

Investigating the Role of Problem Solving Appraisal in Predicting Decision –Making Styles of Industry Employees

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ABSTRACT

The aim of this study was to examine the relationship between components of problem solving appraisal (Problem solving confidence, approach –avoidance and personal control in problem solving) and decision–making styles (spontaneous, avoidant, dependent, rational and intuitive) among industry employees. The method of study was descriptive –correlation. In order to that, 247 employees of an industrial factory in Isfahan were selected through stratified sample method randomly. They completed the problem solving appraisal inventory (PSI) and general decision making style (GDMS) questionnaire. Data analyzing was done through descriptive and inferential statistics and to examine the relationship between variables, canonical correlation method were used by SPSS19. The results showed that there is significant relationship ($R= 0/760$, $p< 0.01$) between canonical covariate (Problem Solving Appraisal) and canonical dependent variables (decision making styles). The set of problem solving appraisal components was able to determine the 57% variance between both predictor and criterion sets. There is a significant positive relationship between avoidant problem solving with avoidant and dependent decision making styles. Problem Solving Confidence is positively related to rational and intuitive decision making.

KEY WORDS: problem-solving appraisal, decision –making style, industry employees.

1. INTRODUCTION

Success in any industrial organization will be possible if organizations are able to use their employee's skills, abilities, personal and group characteristics in the event of organization's goals [1]. All the people, in order to adapt with changing environment, maintaining social competence and achieving their goals, have to make effective decisions [2]. Decision–making styles reflect individual differences in decision –making process beyond decision subject and situation [3]. Many researchers have begun different studies on the relationship between individual differences and decision making behaviors [4]. Scott and Bruce [5] defined general decision –making styles (GDMS) as a learnt response pattern that individuals show in decision –making situations. Decision –making style, is not a personal trait but it is a tendency in terms of habit for responding in decision –making situation. They (Scott and Bruce) defined five general decision –making styles: rational, intuitive, spontaneous, dependent and avoidant decision –making styles. In rational decision –making styles, the person is informed of all solutions and knows that each decision leads to each conclusion and he or she is able to organize the results of decision –making based on their priority (the best benefit). Therefore, in this style, all the possible solutions are determined and evaluated and by assessing the consequences of each solution, the best one will be chosen [5]. Intuitive decision –making style, is a subconscious process during decision –making, which is obtained by the help of previous experiences and it is based on people's emotions and implicit learning. So in this way, the decision maker doesn't use a systematic approach and use their experience and tacit knowledge [4]. Dependent decision –making style, reflects lack of thought and independency in decision-making process by relying on the support and guidance of others [5,6]. Spontaneous decision –making style suggests that, the person without any previous thought immediately makes his /her decision as soon as possible. However, it may be because of the conditions which happen for the person. Using this style doesn't mean that the decision is immature because also in this method, individuals make decisions based on their information and experience. Avoidant decision making style means to postpone making decision when faced with problem and evading from responding to the occurred problem. In this method, decision maker tends to avoid making any decision as much as possible. So, it can be said that people are scared of making decisions and they are worried about consequences of their decisions [7].

According to Heppner (2014), problem solving appraisal is included people's evaluation of their problem solving abilities to deal with different problems. He (Heppner) believes that, people's problem solving appraisal are different from problem solving skills. Several studies have shown that, many personality factors are effective on the way to deal with problems and people's evaluation of their problem solving abilities [8]. Problem solving appraisal is included by three components: problem solving confidence, approach –avoidance and personal control. Problem solving confidence is included the ability to meet the requirements of individual confidence and proves how much the person believe themselves to deal

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with problems. Approach –avoidance in problem solving indicates a desire to fight or run away from their problems and personal control factor represent the ability to control emotions and behavior during the problem solving [9]. Those who act effective and positive in their evaluation of problem solving, have a higher level of ability to control their emotions [10] and blame themselves less [8], make reasonable decisions [9] and enjoy doing cognitive activities [8]. Just few researches have done with the same issues in the field of the relationship between solving problem appraisal and decision –making styles. Including the research of Morera et al. [11] about the relationship between social problem solving and decision making styles. They pointed to the relationship between these two variables, expressed that, positive orientation to solve the problem have a positive relationship with rational and intuitive decision making style and negative orientation in solving problem have a negative relationship with rational decision making and also the negative orientation in solving the problem is associated with making decision on the basis of regret and sorrow. Zare and Tabesh [12] showed that, learning how to control emotions is positively associated to intuitive decision making and also, is negatively related to spontaneous, avoidant and dependent decision making. Given the importance of decision –making process for employees in industrial places and the impact that problem solving appraisal can have on the social performances, in this research has tried to answer this question : is there any relationship between components of problem solving appraisal and decision –making styles among employees who work in industrial places?

