941, TLI = .931 vs. .933; IFI = .940 vs. .942; GFI = .929 vs. .932; RMSEA = .058 vs. .057. Overall, the results from this set of analyses provided adequate support that common method bias is not a serious concern in this study.



## Hypotheses Testing

Using AMOS 16.0, we estimated the structural model to test these hypotheses. The overall fit statistics indicated a good fit of the model ( $\chi^2 (708) = 1178.27, p < .01$ ; CFI = .92; TLI = .91; IFI = .92; GFI = .91; RMSEA = .05). Figure 10 provides the results of the structural model.

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Insert Figure 10 about here

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As predicted in H1, the path from perceived organizational support to employee co-creation behavior is significant and positive. More specifically, the effect of perceived organizational support to information provision is significant ( $\beta = .17, p < .05$ ) and the effect of perceived organizational support to customer co-creation engagement is significant ( $\beta = .34, p < .01$ ). Our results also supported H2. More specifically, the effect of customer orientation to information provision is significant ( $\beta = .41, p < .01$ ) and the effect of customer orientation to customer co-creation engagement is significant ( $\beta = .52, p < .01$ ).

H3 predicts that employee co-creation behavior has a positive effect on job satisfaction. Our results confirm that information provision has a positive effect on job satisfaction ( $\beta = .32, p < .05$ ) and customer co-creation engagement has a positive effect on job satisfaction ( $\beta = .59, p < .01$ ). H4 predicts that employee co-creation behavior has a positive effect on job stress. However, our results found that information provision has a negative effect on job stress ( $\beta = -.35, p < .05$ ), while the effect of customer co-creation engagement is nonsignificant ( $\beta = .04, n.s.$ ). Therefore, our results did not lend support to H4.

We utilized the latent product approach suggested by Ping (1995) to test our moderation hypothesis. The first step was to mean-center each indicator of the following variables, perceived

organizational support, customer orientation, and cross-functional cooperation. After mean-centering all of these indicators, we summed the indicators of each latent variable to form the latent product. The summated scores for perceived organizational support (POS) and cross-functional cooperation (COOP) were multiplied to form the single indicator of the latent product (POS\*COOP). And we used the same approach summing scores for customer orientation (CO) and cross-functional cooperation (COOP) to form another single indicator of the latent product (CO\*COOP). Then, we included the two indicators (POS\*COOP and CO\*COOP) into the structure model. H5a predicts that the positive effect of perceived organizational support on employee co-creation behavior is stronger when firm cross-functional cooperation is higher. As Figure 2 shows, cross-functional cooperation strengthens the effect of perceived organizational support on information provision ( $\beta = .08, p < .10$ ) and cross-functional cooperation also strengthens the effect of perceived organizational support on customer co-creation engagement ( $\beta = .12, p < .05$ ). Therefore, H5a is supported. H5b predicts that the positive effect of customer orientation on employee co-creation behavior is stronger when firm cross-functional cooperation is higher. However, our results did not lend support to H5b. Table 7 summarizes the results of the hypotheses tests.

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Insert Table 7 about here

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### **Additional Mediation Test**

Preacher and Hayes's (2008) propositions for investigating mediation effect are based on bootstrapping procedures with the observed variables. This approach cannot account for measurement error, as SEM does. Their application instead can quantify specific indirect effects associated with each mediator, which currently is not possible in AMOS (Bartikowski & Walsh,

2011). In this study, we, therefore, use regression-based factor scores as the data pertaining to additional test and examine whether employee co-creation behavior mediates the effect of perceived organizational support/customer orientation on employees' outcome variables. Using the bootstrapping method with bias-corrected confidence estimates (MacKinnon, Lockwood, & Williams, 2004; Preacher & Hayes, 2008), we obtained 90% confidence interval of the indirect effects with 2000 bootstrap resamples (Preacher & Hayes, 2008, model 4). Table 8 summarizes the results of these direct and indirect effects.

