

**INCREMENTAL EFFECTS OF REWARD ON INTRINSIC INTEREST AND
CREATIVITY: THE ROLE OF PERFORMANCE PRESSURE**

by

Justin Aselage

A thesis submitted to the Faculty of the University of Delaware in
partial fulfillment of the requirements for the degree of Master of Arts in Psychology

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ABSTRACT

A laboratory study and two field studies examined the mediational role of performance pressure in the positive relationship of rewards for superior performance with intrinsic interest and creativity. Study 1 found that performance pressure and perceived self-determination mediated a positive association between performance-reward expectancy and intrinsic job interest among employees working in diverse occupations. Study 2 replicated these findings and showed that performance-reward expectancy was positively related to employees' creativity on the job as mediated by intrinsic job interest. Study 3 found that college students who were promised a reward for high performance exhibited enhanced performance pressure, intrinsic interest, and creativity.

Chapter 1

INTRODUCTION

The interest and enjoyment employees derive from the work they perform (*intrinsic job interest*) is a key antecedent to creativity (Mumford, 2003, Shalley, Zhou, & Oldham, 2004). Creative input from employees allows organization to adapt to change, improve efficiency, and develop new products and services (Shalley & Gilson, 2004). High creativity among employees whose jobs primarily concern innovation – such as research scientists or product designers – is clearly desirable. Additionally, innovative suggestions from employees performing jobs that do not directly require creativity would also be of value for organizations. For example, owing to the expert knowledge of their jobs, airline baggage handlers and automotive assembly line employees have been found to provide novel and effective suggestions to increase customer satisfaction and reduce production costs (Robinson & Stern, 1998).

Both laboratory and field studies indicate that that rewards for high performance are an effective means for organizations to increase employees' intrinsic job interest (Eisenberger, Pierce, & Cameron, 1999; Eisenberger, Rhoades, & Cameron, 1999; Flora & Flora, 1999; Cameron, Pierce, Banko, & Gear, in press) and thereby creativity (Eisenberger & Rhoades, 2001). One mechanism by which performance-contingent rewards increase intrinsic interest and creativity appears to be the enhancement of employees' perception that their behavior is self-determined (Eisenberger & Rhoades, 2001; Eisenberger, Rhoades, et al., 1999). The present

thesis considers a second possible mechanism through which performance-contingent rewards affect intrinsic interest.

Desired performance-contingent rewards would produce a subjectively experienced pressure to perform well. Such performance pressure would involve a heightened state of striving directed at superior performance that would enhance intrinsic job interest. The present research focuses on performance pressure and perceived self-determination as distinct psychological mechanisms through which performance-contingent rewards enhance employees' intrinsic job interest and creativity.

Performance Contingent Rewards and Intrinsic Interest

Performance Pressure

Rewards for meeting specific criteria are frequently used by organizations as a means to increase employee motivation, retain employees who excel at their work, and to enhance employees' creativity (Bartol & Locke, 2000; Barber & Bretz, 2000; Fay & Thompson, 2001; Edwards, 1989; Nelson, 1994). The positive effects of performance-contingent rewards on employee performance would stem from employees' desire to earn the reward. Indeed, rewards may be so desired that when offered, employees feel that they *must* meet the performance criterion upon which the rewards are contingent. The experience of such performance pressure in response to rewards is a common experience in the workplace. Retail employees offered a bonus for meeting a sales goal feel compelled to do their best to increase customer purchases. A lawyer aiming for promotion would experience a pressure to win many

cases in order to impress her supervisor. College professors working toward tenure feel highly pressured to publish quality research on a regular basis.

When used to refer to a subjective state, pressure has the negative connotation of *strain* or *tension* (Hayakawa, 1968). However, pressure that orients an individual toward a high level of performance may be beneficial to intrinsic interest. The positive effects of performance pressure on intrinsic interest can be attributed to two factors: increased use of various skills to perform a task and increased perceived competency.

Performance pressure would affect the range of skills employees' bring to bear on their work and therefore their intrinsic job interest. In an effort to perform at a high level, employees under high performance pressure would more fully utilize their skills and apply a greater range of skills to performing their work. As an example, a restaurant server who is paid at an hourly rate, rather than on the basis of tips, would experience low performance pressure. Consequently, this server would take a lackadaisical approach to her job and use few skills other than balancing a serving tray and responding to requests from customers. Another restaurant server who is primarily paid through customer tips would experience high performance pressure. As a result, this server may be more inclined to use interpersonal skills to ingratiate herself to customers, skills of persuasion to increase sales and her subsequent tip, and more fully test the limits of her motor skills by moving quickly to fill customer requests. Additionally, this server may find that memorizing customers' orders, rather than writing them down, expedites her work. As such, she would also consistently test her memory in the service of performing her job well. The

application of a greater range of skills to the job in response to performance pressure would be expected to promote intrinsic job interest (Hackman & Oldham, 1976).

Additionally, performance pressure would encourage a high level of performance that promotes task success, a sense of competency, and so intrinsic interest. Bandura (1986) suggests that individuals seldom perform at the peak of their potential. However, in the presence of extrinsic motivators, individuals push themselves to perform at high level. For example, a carpenter with many years of experience would already be competent at her work. However, the offer of reward for performance and consequent performance pressure would cause her to devote high effort to her job and to achieve at a higher than average level. Under high performance pressure the carpenter may frame a wall or build a staircase faster than she thought possible. This high level of performance due to performance pressure would promote a greater sense of job-related competency and so intrinsic job interest (cf. Bandura, 1986, p. 247).

Hypothesis 1: A positive relationship between performance-contingent rewards and intrinsic interest is mediated by performance pressure.

Perceived Self-determination

Based on previous findings, the present research also examines perceived self-determination as a second mechanism by which performance-contingent rewards enhance intrinsic interest. Perceived self-determination refers to individuals' perception that their behavior is self-initiated and self-regulated (Deci & Ryan, 1985; Reeve, Nix, & Hamm, 2003). According to cognitive evaluation theory, individuals have a basic need for self-determination, the fulfillment of which promotes intrinsic interest in a task (Deci & Ryan, 1985, 1987). Eisenberger, Rhoades, et al. (1999)

argued that performance-contingent rewards would enhance intrinsic interest by increasing individuals' perceived self-determination. They base this view on the observation that authority figures usually provide rewards when they lack the ability to directly control the potential reward recipient. For example, an organization offers incentives for increased sales when exhortations are unlikely to be effective. In this view, then, rewards for high performance would increase perceived self-determination by conveying that a) the reward-giver lacks control over the potential recipient, and b) the potential recipient is free to decline the opportunity to work toward the reward (Eisenberger, Rhoades et al, 1999, p. 1027).

