Research Note

Effects of choice of pay plans on satisfaction, goal setting, and performance

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Introduction

Research shows that individuals will choose among alternatives in a rational manner to maximize expected rewards (Vroom, 1964). When individuals are faced with a decision to choose among different reward plans, they are expected to choose the alternative perceived to yield either maximum expected rewards or minimum expected costs (House, Shapero and Wahba, 1974; Mitchell, 1974; Peters, 1977). Thus, employees with high self-perceived ability levels would be expected to prefer plans that distribute reward based on performance. On the other hand, employees with low self-perceived ability would be expected to choose time-based reward plans such as hourly pay. In one experiment involving pay choice, Chow (1983) found that student subjects selected reward schemes based on their prior performance. However, in the Chow study, subjects did not receive pay for their performance. Although ability (prior performance) and types of reward schedule selected were related in that study, the reported results could have been attenuated by the absence of pay. Hypothesis 1 (H1) was based on the above: Individuals will choose pay plans based on ability; specifically individuals with high ability are more likely to choose a performance-based reward system, whereas individuals with low ability are more likely to choose a time-based reward system.

The very act of choice binds individuals to their choices and results in behavioral commitment, provided that the choices are made voluntarily and irrevocably (Salancik, 1977; Staw, 1980). In addition, allowing individuals to choose their pay plans probably will increase the likelihood that they will get what they expect to get with regard to pay (cf. Mitchell, 1974), and thus better satisfy their needs (Strauss, 1963). Need satisfaction, presumably, will lead to job satisfaction. Based on these results, selecting a pay plan should result in greater satisfaction with the resulting pay and its associated work. Therefore, we advance the next two hypotheses: Individuals who have the discretion to choose their pay plans will be more satisfied with their
pay than those who have no choice (H2); and individuals who have the discretion to choose their pay plans will be more satisfied with their work than those who have no choice (H3).

The effect of selecting a pay plan on performance is rather difficult to predict. The increased commitment associated with the free choice of a pay plan may have different implications for performance depending on the chosen pay plan. Consider an individual with low ability facing the decision to choose among pay plans. This individual may choose a fixed-rate plan and expect a modest payoff. Under this condition, there is no compelling reason to believe that increased commitment to the fixed-rate plan will result in greater motivation to perform. In contrast, an individual with high ability may expect to perform at a high rate and aspire to get the maximum payoff. This individual probably will choose a piece-rate plan, which rewards high performance. Under this condition, increased commitment to the piece-rate plan may enhance one’s motivation to perform. Based on the above discussion, it seems evident that pay choice may not have a uniformly positive or negative effect on performance. Because of the exploratory nature of this study and the lack of research and theory on this issue, a specific hypothesis concerning the effects of pay choice on performance was not stated.

Moreover, goal setting theory suggests that individual behavior is guided by their intention (Locke, 1968) and numerous studies have demonstrated that personal goal is a major determinant of task performance (Locke, Shaw, Saari and Latham, 1981). It is expected that whatever the effect pay choice may have on performance, it is probably mediated by the individual’s personal goal. Therefore, personal goals were measured in this study and used as a direct indicator of motivation to perform.

The present study tested the above three hypotheses and observed the effects of pay choice on performance and goal setting using a laboratory experiment.

Method

Experimental design

The experiment consisted of a choice condition and a no-choice control condition. Subjects in the choice condition were given freedom in choosing the pay plans by which they would be paid before they performed an experimental task. Subjects in the no-choice control condition were not permitted to select their pay plans. Their pay plans were simply assigned to them by the researchers.

To increase the precision of the experiment and to control for a potential interaction effect between subjects’ ability and pay plans on performance, subjects in the control condition were matched with subjects in the choice condition according to pretest performance. Since both male and female subjects were available in the subject pool, subjects were also matched according to gender, whenever possible. In addition, the pay plans assigned to the control subjects were identical to those selected by their yoked partners in the choice condition. This procedure insured that any differences in the dependent variables between the choice and no-choice groups should be attributed to the choice manipulation rather than the pay plans under which subjects performed the task or differing pretest performance.

In this study, therefore, a split-plot design with matched subjects (Kirk, 1968, p. 245) was used. There were 27 blocks, each of which had two subjects matched with equal pretest performance, same gender, and the same pay plan under which they performed the experimental task. Choice was the within-block factor with two levels (choice, no-choice), whereas pay was the between-block factor with three levels (piece-rate, fixed-rate, and bonus).
Subjects

Sixty-five undergraduate students, enrolled in multiple sections of an organizational behavior course, participated in the pretest. Twenty-seven pairs of subjects of like pretest performance and gender were chosen to participate in the laboratory experiment. Out of the 54 subjects (27 pairs) 30 were male, 24 were female. Within each pair, subjects were randomly assigned to the treatment conditions.