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Insert Table 8 about here

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According to the results in Table 8, the indirect effects of perceived organizational support on job satisfaction via customer co-creation engagement is significant ( $\beta = .15$ , CI = [.04, .26]) and the direct effect of perceived organizational support on job satisfaction is significant ( $\beta = .52$ , CI = [.40, .65]). As a result, customer co-creation engagement has a partial mediating effect on perceived organizational support on job satisfaction. We also found that the indirect effects of customer orientation on job satisfaction via customer co-creation engagement is significant ( $\beta = .25$ , CI = [.10, .41]) and the direct effect of customer orientation on job satisfaction is significant ( $\beta = .27$ , CI = [.10, .44]). As a result, customer co-creation engagement has a partial mediating effect on customer orientation on job satisfaction.

Using the same approach, we also found that the indirect effects of perceived organizational support on job stress via information provision is significant ( $\beta = -.12$ , CI = [-.23, -.03]) and the direct effect of perceived organizational support on job stress is nonsignificant ( $\beta = -.10$ , CI = [-.25, .06]). As a result, information provision has a full mediating effect on perceived organizational support on job stress. Furthermore, we also found that the indirect effects of

customer orientation on job stress via information provision is significant ( $\beta = -.15$ ,  $CI = [-.27, -.03]$ ) and the direct effect of customer orientation on job satisfaction is nonsignificant ( $\beta = -.13$ ,  $CI = [-.32, .07]$ ). As a result, information provision has a full mediating effect on customer orientation on job stress.

## **DISCUSSION**

### **Summary of the Findings**

It is well established in the marketing and management literature that customer co-creation is critical to firm performance. As the understanding of customer co-creation becomes more and more important, there is an increasing need to examine how service employees interact with their customers in the value co-creation process. Filling this gap, we extend co-creation literature by exploring what organizational factors influence employees' co-creation behavior and what the outcomes of employee co-creation are. Using the newly developed scale of employee co-creation behavior and a self-administered employee survey data, we found that most of our hypotheses were supported. Several key findings were further discussed below.

### **The Two-dimensional Employee Co-creation Behavior Scale**

In this study, we first developed and validated the employee co-creation behavior scale. We defined employee co-creation as a behavioral construct that measures employees' collaboration with their customers into the value co-creation process during the service co-creation and delivery process. This construct is different from the related concepts such as, employee engagement, organizational citizenship behaviors and employees' customer orientation behaviors in that employee co-creation behavior emphasize employees' interactions with

customers in the value co-creation process. Moreover, we found that employee co-creation behavior has two distinct dimensions: information provision and customer co-creation engagement. Information provision means employees provide or share information with the customer to meet customers' requirement and customer co-creation engagement mainly focuses on employees provide extraordinary value to the firm by joint problem solving with customers, feedback collecting from customers and facility educating to customers. Our findings suggest that employees' co-creation behaviors should be measured based on how service employees provide information to their customers and how service employees engage customers to involve into the service delivery process.

#### The Influence of Organizational Strategies on Employee Co-creation

The present results also identify several combinations of antecedents to affect employee co-creation behavior. Specifically, we found that both perceived organizational support and customer orientation can improve employee co-creation behavior. Thus, when an employee receives the greater organizational support and identifies with the company's customer orientation philosophy, he or she may achieve a high level of employee co-creation behavior. In addition, we also found that the effect of customer orientation on employee co-creation behavior is relatively stronger than that of perceived organizational support (information provision,  $\beta$ : .41\*\*\* > .17\*\*,  $\Delta\chi^2 = 7.91, p < .01$  and customer co-creation engagement,  $\beta$ : .52\*\*\* > .34\*\*\*,  $\Delta\chi^2 = 6.85, p < .01$ )<sup>1</sup>. Many previous studies on employee performance emphasize on the importance of organizational support (Eisenberger et al., 1986; Fu & Deshpande, 2014),

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<sup>1</sup> We adopted the model comparison approach to examine whether the difference between the two path coefficients was statistically significant. The steps to conduct this test are: Step 1: Run the models without any constraints (free model). Step 2: Set the "equality constraint" for the two variables (constraint model). Step 3: Compare the free model and the constraint model by testing the  $\chi^2$  differences. Step 4: If the test in Step 3 is significant, test the difference of each path coefficient.

however, the findings of this study suggest that establishing a customer oriented company culture might be more important in driving employee co-creation behavior.