Empirical evidence has been supportive of the view that performance-contingent rewards enhance perceived self-determination and so intrinsic interest. College students rewarded for finding differences between similar sets of cartoon drawings reported higher levels of perceived self-determination and intrinsic task interest than college students who were not rewarded for performing the same task (Eisenberger, Rhoades et al., 1999; also see: Cameron, et al., in press). Additionally, Eisenberger, Rhoades, et al. found that employees' expectation of reward for high performance on the job was related to perceived self-determination and thereby job performance and positive attitudes toward the organization. Therefore, perceived self-determination is also predicted to mediate the relationship between performance-contingent rewards and intrinsic interest.

Hypothesis 2: A positive relationship between performance-contingent rewards and intrinsic interest is mediated by perceived self-determination.

Reward, Intrinsic Interest, and Creativity

The preceding discussion suggests that perceived self-determination and performance pressure both mediate a positive relationship between performance-contingent rewards and intrinsic interest. An important outcome of intrinsic interest is creativity (Mumford, 2003; Shalley, et al., 2004). By promoting persistence in the face of challenges and increasing individuals' willingness to entertain many divergent ideas, intrinsic interest would enhance creativity. Prior research indicates that rewards specifically for creative performance increase creativity (e.g., Eisenberger & Armeli, 1997; Eisenberger, Armeli, & Pretz, 1998; Eisenberger & Selbst, 1994). Further, reward contingent on a high level of performance was found to increase intrinsic task interest and thereby creativity (Eisenberger & Cameron, 1996; Eisenberger & Rhoades, 2001). The present research builds on these prior findings by considering both performance pressure and perceived self-determination as mechanisms through which performance-contingent rewards enhance employees' intrinsic job interest and thereby creativity.

Hypothesis 3: Performance-contingent rewards are positively related to intrinsic interest through both performance pressure and perceived self-determination. Intrinsic interest, in turn, is positively related to creativity.

The Present Research

Taken together, these hypotheses predict that performance-contingent rewards enhance perceived self-determination and performance pressure. Performance pressure and perceived self-determination, in turn, have an incremental effect on intrinsic interest and thereby creativity. These hypotheses were tested in three studies. The first study used a sample of employees from diverse occupations to

examine whether both performance pressure and perceived self-determination mediate the relationship between employees' expectation of reward for high performance and intrinsic interest. The second study also considered whether performance pressure and perceived self-determination both mediate the relationship between performance-reward expectancy and intrinsic interest. Additionally, this study assessed whether intrinsic interest, resulting from performance pressure and perceived self-determination, mediates the relationship between performance-contingent rewards and employees' creativity on the job. The first two studies rely on a correlational design to assess whether employees' expectation of reward for performance contributes to intrinsic interest and creativity through both performance pressure and perceived self-determination. To determine if rewards for performance cause increases in performance pressure, perceived self-determination, and consequently intrinsic interest and creativity, the third study used an experimental reward manipulation with a sample of college students.

Chapter 2

STUDY 1

Study 1 was initiated to test the hypotheses that performance-contingent rewards are positively related to intrinsic interest through both performance pressure and perceived self-determination. To test these hypotheses, employees from a diversity of occupations responded to questions concerning their expectation of reward for performance on the job, performance pressure, perceived self-determination, and intrinsic job interest.

Method

Sample and Procedure

Participants in Study 1 were employed alumni of a Mid-Atlantic U.S. university. Alumni names and contact information were obtained from university records. Eight hundred and sixteen potential participants were contacted by telephone to participate in the study. Of these, 699 individuals agreed to participate and were mailed a questionnaire, a postage paid return envelope, and a university sticker as an incentive. Following Dillman's (2000) suggestions for maximizing return rates, follow-up letters were sent to non-respondents 10 days, 3 weeks, and 6 weeks after the initial mailing. The final mailing included a duplicate questionnaire and a postage paid return envelope. Completed questionnaires were returned by 421 individuals (60%).

Measures

Organizational Tenure. Participants were asked to indicate how long they had worked for their current organization. The organizational tenure question was included to rule out the possibility that relationships between any of the variables under study resulted from differences in participants' experience with their organization. Therefore, as described below, tenure was included in the analyses as a covariate.

Performance-Reward Expectancy. Performance-reward expectancy was assessed by asking participants to express their agreement with the following statements: *If I perform well it leads to higher pay; Good performance in my job leads to higher pay; If I work hard, it leads to higher pay; and High effort in my job leads to higher pay.* The first two items were previously used by Eisenberger & Rhoades, (2001); the two latter items were created for this study. Respondents expressed their agreement with these items and the remaining scales using a seven point Likert scale (1= strongly disagree, 7 = strongly agree).

Perceived Self-Determination. Perceived self-determination was assessed with six items adapted from Reeve, et al. (2003). In a series of studies with college students, Reeve et al. found that these items form a single factor predictive of intrinsic interest. The wording of the items was modified for use in an organizational setting. A complete list of the items is shown in Table 1.

Performance Pressure. Performance pressure was assessed with the items: *At work, I feel pressured to do my job well,* and *On the job I feel I have to perform well.*

Intrinsic Interest. Intrinsic interest was assessed with four items developed by Eisenberger and Rhoades (1999). Eisenberger and Rhoades reported

that these items formed a single factor with an acceptable internal reliability (Chronbach's $\alpha = .78$). The items are: *My job is interesting*; *My job is boring*; *My job is unpleasant*; and *My job is enjoyable*.

Results

Exploratory Factor Analysis

A principle axis exploratory factor analysis with oblique rotation was carried out to examine the distinctiveness of performance pressure and perceived self-determination. Two factors with eigenvalues larger than one were extracted accounting for 40% and 14% of the variance, respectively. With one exception, items loaded on their expected factors. As shown in Table 1, one of the nominal perceived self-determination items (Number 12) loaded about equally well on both factors. This cross-loading may be the result of the item's lack of specificity. The item assessed job pressure but not specifically pressure to do well, perhaps including other sources of discomfort on the job. Dropping this cross-loading item and re-running the analysis yielded two factors with all items loading on the expected factors. These results suggest that perceived self-determination is distinct from performance pressure. I therefore retained the final scales.