Experimental task

The experimental task was a decoding task adapted from Chow (1983). It involved decoding randomly sequenced letters (alphabetic characters) which had been punched on computer cards (10 per card) with the printing suppressed. According to Chow (1983), this task was originally designed to simulate an assembly-line setting, where workers verify the location of integrated circuits on circuit boards for small business computers.

Procedures

As previously mentioned, there were two sessions in the administration of the experiment: the pretest session and the experimental session.

Pretest session

This session took place in groups and was used to obtain the subjects' pretest performance. The decoding task was explained to the subjects by two experimenters. After a 5-minute practice period, subjects were instructed to decode as many letters as possible in a 15-minute session. Subjects were not paid for this part of the experiment.

Experimental session

To reduce the threat of demand characteristics and experimenter expectancy, all instructions used in the experimental session were prerecorded on tapes and transmitted to subjects via tape recorders and written transcript. The experimental session took place about two weeks after the pretest session. Subjects participated in the experiment individually. Upon entering the treatment room, each subject was provided with feedback concerning their performance in the pretest session. Feedback was provided in terms of the total number of letters decoded (A), number of letters decoded incorrectly (B), total number of letters decoded correctly (C = A - B), and total number of cards decoded correctly (C/10). After reviewing the feedback, all subjects were told that they would be paid from a research grant awarded to the researchers for their performance in the experimental session.

There were three pay plans used in this study: fixed-rate, bonus, and piece-rate. The fixed-rate plan was time-based. It paid $3.50 for half an hour of work regardless of a subject's performance level. In contrast, the bonus plan and the piece-rate plan were performance-based. The bonus plan provided a bonus to individuals whose performance exceeded the average level of performance. Based on the pretest data and results reported by the Chow study (1983), the average performance was estimated to be 22 correct cards in half an hour. Therefore, the plan paid $1.00 to those who performed below the performance norm (i.e. 22 correctly decoded cards) and a $5.00 bonus to those who exceeded the norm. Finally, the piece-rate plan was designed to pay subjects based on the number of cards decoded. This plan can be summarized as follows: (a) less than 24 correct cards, payrate = number of correct cards completed × $0.05; (b)
between 24 and 31 correct cards, payrate = $3.00 + (number of correct cards completed - 24) x $0.10; (c) equal or above 32 correct cards, payrate = $7.00 + (number of correct cards completed - 32) x $0.15.

Experimental manipulation
Subjects in the choice group were presented with a table showing the payoffs for different levels of performance under each of the three pay plans described above and then asked to select a pay plan. The subjects were reminded that once they made their choice, it could not be changed. After they made their choice, they were asked to sign their names to indicate that they understood they would be paid according to the chosen plan at the end of the experiment. Subjects in the control group were not given any latitude in selecting a pay plan. They were simply presented with a plan identical to the one chosen by their yoked partners in the choice condition.

Afterwards, all subjects were asked to perform the decoding task for 30 minutes. Following the performance session, they were paid according to the pay plans and instructed to complete a questionnaire including items measuring perceived choice, pay satisfaction, and task satisfaction. It should be noted that our manipulation had four important characteristics: (a) the choice subjects were given freedom to choose among three alternative pay plans, (b) the choice act was made explicit because the subjects were asked to provide their signature to indicate their choice, (c) the choice act was visible to significant others (i.e. the experimenter), and (d) the choice is clearly irrevocable. According to Salancik (1977), these characteristics tend to make behavioral acts binding and should result in greater commitment to a chosen plan.

Dependent variables

Perceived choice
Perceived choice was measured by two items: (a) how much freedom subjects had in selecting a pay plan (1 = no freedom, 5 = complete freedom); (b) how much input subjects had in selecting their pay plans (1 = very little, 5 = very much). Since these two items were highly correlated ($r = 0.73, p < 0.01$), they were summed to form a single index.

Pay Satisfaction
The pay satisfaction scale consisted of three items from the Minnesota Satisfaction Questionnaire (MSQ; Weiss, Davis, England and Loquist, 1967). The three items that were used concerned the amount of pay received compared to the amount of work done, pay received compared to the pay that should have been received, and the fairness of the basis of the pay received. The coefficient alpha for this scale was 0.82.