Furthermore, by comparing the differential effect of each organizational strategy on two distinct dimensions of employee co-creation behavior, we found that the customer orientation has almost the same positive effect on the two dimensions of employee co-creation behavior ( $\beta$ : .41\*\*\* for information provision vs. .52\*\*\* for customer co-creation engagement,  $\Delta\chi^2 = .08, p > .10$ ). However, perceived organizational support has a significantly positive effect both on information provision ( $\beta = .17, p < .05$ ) and customer co-creation engagement ( $\beta = .34, p < .01$ ), the effect to customer co-creation engagement is relatively stronger ( $\beta$ : .34\*\*\*  $>$  .17\*\*,  $\Delta\chi^2 = 7.45, p < .01$ ). These results indicate that organizational support is more critical for customer co-creation engagement than for information provision. In other words, engaging customers into co-creation process might need more resources and support from the organization than providing necessary information to customers in the co-creation process.

#### The Moderating Role of Cross-functional Cooperation

By investigating cross-functional cooperation as the moderated variable, we found that cross-functional cooperation can boost the relationship between perceived organizational support and employee co-creation behavior. According to this finding, firms have a better chance of exploiting and utilizing the positive values of organizational resources to motivate employees' co-creation behavior if all of the functional units can work as a high level of cooperation. Surprisingly, our H5b, which predicted that the positive effect of customer orientation on employee co-creation behavior (information provision and customer co-creation engagement) is stronger when firm cross-functional cooperation is higher, is not supported. One possible reason for the nonsignificant result is that cross-functional cooperation can maximize the effectiveness

and efficiency of the organizational strategies (Troy, Hirunyawipada, & Paswan, 2008), while it may be very hard to lead employees to internalize the organizational norms (including customer orientation culture) in a very short time (Wieseke, Ullrich, Christ, & Van Dick, 2007). As a result, for those firms, even a high level of cross-functional cooperation still hardly boost the relationship between customer orientation and employee co-creation behavior.

#### The Influence of Employee Co-creation on Job Satisfaction and Job Stress

Empirical research in co-creation supports that through customer participation, employees may gain benefits, such as relational value (Chan et al., 2010) and employee participation enjoyment (Yim, Chan, & Lam, 2012), which ultimately increases the employees' job satisfaction. However, the effect of employee co-creation behavior on employees' job outcome is more complex than previously stated (Brown, Tom, Mowen, Donovan & Licata, 2002; Gremler & Gwinner, 2000). The findings confirm that both of the two-dimensional employee co-creation behavior, information provision, and customer co-creation engagement, can improve job satisfaction. In addition, we also found that the effect of customer co-creation engagement is relatively stronger than that of information provision ( $\beta: .59^{***} > .32^{**}$ ,  $\Delta\chi^2 = 8.62, p < .01$ ), which indicates that employees' job satisfaction can be elevated more if they can engage customers into the service delivery process than simply providing or sharing information with their customers. Though not hypothesized, we also uncover that customer co-creation engagement has a partial mediating effect on customer orientation/perceived organizational support on job satisfaction. The finding suggests that customer co-creation engagement (one dimension of employee co-creation behavior) can work as an important strategic imperative for utilizing organizational resources to improve employees' job satisfaction.