Descriptive Statistics

Scale means, standard deviations, internal reliabilities, and scale intercorrelations are show in Table 2. Scale scores in the table reflect the mean score of the scale items. The low correlation between perceived self-determination and performance pressure is consistent with the factor analytic findings suggesting their distinctiveness. Consistent with my hypotheses, performance-reward expectancy was

positively related to performance pressure, perceived self-determination, and intrinsic job interest. Also in accord with my predictions, performance pressure and perceived self-determination were both positively related to intrinsic job interest.

Measurement Model

Prior to testing the hypotheses with structural equation modeling (SEM), I first compared a series of nested measurement models to assess the independence of the constructs under study (Anderson & Gerbing, 1988). The first measurement model estimated was a four-factor model where items related to performance-reward expectancy, performance pressure, perceived self-determination and intrinsic interest loaded on separate factors. A three-factor model included a factor where perceived self-determination and performance pressure items loaded on a single factor, and items related to performance-reward expectancy and intrinsic interest loaded on separate factors. A two-factor model consisted of performance pressure, perceived self-determination and intrinsic interest items loading on a single factor, and performance-reward expectancy items loading on their own factor. Last, a one-factor model was specified where all items loaded on a single factor. As shown in Table 3, the four-factor model provided superior fit compared to each of the more parsimonious nested measurement models.

Structural Equation Model

To test my hypotheses, SEM with maximum likelihood estimation was used. Individual scale items served as indicators of the latent variables. Tenure served as a predictor of each endogenous variable. The two exogenous variables,

performance-reward expectancy and organizational tenure, were free to covary in the analysis.

Figure 1 presents the structural component of the tested model along with standardized path coefficients and their levels of significance. For ease of presentation, the measurement component of the model, the effects of tenure on the endogenous variables, and the correlation between tenure and performance-reward expectancy are omitted from the figure. Concerning the relationships not depicted in the figure, organizational tenure was only significantly related to one endogenous variable, intrinsic interest ($\beta = .12, p < .01$) and was significantly correlated with performance-reward expectancy ($r = -.13, p < .05$). As shown in Figure 1, all hypothesized relationships were statistically significant. Employees' performance-reward expectancy was positively related to perceived self-determination and performance pressure. In addition, both perceived self-determination and performance pressure positively influenced intrinsic interest. Model fit was generally adequate ($\chi^2(97) = 792.1, p < .001, CFI = .91, TLI = .88, RMSEA = .10$); though, the TLI is slightly below the .90 criterion.

Tests for Mediation

To test for mediation, a path from performance-reward expectancy to intrinsic interest was added to the model shown in Figure 1. Then, using the z-prime (z') test recommended by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002), the indirect effects of performance-reward expectancy on intrinsic interest via perceived self-determination and performance pressure were tested. MacKinnon et al. recommended the z' mediation test based on findings that this approach has superior statistical power and lower Type I error rates as compared to the mediational test

recommended by Baron and Kenny (1986). The MacKinnon et al. test for mediation relies on a standard Sobel test. However, based on the distribution of indirect effects, the z' distribution, the critical value for the test is .97 rather than the 1.96 critical values for the z distribution. Results from this test indicated that perceived self-determination significantly mediated the relationship between performance-reward expectancy and intrinsic interest ($z' = 4.409, p < .05$) and that performance pressure mediated the relationship between performance-reward expectancy and intrinsic interest ($z' = 2.26, p < .05$).

Discussion

Of particular interest from Study 1 is the finding that performance pressure resulting from performance-reward expectancy is positively related to employees' intrinsic job interest. This finding expands the current understanding of why performance-contingent rewards enhance intrinsic interest. Prior research suggests that such rewards have this positive effect on intrinsic interest because they increase perceived self-determination. Our research corroborates this view and indicates that the pressure to earn rewards also enhances employees' intrinsic job interest. Thus, when employees experience pressure toward a high level of performance on the job due to the offer of reward, they develop a greater interest in and enjoyment of their jobs.

Table 1. Factor Analysis of Perceived Self-Determination and Performance Pressure Items in Study 1

Item	Loading	
	Factor 1	Factor 2
1. At work, I feel a relaxed sense of personal freedom.	.78	
2. On the job, I feel free.	.77	
3. At work, I feel I do what I want to do.	.75	
4. On the job, I am pursuing goals that are my own.	.61	
5. At work, I feel I only do what the organization wants me to do.	.42	
6. At work, I feel pressured to do my job well.		.79
7. On the job, I feel I have to perform well.		.48
8. At work, I feel pressured.	.38	.47

Note. N = 421. Factor 1 = perceived self-determination. Factor 2 = performance pressure. Loadings .3 and lower are omitted from the table.

Table 2. Means, Standard Deviations, Internal Reliabilities and Scale Intercorrelations for Study 1

Variable	M	SD	1	2	3	4	5
1. Performance Reward Expectancy	3.55	2.02	(.97)	.22**	.19**	.18**	-.13**
2. Perceived Self-determination	4.44	1.28	.26**	(.79)	-.05	.52**	.04
3. Performance Pressure	5.55	1.08	.14*	.06	(.50)	.19	.03
4. Intrinsic Interest	5.43	1.47	.16**	.50**	.26**	(.87)	.13
5. Organizational Tenure (in months)	25.12	28.39	-.13*	.01	.06	.15**	(-)

Note. N = 421. Scale score correlations are given above the diagonal. Latent factor correlations are given below the diagonal. Internal reliabilities (coefficient alpha) are shown in parentheses on the diagonal.

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

Table 3. Confirmatory Factor Analysis Model Fit Indices for Study 1

	χ^2	Degrees of Freedom	Difference	CFI	TLI	RMSEA
Four-factor model	477.5	84	-	.92	.88	.11
Three-factor model	592.3	87	114.8*	.89	.85	.12
Two-factor model	869.9	89	392.4*	.83	.77	.15
One-factor model	339.9	90	2922.4*	.31	.07	.30

Note. N = 421. Difference = the difference in chi-square between the four-factor model and each of the more parsimonious nested models.

* $p < .05$.

