An investigation of the links between the decision making strategies adopted by managers and improving productivity: A case study of the Larestan Bureau of Education

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Abstract: The most significant factor in decision making by managers is their personal ability and willingness to adopt certain styles in making decisions. It does not matter how interested managers are in making decision; rather, it is important that they possess abilities necessary for making proper decisions which contribute to success. The purpose of the present study is to investigate the relationships between the managers' decision making strategies and improving productivity in organizations. The population, which was selected using the cluster sampling method, consisted of 158 managers in three levels of executive, middle, and operational in Lar, Gerash, Evaz, and Khonj. The questionnaire adopted consisted of 21 items developed by the researcher based on the hypotheses. Validity was measured using the content validity and reliability was measured by Cronbach's alpha. Data were processed using SPSS and MINITAB and analyzed in inferential and descriptive statistics. The hypotheses were tested using the t test in MINITAB and variance analysis; and the independent t test was used to compare the respondents' opinions in terms of gender. The findings indicated that the managers of the population believe that they use their intuition in making decisions and statistical information. The findings confirmed the third hypothesis and indicated that the more moderate the managers are, the better decisions they make. Moreover, the fourth hypothesis was confirmed and the findings indicated that if managers deal with problems analytically and practically and think systematically, the make better decisions.

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Introduction

Management is sometimes defined as making decisions; and traditional managers used to make decisions based on the information about the current conditions and making inferences about the future state, which were proved proper or improper after their implementations and success or failure (Hakimi Pour, 1998, 86).

The most important factor in the managers' decision making might be their personal abilities and willingness to make decisions and their decision making strategies. It does not matter how interested the managers are in making decisions, what is important is that they possess abilities for making proper decisions which contribute to success (Manoochehr Hazer, 1998, 86).

As suggested by this study, organizations can improve the quality of their decisions by including more wisdom in the decision making process. The decision makers in government organizations should rely less on their intuition and personal experiences and more on information derived from analysis.

In the present study, the researcher's goal is to find out whether the decision making strategies adopted by managers are related to improving their decision making; and, finally, to find out:

- How the manager's effective decisions made as a result of their decision making styles improve the performance of the organization?
- Whether proper decisions made by managers result in more productivity.

The goals of the study

2- Exploring the relationship between decision making styles and the managers' moderation

3- Exploring the relationship between the managers' decision making styles and conservativeness

4- Exploring the relationship between the managers' decision making styles and systematic thinking

5- Exploring the relationship between the managers' intuition and decision making styles.

Questions of the study

1- Do the managers with stronger intuition make better decisions?

2- Do conservative mangers make better decisions?

3- Do moderate managers make better decisions?

4- Do managers who think systematically make better decisions?

5- Do managers with more working experience make better decisions?

Methodology

Methodology is referred to as a set of systematic and validated rules, tools, and methods used in investigating facts, exploring the unknown, and finding solutions to problems (Ezzati, 1998, 20).

A survey study selects small and large populations and investigates the relative level of distribution and interactions among psychological and sociological variables by studying samples selected from those populations (Kerlinger, Fred, N., 1995, 213).

A population s a set of real or hypothetical members to whom the results of the study are transferred (Delavar, 2005, 167)

A population is a set of members having one or more common features (Hooman, 1994, 147).

Based on the goals of the study, the methodology adopted here is a descriptive-survey and field study. The population consists of 158 top, middle and operational managers in Lar, Gerash, Evaz, and Khonj Bureaus of Education.

Sampling methods

The size of a sample is the total number of members in the sample. Sample size depends on the nature of the population and goals of the study (Sarookhani, 1998, 157).

In this study, the whole population is considered as the sample. 158 questionnaires were distributed and 89 ones were returned to the researcher.

Table 1: sample size

Data gathering tools

A common method for gathering data is questionnaires (Delavar, 2005, 120).

The tool adopted in this study is a researcher-made questionnaire consisting of 30 items developed on the Likert scale. The respondents must first answer general questions such as the number of working years.

Validity

Validity specifies the extent to which the tool measures the feature. Without validity it would not be possible to trust data produced by the tool (Sarmad et al, 2000, 170). In order to test the validity of the questionnaire, content validity was used. The questionnaire was developed by the researcher and other colleagues through studying the literature and theories related to the issue of the research, then it was studied by some scholars and experts and after doing some modifications, it was validated and prepared to be distributed in the population.

Reliability

Reliability is referred to as the extent to which the instrument generates the same results under the same conditions. Normally, the reliability coefficient ranges from zero (unreliable) to +1 (totally reliable) (Sarafraz, 2003, 123).