2. MATERIALS AND METHODS

2.1. Participants

This research, in terms of data analyzing is correlation –descriptive. Problem solving appraisal and its components are predictor variables and decision –making styles are criterion variables. Participants were chosen from 1067 employees of an steel factory in Isfahan who had been working there in the year 2013 -2014. For current study, 247 employees were selected from seven different parts of the factory through stratified sample method randomly. All of them were managed 21 -60 years old and the range of their education was between secondary school to bachelor.

2.2. Measures

2.2.1. Problem solving inventory(PSI):

This questionnaire measures people’s appraisal of their problem solving ability [8]. This questionnaire is included three components: approach –avoidant, confidence in solving the problems and personal control. The questionnaire consists of 35 item which is grading with rating scale (1= strongly disagree to 6= totally agree) total score shows the evaluation of people about their abilities to solve the problems. The validity and reliability of the questionnaire was reported among different cultures. Cronbach’s alpha coefficient for total score was about 0.80 [9]. In Iran, Nasri et al. [13] reported the reliability and validity of this inventory. Its Chronbach’s alpha coefficient was 0.76 and the exploratory and confirmatory factor analysis showed that this is a good tool in order to measure the problem solving appraisal in researches [13]. In this research, Chronbach’s alpha coefficient was 0.77.

2.2.2. General decision making style questionnaires (GDMS):

This questionnaire was set by Scott and Bruce (1995) in order to evaluate the making decision styles. According to Bruce and Scott, there Are five decision –making styles (rational, intuitive, dependent, spontaneous and avoidant). This questionnaire is a self –report tool which these five styles are evaluated in it. This test has 25 questions that the people should answer in 5 degrees (1= strongly disagree and 5= completely agree). Five items are considered for each subscale. It has good validity and reliability. Chronbach’s alpha coefficient for sub –scales of decision –making style questionnaire were reported between 0.68 to 0.94 by Bruce and Scott [6]. In Iran, chronbach’s alpha coefficient score was 0.71 [14]. In current study, Chronbach’s alpha was 0.78.

2.3. Data analysis

To analyze data, canonical correlation which include descriptive and inferential statistics were used through SPSS 19. Canonical correlation is emphasis on linear relationship between two groups of variable or more [15]. In present study, because of the large number of variables (predictor and criterion) canonical correlation was used to analysis the relationship between two sets of variable: problem solving appraisal as predictor variable and decision –making styles as criterion.

3. RESULTS

Table 1 shows Multivariate tests of significance for canonical correlation between two sets of predictor and criterion.

Table 1. Multivariate tests of significance

Test Name	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Pillais	.196	11.662	5.00	238.00	.000
Hotellings	.245	11.662	5.00	238.00	.000
Wilks	.803	11.662	5.00	238.00	.000
Roys	.196	-	-	-	-

In order to table 1, significance tests ($P < 0.05$) indicate that, at least the first correlation is significant. Table 2 indicates Dimension Reduction Analysis in this research.

Table 2. Dimension Reduction Analysis

Roots	Wilks L.	F	Hypoth. DF	Error DF	Sig. of F
1 TO 4	.285	18.154	20.00	790.31	.000
2 TO 4	.676	8.386	12.00	632.63	.000
3 TO 4	.940	2.472	6.00	480.00	.073
4 TO 4	.978	2.596	2.00	241.00	.097

Refer to table 2, two of four roots in this analysis are significant. Data analysis will be done based on these two roots. Table 3 presents the canonical correlations in these roots.

Table 3. Canonical correlations

Root No.	Eigenvalue	Pct.	Cum. Pct.	Canon Cor.	Sq. Cor
1	1.370	75.182	75.182	.760	.578
2	.390	21.422	96.605	.529	.280
3	.040	2.212	98.817	.196	.038
4	.021	1.182	100.000	.145	.021

As the table 3 indicates, canonical variables have the highest correlation in root 1 ($R=0.760$, $P < .01$, $R^2=.578$) and after that in root 2 ($R= .529$, $P < .01$, $R^2=.280$). Squared canonical correlation indicates the amount of variance which is explained by the model. Table 4 presents structural coefficients in two significant roots (root 1 and root 2).