Task satisfaction
The task satisfaction scale consisted of three 7-point bipolar items set against the decoding task, including boring-interesting, attractive-unattractive, and like-dislike. These items were adapted from Scott's semantic differential scales (Scott, 1967; Scott and Rowland, 1970). The coefficient alpha for this scale was 0.90.

Goal setting
After subjects were assigned to either choice or no-choice condition, but before they began to perform the experimental task, they were asked to indicate the number of correct cards they
intended to complete in the next 30-minute work session. Subjects’ responses served as a measure of their personal goals.

**Performance**

Performance was measured by the number of cards decoded correctly in the 30-minute work session.

**Results**

**Manipulation check**

Analysis of variance (ANOVA) results indicated that choice did, in fact, produce a significant effect on perceived choice \( F(1,24) = 86.64, p<0.01 \). Subjects in the choice condition reported much greater freedom in selecting pay plans than those in the control condition \( \bar{X} = 4.33 \) versus 1.98). Neither a pay effect nor a significant choice \( \times \) pay interaction effect was observed.

**Selection of pay plans**

Out of 27 subjects randomly assigned to the choice condition, seven chose the fixed rate plan, 16 chose the bonus plan, and four chose the piece-rate plan. The mean number of cards decoded correctly during the 15-minute pretest session for fixed-rate, bonus, and piece-rate groups were 8.41, 10.92, and 13.07, respectively. To test hypothesis 1 that choice subjects would select pay plans based on ability, a planned comparison was employed to compare the mean pretest performance of the fixed-rate group with that of the combined bonus and piece-rate groups. The results indicated that the fixed-rate group tended to have lower pretest performance than the bonus and piece-rate groups \( t(24) = 7.17, p < 0.03 \). This suggests that subjects with low ability tended to choose the fixed-rate plan, whereas subjects with high ability tended to choose either the piece-rate plan or the bonus plan, both of which distributed rewards based on performance. Therefore, hypothesis 1 was supported.

**Amount of pay received**

We examined the effect of choice on the amount of pay subjects earned under the three pay plans. The results showed that choice had no significant effect on the amount of pay subjects received under each of the three pay plans.

**Pay satisfaction**

To test hypothesis 2 that choice will have a positive effect on pay satisfaction, ANOVA was conducted to assess the effects of choice and pay on pay satisfaction. Neither main effects nor the interaction were significant. Hypothesis 2 was thus not supported.

**Task satisfaction**

To test hypothesis 3 that choice will have a positive effect on task satisfaction, ANOVA was conducted to assess the effects of choice and pay on task satisfaction. As expected, subjects in
the choice condition reported higher task satisfaction than those in the control condition ($\bar{X} = 3.90$ versus $3.27$, $F(1,24) = 6.89$, $p < 0.02$). Neither the pay main effect nor the choice $\times$ pay interaction effect was significant. Hypothesis 3 was supported.

**Performance**

Results of ANOVA revealed a significant pay main effect ($F(2,24) = 3.57$, $p < 0.05$) and a choice $\times$ pay interaction effect ($F(2,24) = 3.45$, $p < 0.05$). The pay main effect indicated that subjects in the piece-rate condition performed at the highest level ($\bar{X} = 35.49$), followed by the bonus plan condition ($\bar{X} = 29.19$), and then by the fixed-rate condition ($\bar{X} = 23.28$). This result is consistent with the earlier findings that subjects of high ability (pretest performance) tended to choose a performance-based pay plan, whereas those of low ability preferred the fixed-rate plan.

To examine the interaction effect, simple effect analysis was used. The results indicated that subjects who chose the fixed-rate plan tended to perform at a lower rate than those who were assigned to the fixed-rate condition ($\bar{X} = 21.3$ versus $25.23$, $F(1,24) = 3.76$, $p < 0.07$), subjects who chose the bonus plan performed about the same rate as those who were assigned to the bonus plan ($\bar{X} = 29.28$ versus $29.10$, $F(1,24) < 1$), and finally, subjects who chose the piece-rate plan tended to perform at a higher rate than those who were assigned to the piece-rate condition ($\bar{X} = 37.85$ versus $33.13$, $F(1,24) = 3.16$, $p < 0.09$). These results suggest that the personal choice of a pay schedule does not have a uniform effect on performance. Rather, the effects of choice on performance are contingent upon the pay plans selected.

