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Study of Expectancy Motivation in IT Developers

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Abstract

The aim of the present work is to study the subscales of motivation namely expectancy, performance and rewards on the base of Vroom's expectancy theory of motivation. This study assumes there is a causal relationship between expectancy, performance, and rewards as the subscales of motivation. Then, the expectancy motivation questionnaire is formed and distributed among 90 IT developers in 90 IT companies in Pune-India. The findings show there is a collinearity of the subscales of motivation (expectancy, performance, and rewards). Further, respondents mostly value training program among the reward categories assigned to IT developers (i.e. monetary, training and family facilities and emotional encouragement). It assumes that due to constant technological changes needing updated knowledge and skills, they prefer to improve their job abilities through training programs to increase their human capital to be upgraded for further job opportunities. Thus, their expectancy toward their abilities of fulfilling tasks would increase leading to the repeat of the motivation cycle. Shortly, the results illustrate a misfit model due to the collinearity of the subscales in this study. However, expectancy shows a positive effect on rewards, performance shows an inverse effect on rewards. On the other hand, the findings show IT developers prefer training program rather than other reward categories to increase their expectation toward job performance to accomplish the tasks satisfactorily. Then according to well-done performance, IT developers would value the rewards assigned to them.

Keywords: Vroom's theory, Expectancy, Performance, Rewards

1. Introduction

Recent constant external and internal changes in organizations make them consider adoption and flexibility in employees more than before which needs motivated employees. Therefore, components of motivation and reward system for increasing motivation in employees become discussing the issue in organizational studies. On the one hand, employees' expectancy toward their abilities to perform tasks satisfactorily to get valued rewards and on the other hand, their satisfaction toward assigned rewards are essential issues. Since through making effort in increasing abilities of carrying out tasks, employees increase the expectancy of their strengths in fulfilling their job performance satisfactorily. Then, through valued rewards leading to job satisfaction, this chained relationship would repeat. As in his model, Mullins (2010) theorizes individuals' expectation makes them perform a behavior or an action resulting in their wished goals. This fulfillment gives individuals a background about their abilities of carrying out a performance that in turn influences their expectation so the motivation cycle would repeat. Therefore, it would be notable for organizations to assign rewards with special consideration to employees' reward expectancy. Meanwhile, rewards can be allocated to well-done accomplishment that needs related skills and abilities. The skills related to tasks are needed to perform tasks satisfactorily resulting in valued rewards. If employees value rewards, they would try to improve their skills and abilities then the cycle of motivation can repeat. This is defined as expectancy motivation prefunded by Victor Vroom (1964) and studied in this paper. So, this study tries to collect the related literature to approve the mentioned assumption.

2. Literature Review

It can be indicated as the first pioneer of motivation in work setting is Vroom (1964) who develops expectancy theory in which he declares there are three subscales: effort, performance and valence. The degree of individuals' belief and expectancy about their abilities toward their

effort can result in satisfactory performance. The well-done performance must be rewarded and the value of the rewards should be remarkably positive (Lunenburg, 2011). Under these conditions, the motivation cycle can repeat. In the continuity with Vroom's theory other scholars are inspired by his expectancy theory. Porter and Lawler (1968) develop a model based on Vroom's expectancy theory. They expand Vroom's theory by proposing two influential determinants affecting the effort that is put into task performance. These determinants are individuals' ability (knowledge, skill and training) and role perception. And finally, they gain job satisfaction if only they find equality in rewards. Nebeker and Moy (1976) propose a re-conceptualized model of expectancy theory. In their study, a between-subject analysis shows the differences in individuals' relative performance are determined by individuals' differences in their ability or their expectancy to be able to perform at different levels of job tasks. Horst (1982) tries to develop a better methodological and mathematical foundation of expectancy theory rather than the related previous works through reformulating expectancy theory with measurable concepts based on employing sound multivariate models. In a meta-analysis, Van Eerde and Thierry (1996) correlate the components of Vroom's expectancy model although they integrate those components and work-related criteria as criterion variables. Lawler and Suttle (1973) carry out a correlational study of expectancy attitudes, effort, performance and valence. They find out a combination of job abilities with expectancy measures leads to significant multiple correlations with performance. Bonner and Sprinkle (2002) deal with effort, performance and valence in different relationship. They find out monetary reward system can affect individuals' effort which leads to wished performance. Besides, they delve into motivational processes and recognize a needed skill in performing a task that may have an influential role in incentive-performance relationship. De Simone (2015) deals with healthcare staff's subscales of motivation driven from Vroom's expectancy theory such as expectancy, valence and instrumentality that can additionally affect the staff's satisfaction. Besides, she mentions one of the effective determinants of increasing employees' attitude toward performing job tasks is improving their abilities. These abilities increase through related skills and knowledge, needed training, job requirements and so on.