Interestingly, although previous research (Chan et al., 2010; Chowdhury, Gruber & Zolkiewski, 2016; Hsieh et al., 2004) have already concluded that customer co-creation may increase employees' job stress, our results show the opposite pattern. Specifically, this study found that providing information to customers helps to reduce employees' job stress ( $\beta = -.35; p < .01$ ). This finding suggests that providing accurate and sufficient information to customers, customers may reduce the frequency of information requests and increase the chance of solving problems by themselves, which helps to reduce employees' workload. Surprisingly, the direct effect of customer co-creation engagement on employees' job stress is not supported. One possible reason for the nonsignificant result is that customer co-creation engagement may be a double-edged sword. Although employees may sometimes enjoy the workload reduction due to the benefits of customers' performing their roles of partial employee, employees' job stress might be increased due to the constant interactions with customers and the situation might become worse when customers' roles are not clearly defined. Furthermore, we also found that information provision (one dimension of employee co-creation behavior) has a full mediating effect on customer orientation/perceived organizational support on job stress. This findings further confirm that organizational resources can reduce job stress, especially manager can successfully motivate employee co-create (e.g. engaging customer co-create value) in the business process.

### **Theoretical Implications**

This paper makes several important contributions to the co-creation literature. Firstly, we developed a scale of employee co-creation behavior in this study, which emphasizes on the employees' interactions with the customer during the value co-creation process. To the best of our knowledge, this is the first scale of employee co-creation behavior that has been developed in



the marketing literature. Moreover, we identified two distinct dimensions of employee co-creation behavior, which furthered our understanding of employee co-creation behavior. Our scale can be used in future research in co-creation research.

Beyond developing the employee co-creation behavior scale, we take an initial step to explore the antecedents and consequences of employee co-creation behavior. Our findings provide support that both perceived organizational support and customer orientation can improve employee co-creation behavior, and employee co-creation behavior can improve employees' job satisfaction. Furthermore, we also uncover that customer co-creation engagement (one dimension of employee co-creation behavior) has a partial mediating effect on customer orientation/perceived organizational support on job satisfaction. We believe that this study suggests that frontline employees' co-creation behavior (e.g. customer co-creation engagement) provides an alternative theoretical explanation regarding the relationship between organizational strategies and employees' job satisfaction.

The previous study found that customer participation would increase employees' job stress and reduce their job satisfaction (Chan et al., 2010; Hsieh et al., 2004), we investigate the bright side of customer co-creation by emphasizing that employee co-creation behavior is directly and negatively related to job stress. Moreover, we also uncover that information provision, one dimension of employee co-creation behavior, has a full mediating effect on customer orientation/perceived organizational support on job stress. Although this finding is not in line with earlier findings (Chan et al., 2010; Chowdhury, Gruber & Zolkiewski, 2016; Hsieh et al., 2004), it still indicates a brand new research angle to treat co-creation as an important job resource to reduce employees' job stress. Such findings can also extend human resource

management literature and improve employees' job outcome by guiding where to focus organizational resources and how to utilize their resources effectively.

### **Managerial Implications**

This study provides several important implications for marketing managers. Firstly, the employee co-creation behavior scale we developed in this study will be useful not only in academic research but also in marketing practice. For instance, managers may use the scale for understanding the construct and the different dimensions of employee co-creation behavior. The scale can also help managers develop appropriate programs to evaluate employee's co-creation performance based on both providing information to their customers and engaging customers involve into the service delivery process.

Second, in this study, we found that both perceived organizational support and customer orientation can improve employee co-creation behavior. Such finding shows that lots of factors can be used to identify and help motivate employees to participate in the co-creation process. In addition, we also found that the effect of customer orientation is relatively stronger than that of perceived organizational support. The important view of customer orientation dictates that manager need to instil customer-oriented attitudes and behaviors in their planning and execution of daily operations, such as cultivating a co-creation culture to sense the market need, strengthening the customer service climate in the organization and empowering employees to create and maintain good relationships with customers.

Third, we also found that employee co-creation behavior can increase their job satisfaction and release job stress. Such findings show that employee co-creation can lead to a number of positive outcomes for employees and organization. Therefore, employee co-creation

behavior can begin as a new tactical element of the organizations' marketing mix to help managers utilize their resources to gain and maintain competitive advantages.