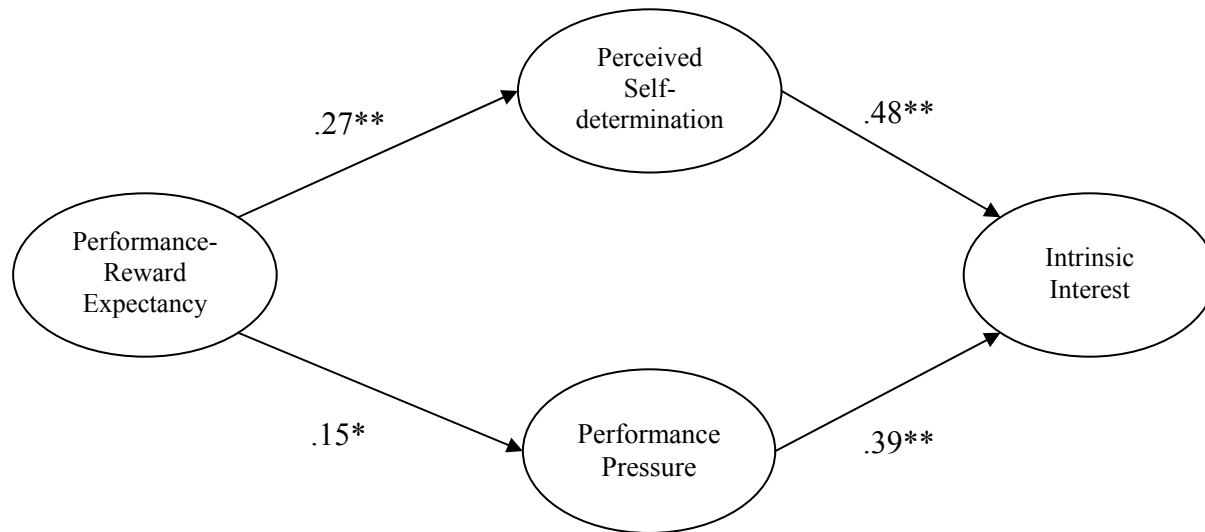


Figure 1. Structural equation model of the relationships between performance-reward expectancy, perceived self-determination, performance pressure and intrinsic interest in Study 1. * $p < .05$, ** $p < .01$.

Chapter 3

STUDY 2

The prior study suggests that performance-contingent rewards enhance intrinsic interest through both performance pressure and perceived self-determination. An important outcome of intrinsic interest resulting from these processes would be creativity. Thus, Study 2 tested the hypotheses that performance pressure and perceived self-determination mediate a positive relationship between employees' expectation of reward for high performance and intrinsic job interest. Additionally, this study tested the prediction that increased intrinsic job interest resulting from these factors is positively associated with employees' creativity at work.

Method

Sample and Procedure

Participants in Study 2 were employed alumni from the university in the first study. Data collection procedures for Study 2 mirrored those used in Study 1 with the addition of supervisor ratings of employee creativity. Thus, along with the survey materials used in Study 1, participants received a form requesting permission to contact their direct supervisor to obtain a measure of their job performance. Questionnaires assessing employee creativity at work were mailed to the supervisors of consenting participants.

One thousand three hundred potential participants were contacted by telephone and 1001 agreed to participate in the study. Of these, 650 (65%) returned a survey, and 264 participants permitted us to contact their supervisor. One hundred and eighty of the 264 (68%) supervisors contacted returned completed evaluations of their subordinate's creativity on the job.

Measures

The performance-reward expectancy scale, the perceived self-determination scale, the performance pressure scale, and the tenure measure were the same as in the first study. In addition, supervisors were asked to assess their subordinate's creativity on the job using a six item Likert-type questionnaire (1 = agree slightly or not all, 7 = very strongly agree). Two of the items were taken from prior studies: *This employee generates creative ideas* (Eisenberger & Rhoades, 2001) and *This employee continues to look for new ways to improve the effectiveness of his/her work* (McNeely & Meglino, 1994). Four items were developed for the present study: *This employee develops novel and useful approaches to doing his/her job*; *This employee handles unforeseen problems with flexibility and innovation*; *This employee takes a creative approach to solving problems*; and *This employee generates new and effective solutions to daily work problems*.

Results

Descriptive Statistics

Scale means, standard deviations, internal reliabilities, and scale intercorrelations are presented in Table 4. In accord with my hypotheses, the performance-reward expectancy factor was positively correlated with both the

performance pressure and perceived self-determination factors, which were both positively related to intrinsic interest. Additionally, intrinsic interest was significantly related to creativity.

Measurement Model

Prior to testing my hypotheses in SEM, I tested a series of nested measurement models to assess the independence of the constructs (Anderson & Gerbing, 1988). The first model tested was a five-factor model where performance-reward expectancy items, performance pressure items, perceived self-determination items, intrinsic job interest items, and creativity items loaded on separate factors. A four-factor model combined performance pressure and perceived self-determination items into a single factor, and performance-reward expectancy items, intrinsic job interest items, and creativity items each loaded on separate factors. A three-factor model included a factor with performance pressure, perceived self-determination, and intrinsic interest items loading on a single factor and performance-reward expectancy and creativity items loading on separate factors. In a two-factor model, performance pressure, perceived self-determination, intrinsic interest and performance-reward expectancy items loaded on a single factor, and creativity items loaded on a separate factor. Last, a one-factor model was specified where all items loaded on a single factor. Chi-square difference tests indicated that the five-factor model was a better fit to the data than any of the more parsimonious nested models.

Structural Equation Model

SEM with maximum likelihood estimation was used to test the hypotheses that performance-reward expectancy is positively related to performance

pressure and perceived self-determination, which, in turn are positively related to intrinsic interest and consequently creativity. In the analysis, individual scale items served as indicators of the latent variables. As in Study 1, organizational tenure was specified as a predictor of each endogenous variable in the model. The exogenous variables, performance-reward expectancy and tenure, were free to covary.

Standardized path coefficients from the analysis are presented in Figure 2. For clarity of presentation, organizational tenure and its effects are omitted from the figure. Organizational tenure was not reliably related to performance-reward expectancy or any of the endogenous variables. As depicted in Figure 2, all hypothesized relationships were significant. As shown in the figure, performance-reward expectancy was positively related to both perceived self-determination and performance pressure. In turn, perceived self-determination and performance pressure were both positively related to employees' intrinsic interest in their jobs, and intrinsic job interest was positively associated with creativity. Fit statistics indicated that the model fit the data well ($\chi^2(144) = 183.8, p < .05$; CFI = .98; TLI = .98; RMSEA = .04).