So, the previous work shows that if organizations provide preconditions of motivation such as improving employees' abilities to prepare them for putting effort into performing tasks, the well-done performance would lead to valued rewards. Further, this ideal motivation makes employees to be satisfied with the result of performance. Then, this employees' satisfaction can play as a mediating role to affect their expectancy in repeating motivation.

So according to the secondary data, the present work depicts an expectancy motivation model based on Vroom's expectancy theory (1964). The model shows the chained subscales of motivation as well as aims to find out the causal relationship between these subscales through the following objectives:

- To study the impact of expectancy on performance.
- To study the impact of performance on rewards.
- To study the causal relationship between expectancy, performance and rewards.

Fig. 1 is the expectancy motivation model of this study picturing the assumed relationship of the studied variables:

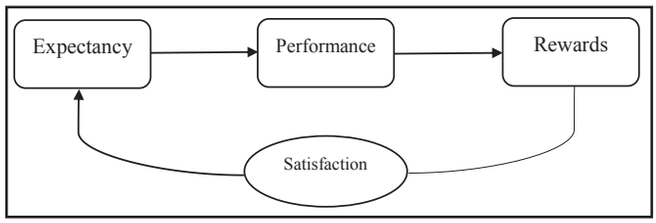

Fig. 1: Expectancy Motivation Model Based on Vroom's Theory (1964)

Fig. 1 shows that motivation consists of three subscales as well as a mediating determinant, which causes motivation to repeat its cycle, that is satisfaction. However, this study does not deal with the effect of satisfaction on expectancy but tries to find out the causal relationship between expectancy, performance and rewards.

This study develops an assumption there is a positive relationship between the subscales of the expectancy motivation model. So, the present work tries to answer the following questions:

- Is there a positive relationship between expectancy and performance?
- Is there a positive relationship between performance and rewards?
- Is there a positive relationship between expectancy, performance and rewards?

The present work conducts the following research design for achieving the objectives and testing the assumptions of this study.

3. Research Methodology

The present work tries to study the relationship between components of expectancy motivation in IT developers. To collect data through accidental sampling, 90-in access IT developers are selected from 90 IT companies (excluding multinational ones) out of around 200 IT developers of about 200 national IT companies in Pune-India. The sample size is calculated through Krejcie and Morgan's sample size determination (1970). The respondents fill out the questionnaire of expectancy motivation consisting of 18 statements. The questionnaire of expectancy motivation measures three subscales that are expectancy, performance and rewards based on Vroom's expectancy theory (1964). While the statements are extracted from McShane et al.'s practical applications of expectancy theory (2006; p. 161), meanwhile, expectancy, performance and rewards consist of 6, 5, and 7 statements, respectively. Besides, the statements of rewards variable are surrounding monetary, training, family facilities and emotional encouragement (i.e. self-confidence, etc.). The collected data are analyzed through regression analysis to find out the effects of independent and mediating variables; expectancy and performance on rewards dependent variable. Further, the model of expectancy motivation is tested through Lisrel to evaluate the fit indices of the model.

3.1 Reliability and Validity

To standardize the questionnaire, the consistency and accuracy of the questionnaire are measured through reliability and validity in SPSS. The reliability analysis shows a significant consistency of $\alpha = 0.97$. Besides, an exploratory factor analysis shows that all factor loadings are more than 0.4. On the other hand, KMO test is 0.71 and the percentage of variance is 95%. So, the questionnaire of this study has significant reliability and validity.

4. Data Analysis

This study tries to find out the effect of expectancy independent variable on performance mediating variable and the effect of mediating variable on rewards dependent variable. Besides, it tries to find out the indirect effect of expectancy on rewards through the mediating role of performance. In this work to achieve these objectives, the collected data are analyzed through descriptive and inferential analyses. Then, the following descriptive and inferential statistics show the data analysis.