Finally, the study introduces cross-functional cooperation as one of the boundaries conditions to explore the relationship between perceived organizational support and employee co-creation behavior. The current findings on the moderating effect of cross-functional cooperation provide a new perspective to encourage managers to evaluate the collaboration with the different departments, such as marketing, R&D, and other functional units, into the business process. IKEA provides a good example of a company that values cross-functional cooperation to gain useful information for maximizing employee value co-creation behavior. The IKEA product design process will not only interact with consumers to better understand their needs, dreams, and desires, but also involve engineering, manufacturing, marketing, distribution and other departments to fulfill itself as "the Life Improvement Store" (Leinwand, Mainardi, & Kleiner, 2016).

### **Limitations and Future Research**

Some limitations of this study could be addressed in future research. First, despite significant personal involvement and efforts spent on data collection, we obtained data from only 225 valid sample. The limited sample might have reduced the statistical power necessary to generate more significant findings. Further research could test our hypotheses using larger samples. In addition, this study only examined the sample within a service industry in China, so data from other service industries would help in generalizing the results and theoretical framework for this study. Second, although this study suggests perceived organizational support and customer orientation can improve employee co-creation behavior, future studies could examine some other antecedents. Such inquiry should further extend the study to explore

antecedents and consequences of employee co-creation behavior. Finally, we focused on cross-functional cooperation as the moderator in this study. Much more research is needed to identify other boundary conditions for this relationship.

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## TABLES AND FIGURES

Table 2: Study 1 Descriptive Statistics of the Sample Firms (N=178)

Sample Characteristics	Frequency	%
<b>Gender</b>		
Male	71	39.9
Female	104	58.4
Other	3	1.7
<b>Age</b>		
<18	0	0
18-24	68	38.2
25-34	54	30.3
35-44	40	22.5
45-54	12	6.7
>55	4	2.3
<b>Education</b>		
< high school	2	1.1
High school diploma or GED	4	2.2
Some college, no degree	86	48.3
Bachelor's degree	78	43.8
Graduate degree	8	4.6
<b>Department</b>		
Security department	41	23.0
Ground handling department	66	37.1
IT and services department	26	14.6
Tickets reservation department	45	25.3

Table 3: Study 1 Employee Co-creation Behavior Scale Summary

Constructs and Measures	Factor Loading	
	EFA	CFA
<b><i>Information provision</i></b>	$\alpha = .89$	AVE = .70 $\alpha = .90$
1. I always provide accurate information to customers.	.87	.81
2. I communicate with customers in a timely manner.	.73	.81
3. I provide necessary information to my customers so that they can perform their duties.	.89	.89
4. I explain to customers what they need to do in order to effectively use the service.	.81	.83
<b><i>Customer co-creation engagement</i></b>	$\alpha = .82$	AVE = .57 $\alpha = .84$
1. I involve customers into problem-solving.	.70	.68
2. I encourage customers to participate in the service delivery process.	.82	.93
3. I educate our customers how to use our information system, websites, and facilities.	.82	.73
4. I actively collect the suggestions and feedback from my customers.	.75	.66

Notes:  $\alpha$ : Cronbach's  $\alpha$ ; AVE: average variance extracted; EFA: exploratory factor analysis; CFA: confirmatory factor analysis.

Fit indices for CFA:  $\chi^2(18) = 23.75, p < .01$ ; CFI = .99; TLI = .98; IFI = .99; GFI = .94; RMSEA = .06

Table 4: Study 2 Descriptive Statistics of the Sample Firms (N=225)

Sample Characteristics	Frequency	%
<b>Gender</b>		
Male	170	75.6
Female	53	23.5
Other	2	0.9
<b>Age</b>		
<18	0	0
18-24	37	16.4
25-34	65	28.9
35-44	95	42.2
45-54	26	11.6
>55	2	0.9
<b>Firm Location</b>		
Shanghai	17	7.6
Beijing	24	10.7
Tianjin	16	7.1
Chongqing	14	6.2
Xi'an	6	2.7
Changchun	57	25.3
Zhengzhou	14	6.2
Harbin	7	3.1
Shenyang	30	13.3
Dalian	40	17.8
<b>Department</b>		
Sales department	99	44.0
Spare-part and maintenance department	92	40.9
IT and services department	34	15.1
<b>Working Experience in this Store Chain (Year)</b>		
<1	15	6.7
1-3	110	48.9
4-6	95	42.2
>6	5	2.2
<b>Education</b>		
< high school	2	.9
High school diploma or GED	48	21.3
Some college, no degree	115	51.1
Bachelor's degree	56	24.9
Graduate degree	4	1.8