Tests for Mediation

As in Study 1, tests for mediation were conducted to determine if perceived self-determination and performance pressure mediated the relationship between performance-reward expectancy and intrinsic interest. Thus, the model in Figure 2 was re-estimated with the addition of a path from performance-reward expectancy to intrinsic interest. Results from the mediational tests indicated that perceived self-determination significantly mediated the relationship between performance-reward expectancy and intrinsic interest ($z' = 2.55, p < .05$), and

performance pressure mediated the relationship between performance-reward expectancy and intrinsic interest ($z' = 1.44, p < .05$).

An additional test considered whether performance-reward expectancy enhanced creativity through intrinsic interest. To test this, a model was estimated where performance-reward expectancy predicted the mediator, intrinsic interest, and both performance-reward expectancy and intrinsic interest predicted the dependent variable, creativity. Consistent with the conditions for mediation, performance-reward expectancy was significantly related to intrinsic interest ($\beta = .19, p < .05$), and intrinsic interest was significantly related to creativity ($\beta = .18, p < .05$), controlling for performance-reward expectancy. The Sobel test with the z' distribution indicated that intrinsic interest mediated the relationship between performance-reward expectancy and creativity ($z' = 1.54, p < .05$).

Discussion

The results of Study 2 replicate the findings from Study 1 by demonstrating that performance-reward expectancy enhances employees' intrinsic job interest as mediated by perceived self-determination and performance pressure. These results also suggest that performance-reward expectancy contributes to creativity via enhanced intrinsic interest. Thus, when employees are rewarded for their performance, they experience enhanced perceived self-determination and performance pressure, which, increase intrinsic interest. The resulting intrinsic interest, then, contributes to greater creativity.

The findings from Study 2 contribute to the understanding of the psychological processes that influence intrinsic interest and creativity. Theorists generally agree that creativity is enhanced when individuals perceive that their

behavior is self-determined (e.g. Shalley, et al., 2003). The present findings suggest a heightened drive to perform well is also conducive to increased intrinsic interest and creativity. Performance-contingent rewards were found to have an incremental effect on both performance pressure and perceived self-determination. Therefore, rewards for performance would be a particularly effective means for organizations to enhance employee creativity.

Table 4. Means, Standard Deviations, Internal Reliabilities and Scale Intercorrelations for Study 2

Variable	M	SD	1	2	3	4	5	6
1. Performance Reward Expectancy	3.68	2.12	(.97)	.23**	.13	.19*	.05	-.02
2. Perceived Self-determination	5.02	1.02	.30**	(.72)	.02	.46**	.19*	-.01
3. Performance Pressure	5.73	1.01	.13*	.20*	(.56)	.19**	.04	-.01
4. Intrinsic Interest	6.14	.99	.21*	.59**	.21**	(.85)	.17*	.02
5. Creativity	5.35	1.24	.07	.23*	.08	.20*	(.94)	.07
6. Organizational Tenure (in months)	51.16	36.89	-.01	-.03	.01	.01	.05	(-)

Note. N = 180. Scale score correlations are given above the diagonal. Latent factor correlations are given below the diagonal. Internal reliabilities (coefficient alpha) are shown in parentheses on the diagonal.

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

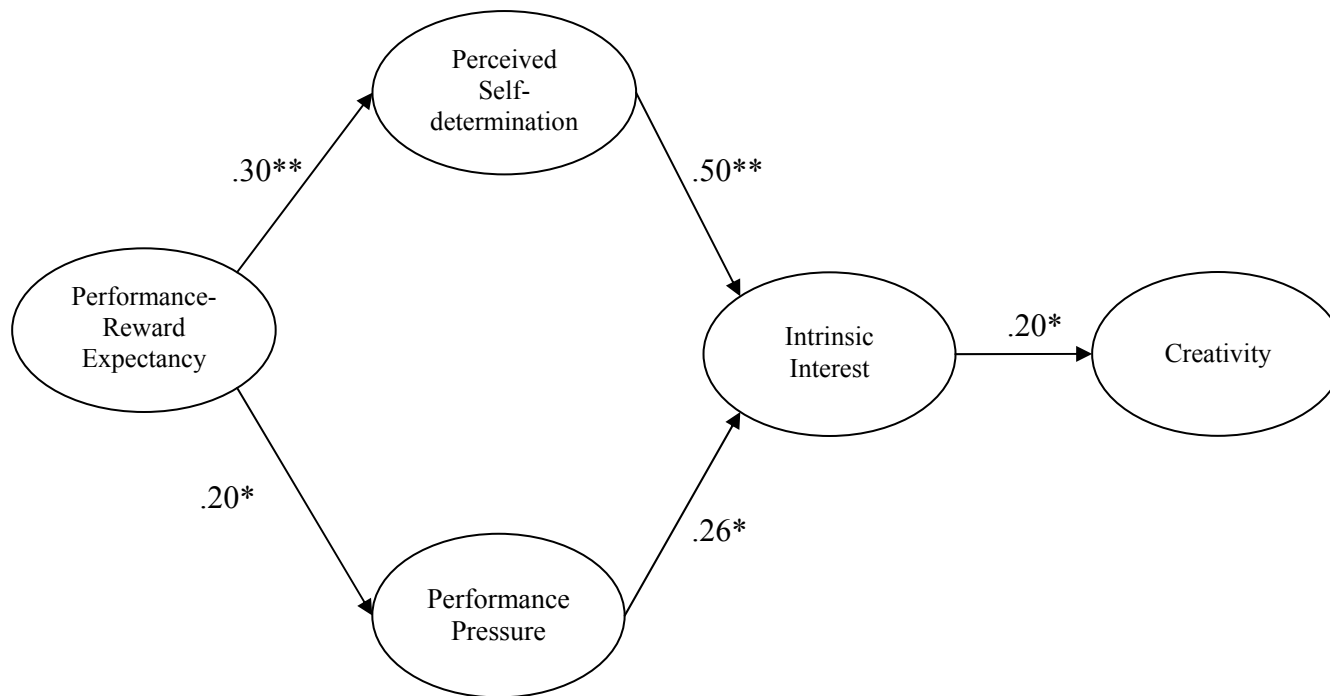


Figure 2. Structural equation model of the relationships between performance-reward expectancy, perceived self determination, performance pressure, intrinsic interest, and creativity in Study 2. $*p < .05$, $**p < .01$.