4.1 Descriptive Analysis

Tables 1 and 2 show the mean of each variable as well as the means of the categories of rewards subscale, respectively.

Table 1: Descriptive Statistics

Variables	*N*	*Mean*	*Std. Deviation*
Expectancy	90	28.3000	4.45817
Performance	90	23.4111	3.59117
Rewards	90	32.1000	3.84839
Valid N (list wise)	90		

Table 1 shows that rewards variable has highest mean among the variables of expectancy motivation.

Besides, this study inspects the IT developers' preferences surrounding the categories of assigned rewards. Then, Table 2 shows the means of those categories of rewards variable.

Table 2: Descriptive Statistics

	N	*Mean*	*Std. Deviation*
Q12	90	4.7000	.91737
Q13	90	4.7556	.73913
Q14	90	4.7889	.74191
Q15	90	4.5000	.70711
Q16	90	4.8889	.31603
Q17	90	4.2000	.78182
Q18	90	4.2667	.81833
Valid N (list wise)	90		

It is clear from Table 2 that question 16 related to training category has the highest mean among other questions.

Since each variable is interrelated to each other according to the studied model, Table 3 shows the correlations of the variables.

Table 3: Pearson Correlations of Three Variables N=90

Raw	*Variables*	*1*	*2*	*3*
1	Expectancy	-		
2	Performance	0.98 **	-	
3	Rewards	0.93**	0.90**	-

** Correlation is significant at the 0.01 levels

Table 3 shows there is a striking collinearity of expectancy, performance and they both have a perfect correlation with rewards in this study.

Additionally, this study measures the relationship between the variables and tests the fit of the model in the following.

4.2 Inferential Analysis

This study applies regression analysis and SEM to measure the relationships of variables with each other as well as the effects of the independent variable and the mediating variable on the dependent variable. Similarly, the same analysis tools are applied for testing the fit of the model in this study. The following figures show the results of a linear regression analysis as a parametric test.

Table 4: Regression Coefficients Analysis

Model		*Unstandardized Coefficients*		*Standardized Coefficients*	*t*	*Sig.*
B		*Std. Error*	*Beta*			
1	(Constant)	9.685	1.005		9.636	.000
	Expectancy	.980	.160	1.135	6.134	.000
	Performance	-.227	.198	-.212	-1.145	.255

a. Dependent Variable: rewards

Table 4 shows that on the one hand, rewards variable increases by 0.98, when there is an increase in expectancy by 1 unit. On the other hand, rewards variable would decrease by 0.23, when there is an increase in performance by 1 unit.

Besides, structural equation modeling is applied to test the model fit of this study as well as to estimate the relationships between the variables. The relationships between the variables are defined as expectancy affects performance while performance as a mediating variable affects rewards, consequently. So expectancy as an independent variable affects rewards indirectly through performance variable. In the following, the estimated figures of the achieved model through SEM are presented.