Table 5: Means, Standard Deviation, and Correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	.24	.43	-											
2. Age	29.83	7.12	-.11*	-										
3. Firm location	.22	.41	.06	.11*	-									
4. Department	2.26	.70	-.10	-.01	-.04	-								
5. Working experience	2.4	.65	.08	.00	.02	.00	-							
6. Perceived organizational support	5.16	1.17	-.10	-.04	-.07	.00	-.10	<b>.80</b>						
7. Customer orientation	5.80	1.02	-.05	.08	.02	-.07	-.06	.54***	<b>.77</b>					
8. Cross-functional cooperation	5.35	1.12	.00	-.05	-.06	-.05	-.03	.58***	.47***	<b>.84</b>				
9. Information provision	5.71	.92	.00	-.01	-.05	-.04	.00	.56***	.61***	.57***	<b>.80</b>			
10. Customer co-creation engagement	5.58	1.00	-.06	-.10	.00	-.10	-.03	.58***	.68***	.46***	.72***	<b>.80</b>		
11. Job satisfaction	5.09	1.35	.07	.08	.07	-.04	-.07	.61***	.48***	.41***	.46***	.52***	<b>.88</b>	
12. Job stress	3.81	1.31	.07	.03	.05	-.05	.08	-.19***	-.20***	-.30***	-.23***	-.18***	-.24***	<b>.81</b>

Notes: Sample size = 225. The numbers in oblique line are the square roots of AVE.

\* $p < .10$ . \*\* $p < .05$ . \*\*\* $p < .01$ .

Table 6: Construct Measures and Reliability Index

Constructs and Measures	Factor Loading	$\alpha$
<b>Perceived organizational support:</b> Please indicate the extent to which you believe the company has the feature described by the statement (“strong disagree/strong agree”) in terms of ... (CR =.84; AVE =.64)		
1. The company really cares about my well-being.	.83	.84
2. The company strongly considers my goals and values.	.79	
3. The company is willing to help me if I need a special favor.	.77	
<b>Customer orientation:</b> Please indicate the extent to which you believe the company has the feature described by the statement (“strong disagree/strong agree”) in terms of ... (CR =.85; AVE =.59)		
1. I make every customer feel like he/she is the only customer.	.70	.84
2. I respond very quickly to customer requests.	.83	
3. I always have the customer’s best interest in mind.	.83	
4. My number one priority is always customer loyalty.	.70	
<b>Cross-functional cooperation:</b> Please indicate the extent to which you believe the company has the feature described by the statement (“strong disagree/strong agree”) in terms of ... (CR =.94; AVE =.70)		
1. All of the departments share communications frequently.	.86	.93
2. All of the departments frequently discuss common problems together.	.84	
3. My department shares close ties with people in other departments.	.80	
4. My department’s relationship with other departments is mutually gratifying and highly cohesive.	.84	
5. My department and other departments have great dialogues.	.85	
6. There is a lot of two-way communications between my department and other departments.	.81	
<b>Job satisfaction:</b> Think about customer participation in the service delivery process and your interactions with the customer, please indicate to what extent you agree or disagree with the following statements. (“strong disagree/strong agree”) (CR =.87; AVE =.78)		
1. I frequently think about quitting this job (reverse coded).	.91	.88
2. I am satisfied with the activities I perform every day.	.85	
<b>Job stress:</b> Think about customer participation in the service delivery process and your interactions with the customer, please indicate to what extent you agree or disagree with the following statements. (“strong disagree/strong agree”) (CR =.94; AVE =.66)		
1. Bring me a heavier workload	.80	.94
2. Make me work under more time pressure	.80	
3. Make me work extra hard to finish my tasks	.90	
4. Make it difficult for me to decide how to get my job done.	.83	
5. Divert me from the duty that I should perform	.79	
6. Make me nervous	.80	
7. Increase my job stress	.82	
8. Create more problems for me	.80	
9. Make me work under conflicting directives	.79	