Table 4. Structural coefficients

Variable	root 1	root 2
Decision making		
Avoidant	.869	-.084
Spontaneous	.780	-.231
Dependent	.888	.043
Intuitive	.160	-.817
Rational	-.178	-.769
Problem solving		
Approach- Avoidance	.884	-.262
Confidence	-.182	-.831
Personal control	.844	.168
Problem solving (overall)	.811	-.553

As table 4 shows, the first root, components of predictor variables with the exception of confident in problems solving have significant structural coefficient. Among components of decision –making styles, spontaneous, avoidant and dependent styles have significant structural coefficient ($r > 0.3$, $p < .01$). In this root, representing the highest correlation between two set of variables, the highest Structural coefficients is related to approach –avoidance in problem solving ($r= 0.884$, $p < .01$, dependent decision –making styles ($r=0.888$, $p < .01$) and avoidant decision –making style ($r= 0.869$, $p < .01$). These values indicates that avoidance in problem solving have a positive significant relationship with dependent and avoidant decision making styles. In second root, the highest Structural coefficients in predictor canonical variables is related to the confidence in problem solving ($r= -0.831$, $p < .01$) and in criterion canonical variable, intuitive and rational decision making styles have the highest Structural coefficients. It can present that, there is a positive significant relationship between problem solving confidence with rational and intuitive decision –making styles.

4. DISCUSSION AND CONCLUSION

The aim of this study is investigating the relationship between the components of problem solving appraisal (problem solving confidence, approach –avoidance and personal control in solving problem) and decision –making styles (spontaneous, avoidant, dependent, rational and intuitive) among employees of an industrial organization in Isfahan. The results of canonical correlation analysis showed that there is significant relationship ($R=0.760$) between problem solving appraisal and decision –making styles. Problem solving appraisal was able to determine %57 variance between two predictor

and criterion sets. These results are in line with the results of research of Morera et al [11]. Employees attitude to their problem solving abilities have an important role in their decision –making style. Readiness and willingness of the people to deal with problems such as how people evaluate their abilities in complex situations and how much they are able to control their emotions or feelings and how much they trust their skills in face to the problems, can play an important role in predicting people’s decision making. As the results of this research shows, values of structure coefficient indicates that, approach –avoidance component in problem solving and avoidant and dependent decision –making styles, have the main role related to the obtained correlation. Structural coefficients in first root show that there is a positive and significant relationship between avoidance in problems solving with dependent and avoidant decision –making styles. Avoidance in problem solving indicates people’s tending to evade problems instead of dealing with them [8]. According to the findings, it seems there is a relationship between avoidance attitude to the daily routines and people’s willingness to avoid making decisions and also this kind of orientation to the problems has a positive relationship with delegate making decisions to the others and a passive performance during the making decision process. The importance of this issue is because of that, by appointing the staffs who have dependent or avoidant decision –making styles in situations that require making logical, fast and independent decisions, employee’s occupational health can be threaten and it can be also detrimental for organization safety, economically and efficiency. According to the results of the second root, there is a positive and significant relationship between confidence in problem solving and intuitive and rational decision – making styles. It means that, those who trust their abilities to deal with the problems, by relying to their abilities can review and analyze available options and chose the most logical option among them [9]. Also when a person is in confidence with his or her abilities to deal with problems, he or she feels the ability to ensure his or her own inner senses and previous experiences, so in some conditions intuitive decisions are made. According to the findings of this study, it can be said that, believes of the employees in industrial places about their own abilities in problem solving situations, which are influenced by different personality and social factors, have an important role in their decision making styles. Paying attention to these features can be helpful for the people in order to choose a job which is meet their abilities. This study can also be helpful for managers in order to appoint employees in appropriate position to improve the production process, safety and economic growth. Also it can enhance job satisfactions for industrial staffs. One of the limitations of the study was the less number of previous researches in this area. So this study could be helpful for further researches. Single gender participants and being restricted to just one city can be pointed as another limitation of this study. This study was conducted in Isfahan and all the participants were men. So extending these results to the women and employees of other cities needs more researches in further. In order to improve the employee’s believes about their abilities to deal with the problems and enhancing the good responses to the environmental stimulants and the way of making decisions in different situations, It is recommended appropriate training courses like life skills to be held in organizations. It can also be helpful to identify different personality traits and social factors which can be effective in people’s performances. Considering these factors in educational and training programs caused promoting the mental health and job satisfaction of the employees and consequently, the productivity of the organizations will be improved.

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