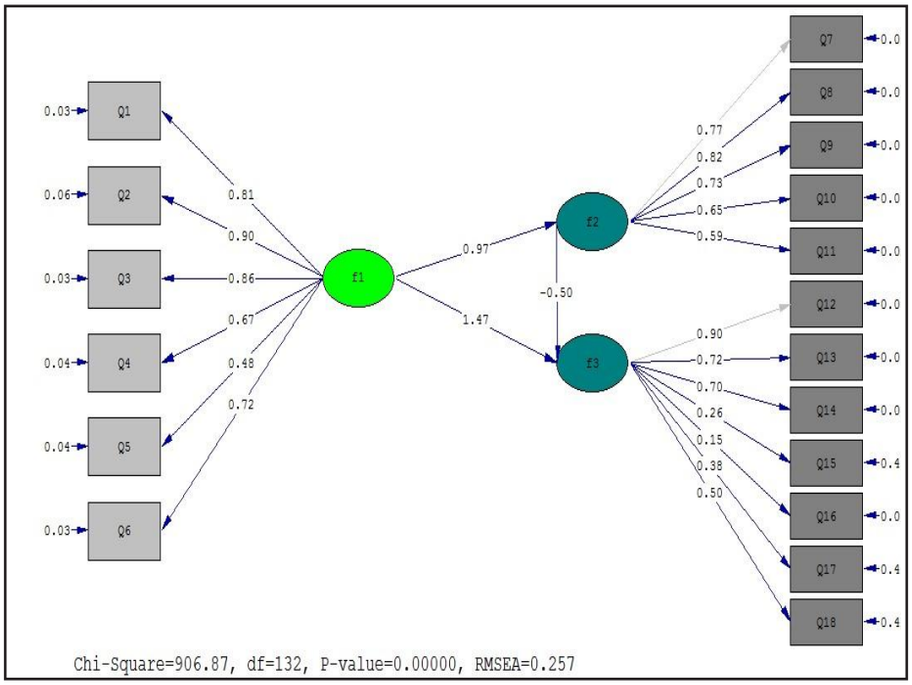

Fig. 2: The Model for Examining the Effect of Expectancy on Rewards through the Mediating Role of Performance with the Estimated Figures F1: Expectancy, F2: Performance, F3: Rewards

Fig. 2 shows that expectancy has significantly a positive effect on performance with an estimated figure of 0.97. Similarly, expectancy consumedly shows a significant effect on rewards with an estimated figure of 1.47 indirectly through performance as a mediating variable. While performance has an inverse relationship with rewards with an estimated figure of -0.50.

Further, the structural equation modeling gives the fit indices to show whether the model is a good fit to the data of the study. Therefore, Table 5 shows the fit indices of the model achieved through SEM in the following:

Table 5: Fit Statistics of the Tested Model and the Standard Cut-off Points

Row	*Fit statistics and their standard cut-off point*	*Figures*
1	Chi-Square ($\chi 2$) (P=0.00)	906.87
2	Degree of Freedom (DF)	132
3	Comparative Fit Index (CFI) $\geq$ 0.95	0.88
4	Incremental Fit Index (IFI) $\geq$ 0.95	0.88
5	Root Mean Square Error of Approximation (RMSEA) $\leq$ 0.08	0.26

Table 5 points to the fit indices of this study do not reach their cut-off points. So, it seems the theoretical model of this study does not fit to the data of the current work.

5. Findings

The data analysis through correlation finds out the following results in this study:

- There is a collinearity of expectancy independent variable and performance mediating variable in this study.
- There is a perfect correlation between expectancy and performance with rewards dependent variable in this study.

The data analysis through regression coefficient finds out the following results in this study:

- Expectancy as an independent variable has a significantly positive effect on rewards as a dependent variable in this study.
- Performance mediating variable does not have positive effect on rewards dependent variable in this study.

The data analysis through structural equation modeling shows there is a positive relationship between expectancy and rewards. Meanwhile there is an inverse relationship between performance and rewards in this study. Besides, the fit indices show the present model is not a good fit for the data of this study.

Additionally, the results show the IT developers prefer to have training program rather than other reward categories.

6. Discussion

The present study tries to model Vroom's expectancy theory by collecting data from IT developers of IT companies in Pune-India. The data analysis through regression and structural equation modeling shows that despite a high correlation of the variables, the mediating variable could not contribute to the linear relationship of the theoretical model. Due to a perfect correlation of independent variable (expectancy) and mediating variable (performance), the impact of mediating variable is captured by independent variable. So, the collinearity of expectancy and performance causes the model to not be a good fit for the data of this study.

This study cannot prove the assumption of the current work because of the collinearity between the variables. It might happen owing to inadequate data of small sample size in this study as well as few items of each variable in the questionnaire that could not make a distinction between the variables properly. Therefore, in the continuity of this study scholars can study the same in a larger sample size with a longer questionnaire measuring each variable correctly in the further researches.

Besides, it seems the IT developers are more interested in the training program rather than other facilities. Because of continuous technological changes in IT companies, they want to be updated and upgraded through training programs. Thus, their ability as an enhancer of expectancy would increase that leads the motivation cycle to repeat.

In conclusion, this study could not model Vroom's theory of expectancy due to a perfect correlation of the variables. So, the mediating variable could not represent its real effect on the dependent variable in this study. The model can be a good fit for the data only through the effect of either the independent variable or the mediating variable on the dependent variable in this study. Despite these results, as far as IT developers' preference of rewards is training program, it is manager board to develop training programs to motivate IT employees for further technological implementation.

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