***Employee co-creation behavior:*** Think about customer participation in the service delivery process and your interactions with the customer, please indicate to what extent you agree or disagree with the following statements. (“strong disagree/strong agree”) (CR =.93; AVE =.64)

	1. I always provide accurate information to customers.	.82	
	2. I communicate with customers in a timely manner.	.86	
Information provision	3. I provide necessary information to my customers so that they can perform their duties.	.83	.86
	4. I explain to the customers what they need to do in order to effectively use the service.	.79	
	1. I involve the customers into problem-solving.	.68	
	2. I encourage customers to participate in the service delivery process.	.84	
Customer co-creation engagement	3. I educate our customers how to use our information system, websites, and facilities.	.81	.81
	4. I actively collect the suggestions and feedback from our customers.	.66	

Table 7: Summary Results of Hypotheses Testing

Hypotheses	Relationships	Findings
H1	Perceived organizational support → Information provision	Supported
H1	Perceived organizational support → Customer co-creation engagement	Supported
H2	Customer orientation → Information provision	Supported
H2	Customer orientation → Customer co-creation engagement	Supported
H3	Information provision → Job satisfaction	Supported
H3	Customer co-creation engagement → Job satisfaction	Supported
H4	Information provision → Job stress	Not Supported (opposite direction )
H4	Customer co-creation engagement → Job stress	Not Supported
H5a	Perceived organizational support * cross-functional cooperation → Information provision	Supported
H5a	Perceived organizational support * cross-functional cooperation → Customer co-creation engagement	Supported
H5b	Customer orientation * cross-functional cooperation → Information provision	Not Supported
H5b	Customer orientation * cross-functional cooperation → Customer co-creation engagement	Not Supported

Table 8: Summary Results of Direct and Indirect Effects

<b>Relationships</b>	<b>Standardized Coefficient</b>	<b>CI<sub>low</sub></b>	<b>CI<sub>high</sub></b>	<b>Support</b>
<i>Direct effects</i>				
Perceived organizational support → Job satisfaction	.52	.40	.65	Yes
Customer orientation → Job satisfaction	.27	.10	.44	Yes
Perceived organizational support → Job stress	-.10	-.25	.06	No
Customer orientation → Job stress	-.13	-.32	.07	No
<i>Indirect effects</i>				
Perceived organizational support → Information provision → Job satisfaction	.03	-.07	.14	No
Perceived organizational support → Customer co-creation engagement → Job satisfaction	.15	.04	.26	Yes
Customer orientation → Information provision → Job satisfaction	.11	-.00	.25	No
Customer orientation → Customer co-creation engagement → Job satisfaction	.25	.10	.41	Yes
Perceived organizational support → Information provision → Job stress	-.12	-.23	-.03	Yes
Perceived organizational support → Customer co-creation engagement → Job stress	.00	-.09	.10	No
Customer orientation → Information provision → Job stress	-.15	-.27	-.03	Yes
Customer orientation → Customer co-creation engagement → Job stress	.02	-.11	.16	No