**Goal setting**

The results of ANOVA indicated a significant choice $\times$ pay interaction effect on goal setting ($F(2,24) = 11.57$, $p < 0.01$). Neither main effect was significant. Simple effect analysis indicated that subjects who chose the fixed-rate plan set a lower goal than those who were assigned to the fixed-rate condition ($\bar{X} = 20.71$ versus $31.0$, $F(1,24) = 23.78$, $p < 0.01$), subjects who chose the bonus plan set their goals about the same level as those who were assigned to the bonus plan ($\bar{X} = 25.63$ versus $26.25$, $F(1,24) < 1$) and, finally, subjects who chose the piece-rate plan tended to set a higher goal than those who were assigned to the piece-rate condition ($\bar{X} = 33.75$ versus $28.5$, $F(1,24) = 3.54$, $p < 0.08$). These results were consistent with those obtained with performance.

**Discussion**

The purpose of this study was to investigate the effects of pay choice on pay and task satisfaction, goal setting, and performance. Our results indicate that in spite of the relatively small payment made to the subjects, short work periods, and the rather limited choice subjects exercised, pay choice had a strong impact on the behavior of subjects.

With regard to the first hypothesis, that subjects will choose pay in part based on their ability, consistent support was found for the effect of ability (pretest performance) on individuals' choice of pay plans. Individuals with high ability tended to choose the piece-rate plan or the bonus plan, and those with low ability tended to choose the fixed-rate plan. These results occurred probably because subjects who performed better on the pretest perceived themselves as of high ability and their perceived ability further determined their choice of pay plans. Future research in this area should examine not only subjects' actual ability but also their perceived
ability. The above results are consistent with expectancy theory and suggests that individuals tended to choose among pay plans that maximized their expected rewards.

Concerning the effects of pay choice on pay and work satisfaction (hypotheses 2 and 3), the results were mixed. It was found that subjects in the choice condition were significantly more satisfied with the task than subjects in the control group. Although a similar trend was observed on pay satisfaction, the result was nonsignificant. This latter finding may have happened because 11 of the 27 subjects in the choice condition had chosen a pay plan that did not result in maximum pay. For example, four of the seven subjects who chose the fixed-rate plan completed more than 22 correct cards and would have qualified for the bonus if they had chosen the bonus plan. These subjects' pay satisfaction may have been lowered by the knowledge that they would have made more money if they had chosen the bonus plan. Indeed, these 11 subjects as a group reported lower pay satisfaction than the remaining 16 subjects in the choice condition ($\bar{X} = 4.09$ versus $4.48$, $F(1,26) = 3.99, p < 0.06$). When these 11 subjects were excluded from data analysis, the choice subjects were more satisfied with pay than the no-choice control group ($\bar{X} = 4.48$ versus $3.82$, $F(1,41) = 5.35, p < 0.03$). These results suggest that pay choice did result in higher pay satisfaction, but only for those who had selected the optimal pay plan.

As expected, the effects of pay choice on subjects' self-set goals and performance varied depending on the pay plans chosen. These results, taken together, indicated that for those subjects who selected their own pay plans, their subsequent goals and performance levels were remarkably consistent with the very nature of their chosen pay plans. One explanation of this finding is that choice may have increased commitment to a particular pay plan, and the nature of the pay plan in turn may have determined performance. Thus, for those who chose and were committed to the piece-rate plan, their personal goals and performance were facilitated. On the other hand, for those who chose and were committed to the fixed-rate plan, their personal goals and performance were inhibited.

Alternatively, one may speculate that subjects who chose the fixed-rate plan might be more risk aversive, have less needs for monetary rewards, and/or have lower perceived ability than those who were assigned to the fixed-rate condition. Since these factors were not controlled in the yoking procedure, more research is needed to determine to what extent they may have affected individuals' choice of pay plans and contributed to the observed effect.

Results of this study raise an interesting question about a future direction for research on reward systems in organizations. It has long been recognized that attraction, selection, and ultimately retention, is a mutual process whereby both individuals and organizations search for a fit between their respective goals and objectives (Porter, Lawler and Hackman, 1975). Our results suggest that individuals of varying self-perceived ability levels may have different perceptions and preferences about what constitutes a fair and satisfying method of compensation. Given the finding that individuals choose pay plans in part based on self-perceived ability, one may speculate that individuals with high self-perceived ability levels may view a performance based reward system to be more fair and satisfying than a time-based system, ceteris paribus. Thus, in exploring the person–organization fit, future research may find it fruitful to include an assessment of the match between an individual's preference for a reward system and the actual reward system in an organization.

References