Chapter 4

STUDY 3

Both of the previous field studies used a correlational design to assess the relationship between employees' expectations of reward for performance and consequently their performance pressure, perceived self-determination, intrinsic job interest, and creativity. The present study employed an experimental design to assess the causal influence of performance-contingent rewards on intrinsic interest and creativity through performance pressure and perceived self-determination. Thus, in this study participants were randomly assigned to one of two conditions: a reward for creative performance condition and a no-reward control condition.

Previous experimental research conducted with both school children and college students has demonstrated that performance-contingent rewards have an incremental effect on creativity (Eisenberger & Rhoades, 2001) and perceived self-determination (Eisenberger, Rhoades, et al., 1999). This study expands this research in two ways. First, prior experimental research has not considered whether both perceived self-determination and performance serve as mechanisms through which rewards for performance contribute to intrinsic interest and therefore creativity.

Second, prior research relied on a reward manipulation in which participants' were able to earn a monetary reward for their performance. In the present research, reward-withdrawal was used in which participants were given money and then informed they must be highly creative to retain the reward. This manipulation was used because the avoidance of a financial loss would be expected to

promote an especially high level of performance pressure. This view is based on prospect theory, which suggests that individuals exhibit a general propensity to avoid losses (Tversky & Kahneman, 1981). As an example of such loss aversion, a study by Kahneman, Knetsch, & Thaler (1991) found that college students given a coffee mug were willing to sell the mug at a median price of \$7.12. When asked how much they would pay for the mug, the median price suggested by another group of college students was \$2.87. Thus, loss aversion in this study is reflected in individuals' higher valuation of an object already in their possession.

Owing to loss aversion, it could be argued that reward-withdrawal would promote a feeling that one is being coerced by the experimenter and so undermine intrinsic interest (cf. Deci & Ryan, 1985). In the present view, however, reward-withdrawal, as is the case with any presentation of performance-contingent incentive, demonstrates an authority figure's lack of control over the individual and so is predicted to enhance perceived self-determination (Eisenberger, Rhoades, et al., 1999). Thus, the reward-withdrawal manipulation afforded a test of whether performance-contingent rewards generally enhance perceived self-determination, or whether the incremental effects of rewards for performance on perceived self-determination is limited by how the reward is offered.

Methods

Sample

Four hundred and five introductory psychology students participated in this study as part of an introductory psychology course requirement.

Procedure

Each experimental session was conducted with groups of approximately 20-25 participants. Participants in a given experimental session were assigned to the same experimental condition, and the 18 sessions were counterbalanced as evenly as possible across the experimental conditions. All participants were told that the experiment involved suggesting ten creative titles for a short story. In addition, participants were informed that their titles would be judged for creativity and compared to past participants in the study. The short story about popcorn was previously used by Eisenberger and Rhoades (2001). The text for the popcorn short story (adapted from Seyba, 1984) was as follows:

You are a tiny golden kernel of popcorn lying in the bottom of a frying pan. Look around you and see the other popcorn kernels that are snuggled up close to each other. Feel it heating, getting, warmer, hotter, now burning underneath you. Close to you a popcorn kernel explodes. One by one other popcorn kernels pop to life. White clouds appear to be bursting out all around you. The sound of popping drums in your ears. You are cramped, uncomfortable, steaming hot, sweating dizzy. Your whole body feels too tight. You are trapped within a too-tight suit. Suddenly, you, the popcorn kernel, feel yourself exploding, bursting. All at once you are light and fluffy. Bobbing up and down with other popcorn. At last the popping sound begins to quiet. Just an occasional pop, pop, and at last silence.

Participants in the control condition were told the following, “We will be judging the creativity of your titles against the titles of all the other students who have participated in this research in the past. If your titles are judged to be better than 80% of the past participants in this study, you will have done an excellent job.” In the reward condition, the experimenter informed participants that they would start the

experiment with ten dollars, and each participant was personally handed a ten-dollar bill. The experimenter then recited the following instructions, “If your titles are judged to be better than 80% of the past participants in this study, you will have done an excellent job and you will get to keep your ten dollars. However, if your titles are not better than 80% of the past participants in this study, then I will take the ten dollars back from you.” All participants were given twelve minutes to complete the creativity task. After which, participants were asked to answer a short questionnaire. Items from this questionnaire are described below.

Measures

Intrinsic Interest. The four intrinsic interest items used in the prior studies were modified for the present use by changing the word *job* to *story titling task*. For example, “My job is interesting,” was reworded to read, “The story titling task was interesting.” Participants expressed their agreement with these items and the items described below using a seven point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree).

Perceived Self-Determination. Perceived self-determination was assessed with three items from Reeve et al.’s (2003) scale that were used in the previous studies.

Performance Pressure. The prior studies relied on a two item measure of performance pressure. In an effort to develop a more reliable measure of the construct, I created three additional items to assess performance pressure in this study. The additional items are: *While creating titles for the short stories, I felt forced to do a first rate job; While creating titles for the short stories, I felt driven to do a good job; and While creating titles for the short stories, I felt pushed to perform at a high level.*

These items together with the two items from the previous studies were used to assess performance pressure.

Creativity. Following the procedure used by Eisenberger and Rhoades (2001), two undergraduate research assistants independently assigned a creativity score from 1 (not at all creative) to 5 (highly creative) to each title provided by participants. The ten scores assigned to each participant by the two judges were averaged to obtain an overall measure of the participant's creativity. The interrater reliability for the judges' creativity ratings was .64.

Results

Exploratory Factor Analysis

A principle axis exploratory factor analysis with oblique rotation was performed on the performance pressure and perceived self-determination items to determine if the expanded performance pressure scale formed a single factor. Two factors with eigenvalues greater than 1.0 were extracted accounting for 44% and 24% of the variance, respectively. All items related to performance pressure loaded at .65 or higher on the first factor. The three perceived self-determination items all loaded at .58 or higher on the second factor. None of the items were found to have a significant cross-loading.