Figure 9: Theoretical Framework

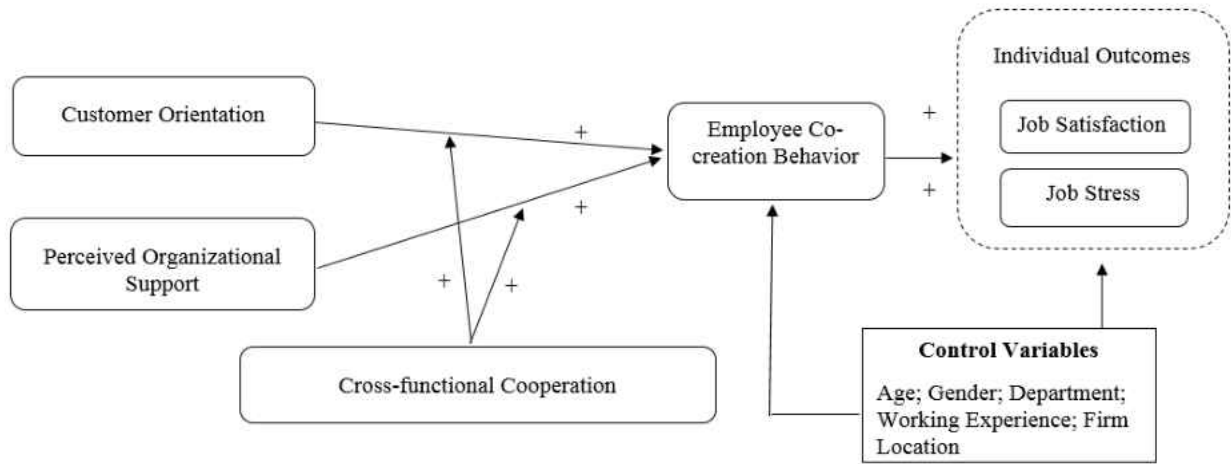
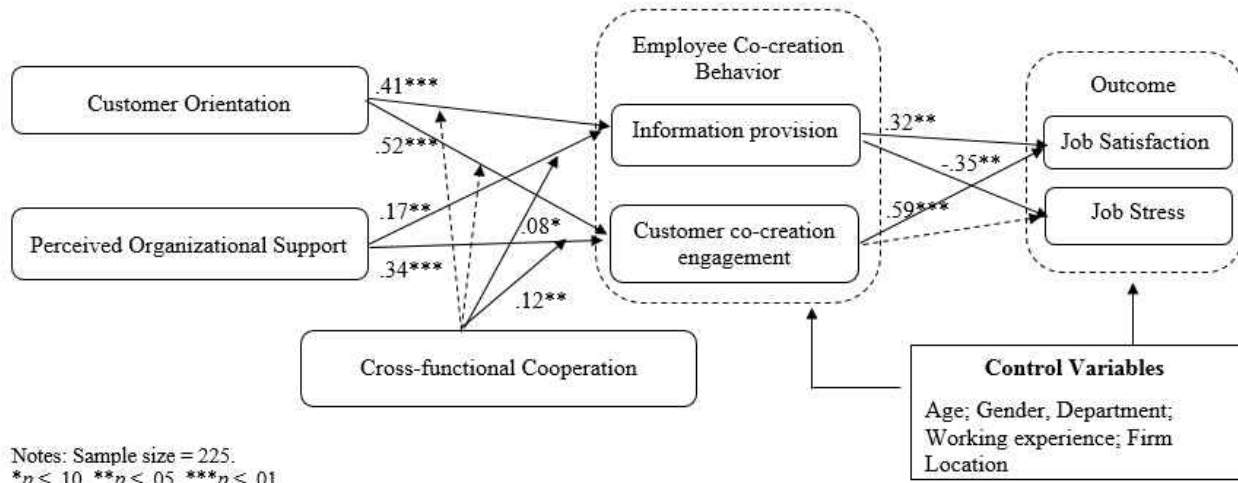


Figure 10: Result of the Structure Model



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### MANUSCRIPTS UNDER REVIEW

- Zhang, J., Tang, C., Guo, L., & **Xu, H.** A Longitudinal investigation of customer compliance: The role of appraisal toward compliance behaviors. Manuscript invited for revision and resubmission at *Psychology & Marketing*.
- Ren, S., Dong, B., **Xu, H.**, & Chang, W. Is EO sufficient? The role of network range and trust in entrepreneurs' networks. Under the first review at *Management and Organization Review*.
- Dong, B., & **Xu, H.** Is the EO of new venture can facilitate performance? Manuscript invited for revision and resubmission (Minor revision) at *Nankai Business Review*. (in Chinese).