Descriptive Statistics

Scale means, standard deviations, internal reliabilities, and scale intercorrelations are show in Table 5. Supporting my hypotheses, perceived self-determination and performance pressure were both positively related to intrinsic

interest. However, intrinsic interest had only a marginally significant relationship with creativity ($r = .08, p = .08$)

Main Effects of Reward

The first step in the analysis considered whether the reward manipulation influenced perceived self-determination, performance pressure, intrinsic interest, and creativity. Scale scores for each variable were created by averaging items related to each construct assessed. As shown in Table 6, a series of ANOVAs demonstrated that participants in the reward condition had significantly higher scores for perceived self-determination, performance pressure, intrinsic interest and creativity than control condition participants.

Measurement Model

Prior to testing my hypotheses in SEM, a series of nested measurement models of the latent variables under study were tested to establish the constructs' independence (Anderson & Gerbing, 1988). First, a four-factor model was estimated with the performance pressure items, perceived self-determination items, intrinsic interest items, and the two judges' creativity ratings loading on separate factors. In a three-factor model, performance pressure and perceived self-determination items loaded on a single factor, and intrinsic interest items and the judges' creativity ratings loaded on separate factors. A two-factor model was estimated with performance pressure items, perceived self-determination items, and intrinsic interest items loading on a single factor and the judges' creativity ratings loading on a separate factor. Last, a one-factor model was specified where all items loaded on a single factor. Chi-square

difference tests indicated that the four-factor model provided superior fit compared to each of the more parsimonious nested models.

Structural Equation Model

The next step in the analysis used SEM with maximum likelihood estimation to test the hypotheses that performance-contingent rewards increase performance pressure and perceived self-determination, which, in turn increase intrinsic interest and thereby creativity. The reward manipulation variable was dummy-coded (1 = the reward condition; 0 = the control condition) and specified as an exogenous, observed variable. Each of the other constructs was specified as a latent variable with scale items serving as indicators. Creativity was also specified as a latent variable with the creativity scores assigned by each judge serving as two separate indicators of the factor.

Standardized path coefficients and levels of significance are presented in Figure 4. As illustrated in the figure, reward for high performance had an incremental effect on perceived self-determination and performance pressure. Perceived self-determination and performance pressure, in turn, were positively related to intrinsic interest. The relationship between intrinsic interest and creativity was marginally significant ($p = .065$). The model provided adequate fit to the data ($\chi^2(86) = 284.4, p < .001$; CFI = .93; TLI = .90; RMSEA = .08).

Tests for Mediation

Mediational tests were performed with procedures paralleling those used in the prior studies. Results from these tests demonstrated that perceived self-determination mediated the relationship between reward for performance and intrinsic

interest ($z' = 3.26, p < .05$), and performance pressure mediated the relationship between reward for performance and intrinsic interest ($z' = 2.11, p < .05$). Thus, these results demonstrate that reward for high performance has an incremental effect on intrinsic interest through both performance pressure and perceived self-determination. Because the relationship between intrinsic interest and creativity did not reach the conventional level of significance, the condition for mediation requiring that the mediator have a significant correlation with the dependent variable was not met (Baron & Kenny, 1986). As such, I was unable to test whether intrinsic interest mediated the relationship between the reward manipulation and creativity.

Discussion

The results from Study 3 support the hypotheses that rewards for high performance increase intrinsic interest through both performance pressure and perceived self-determination. The experimental manipulation in this study addressed a potential limitation of the prior studies, where measures of performance-reward expectancy, performance pressure, and perceived self-determination were obtained by self-report. The findings from Study 3, then, provide evidence that rewards for high performance cause increases in performance pressure, perceived self-determination, and thereby intrinsic interest. Additionally, results from Study 3 demonstrate that rewards for creativity have an incremental effect on creative performance. Intrinsic interest resulting from reward for performance was found to have marginally significant positive effect on creativity.

Table 5. Means, Standard Deviations, Internal Reliabilities and Scale Intercorrelations for Study 3

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Perceived Self-determination	3.92	1.06	(.69)	-.12*	.48**	-.01	.10*
2. Performance Pressure	4.04	1.23	-.09	(.88)	.15**	.08	.14**
3. Intrinsic Interest	4.31	1.35	.65**	.15**	(.91)	.09	.19**
4. Creativity	1.78	.27	-.02	.12	.08	(-)	.10*
5. Reward Condition ^a	-	-	.17**	.14**	.20**	.11*	(-)

Note. N = 405. Scale score correlations are given above the diagonal. Latent factor correlations are given below the diagonal. Internal reliabilities (coefficient alpha) are shown in parentheses on the diagonal.

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

^a Dummy coded such that 1 = reward condition and 0 = control condition.

Table 6. Mean Scores by Experimental Condition and F-tests for the Dependent Variables in Study 3

Dependent Variable	Control Condition	Reward Condition	MS_{error}	F
Perceived Self-determination	3.85	4.09	1.37	4.03*
Performance Pressure	3.86	4.21	1.49	8.14**
Intrinsic Interest	4.06	4.50	1.77	15.38**
Creativity	1.75	1.80	.07	3.88*

Note. $N = 405$. Significance tests based on an F-distribution with one degree of freedom between groups and 403 degrees of freedom within groups.

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

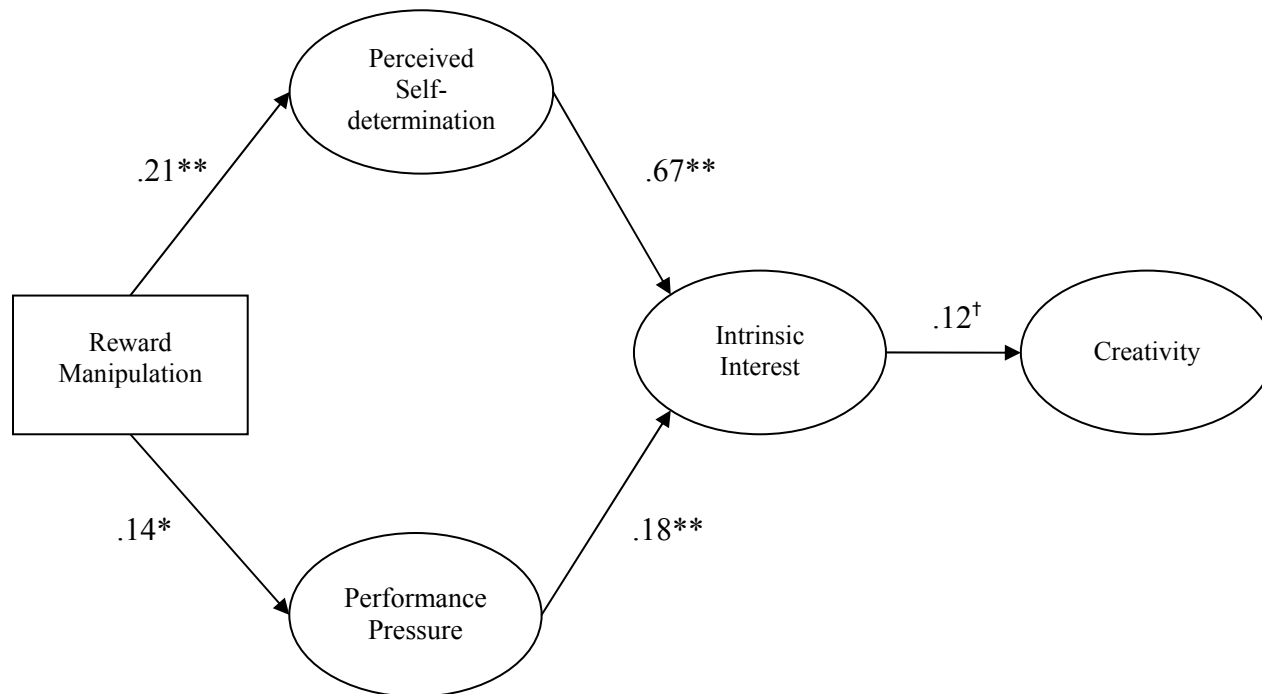


Figure 3. Structural equation model of the relationships between the experimental reward manipulation, perceived self-determination, performance pressure, intrinsic interest, and creativity in Study 3. * $p < .05$, ** $p < .01$.

Chapter 4

GENERAL DISCUSSION

The present series of studies demonstrate that performance-contingent rewards result in the subjective experience of pressure to perform at a high level. Such performance pressure was found to be distinct from perceived self-determination and was found to have an incremental effect on intrinsic interest and thereby creativity. Specifically, Study 1 found that performance pressure and perceived self-determination mediated a positive association between performance-reward expectancy and intrinsic job interest among employees working in diverse occupations. Study 2 replicated these findings and showed that performance-reward expectancy was positively related to employees' creativity on the job as mediated by intrinsic job interest. Study 3 found that college students who were promised a reward for high performance showed enhanced performance pressure, perceived self-determination, intrinsic interest and creativity. Furthermore, this study found that performance pressure and perceived self-determination mediated the positive relationship between performance-contingent reward and intrinsic interest.

The positive effect of performance pressure on intrinsic interest is attributed to two factors. First, the compulsion to perform well would encourage employees to apply a greater range of skills to their work. A telemarketer, for example, can perform her job minimally well by doing little more than dialing a phone and blandly reading a script. The same telemarketer under high performance pressure would be inclined to read her script with verve and improvise on the script as means

for enhancing sales. Thus, this employee engages both her interpersonal skills and her linguistic skills as she attempts to refine an increasingly effective sales pitch.

Additionally, performance-contingent rewards and the resulting performance pressure may increase employees' sense of personal competency and thereby intrinsic job interest. When there is little intrinsic interest or pressures to perform well, employees fail to perform at the peak of their potential (cf. Bandura, 1986). As suggested by Bandura, extrinsic motivators can engage employees, enhance their self-efficacy through increased performance, and thereby increase intrinsic motivation and creativity. In the present view, incentives have this tendency to produce superior performance because they promote a high level of performance pressure and consequently intrinsic interest.

The present findings also indicate that performance-contingent rewards contribute to intrinsic interest and ultimately creativity through increased perceived self-determination. The findings of the three studies support the view that performance-contingent rewards convey a reward giver's lack of control over the potential recipient and so increase the recipient's perception that her behavior is self-determined (Eisenberger, Rhoades et al., 1999). These findings are in accord with recent evidence suggesting that performance-contingent rewards have an incremental effect on perceived self-determination and so intrinsic interest and creativity (e.g. Eisenberger, Rhoades et al., 1999; Eisenberger & Rhoades, 2001; Cameron et al., in press).

As an initial examination of the relationship between rewards for performance and intrinsic interest via performance pressure, the present studies suggest additional questions for future research. Future research might consider

factors that affect the strength of the relationship between performance-contingent rewards and performance pressure. One such factor would be the extent of the recipient's desire for the reward. Individuals with a stronger desire for monetary gain would be expected to experience greater pressure in response to the offer of reward for performance. The criterion upon which rewards are contingent would also be expected to influence the relationship between performance-contingent rewards and performance pressure. If the task requirements are easily attained, the offer of reward may provide little performance pressure. If the task requirements are so difficult that the potential recipient decides the reward is unattainable, reward may fail to increase performance pressure.

An additional consideration for future research would be the influences of other factors on performance pressure besides reward for high effort. Challenging objectives set by the organization, in the absence of explicit rewards, may increase performance pressure. Dispositional factors might also affect performance pressure. For example, individuals with a high need for achievement (McClelland, 1961) may be especially inclined to experience performance pressure in response to high performance standards or competition.

One limitation of the present studies is the failure to directly assess the two mechanisms by which performance pressure is assumed to have a positive influence on intrinsic interest –perceived competency and use of a greater variety of skills. As a further limitation, the current studies involved the self-report assessment of performance-reward expectancy, performance pressure, perceived self-determination and intrinsic interest. This limitation is partially addressed by the supervisor ratings of creativity in Study 2 and the independent judgments of creativity

in Study 3. Moreover, the experimental reward manipulation in Study 3 provides evidence that rewards for superior performance increase performance pressure, perceived self-determination, and consequently intrinsic interest. Thus, results from this study lend credence to the findings from Studies 1 and 2, which found that employees' expectation of reward for high performance was positively related to performance pressure, perceived self-determination and intrinsic job interest.

The present studies provide the first evidence that the subjective experience of performance pressure, which could be viewed as aversive, is positively related to intrinsic interest and creativity. Further, reward for high performance appears to have a positive influence on performance pressure and, as a result, intrinsic interest and creativity. These findings further the understanding of how rewards for superior performance increase employees' interest in their jobs and creativity.

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