In order to calculate the reliability of the instrument, Cronbach's alpha was used. This method is used to test the internal consistency of instruments including questionnaires or tests measuring various attributes. In such instruments, the answer to each question can take on various numerical values. In order to calculate Cronbach's alpha, the variance of all scores for each subset of the test (subtest) and the total variance must be calculated. Then, alpha will be quantified through this equation:

$$r_a = \frac{J}{j-1}\left(1 - \frac{\sum S_i^{\,2}}{S^2}\right) = \frac{21}{20}\left(1 - \frac{17.48}{62.463}\right) = .756$$

Where, J= the number of subtests

S_i^2 = subtest variance

S^2 = total variance (Sarmad et al, 1999, 169).

The questions of the study

The first question: Managers with stronger intuition seem to make better decisions.

Table 2: testing questions of the first hypothesis

As the above table shows, the median of the first to sixth questions are 2.52, 3.15, 4.011, 2.56, 2.69, and 3.49, respectively. The highest accumulative percentage for agree and absolutely agree is for the first question (I always use my intuition in making organizational decisions) with 60.2, and the lowest one is for the third question (in making organizational decisions, I never rely on statistics and data and make decisions based on personal judgment) with 14.6. The average scores ranged from 2.52 to 4.011, which indicates respondents agree with the influence of intuition on making better decisions.

Table 3- a comparison of the index score of the influence of intuition on decision making with the standard score.

$$H_0 : \mu \geq 3$$

$$H_1 : \mu \prec 3$$

H_0: the more the managers use their intuition, the better they make decisions. H_1: the more the managers use their intuition, the better they make decisions

The average score of the respondents and the SD were 3.13 and 0.73, respectively. Since observed t was not significant at $p<0.01$, the zero hypothesis is not rejected. In other words, there is not a significant relationship between intuition and better decision making.

Testing the second question

Second question: more conservative managers seem to make better decisions

Table 4- testing the second question

Based on the findings represented in the above table, the average scores of questions 7 to 11 were 1.65, 2.61, 1.50, 1.98, and 1.66, respectively. The highest accumulative percentage for agree and absolutely agree were about the 7th and 11th questions (I do not make decisions until I have all the information I need) and (I never make ad hoc decisions and always decide based on accurate information and statistics) with 94.4, and the lowest one was for the 8th question (I feel if I do not gather all information required for decision making, I cannot get to sleep at nights) with 49.4.

The average scores ranged from 1.65 to 2.61, indicating the degree to which respondents agree about the influence of being conservative on the managers' decision making.

Table 5- a comparison of the mean index score of the influence of conservativeness on decision making with the standard score

$H_0 : \mu \geq 3$

$H_1 : \mu \prec 3$

H_0: the more conservative the managers, the better decisions they make

H_1: the more conservative the managers, the better decisions they make

The average score of the respondents and SD were 1.88 and 0.514, respectively. Since observed t was significant at $p<0.01$, the zero hypothesis is rejected. In other words, there is a significant relationship between the managers' conservativeness and making better decisions.

Testing questions related to the third hypothesis

Third question: more moderate managers seem to make better decisions

Table 6- testing questions related to the third hypothesis

Based on the findings represented in the above table, the average scores of questions 12 to 15 were 1.64, 1.70, 2.59, and 2.07, respectively. The highest accumulative percentage for agree and absolutely agree was about the 12th question (I try to be moderate in making decisions) with 97.8, and the lowest one was for the 14th question (I act as a mediator in group decision making) with 55.1.

The average scores ranged from 1.64 to 2.59, indicating the degree to which respondents agree about the influence of being moderate on the managers' decision making.

Table 7- a comparison of the mean index score of the influence of moderation on decision making with the standard score

$H_0 : \mu \geq 3$

$H_1 : \mu \prec 3$

H_0: more moderate managers make better decisions

H_1: more moderate managers make better decisions

The average score of the respondents and SD were 2.00 and 0.505, respectively. Since observed t was significant at $p<0.01$, the zero hypothesis is rejected. In other words, there is a significant relationship between the managers' moderation and making better decisions.

Testing questions related to the 4th hypothesis

4th hypothesis: managers with more systematic thinking tend to make better decisions

Table 8: testing questions related to the 4the hypothesis

Based on the findings represented in the above table, the average scores of questions 16 to 21 were 1.90, 1.67, 2.85, 1.60, 2.62, and 1.74, respectively. The highest accumulative percentage for agree and absolutely agree was about the 19th question (even if a problem is simple, I break it into smaller parts and then decide) with 98.9, and the lowest one was for the 20th question (I like to resolve problems quickly and move on from one problem to another) with 53.9.

The average scores ranged from 1.60 to 2.62, indicating the degree to which respondents agree about the influence of systematic thinking on the managers' decision making.

Table 9- a comparison of the mean index score of the influence of systematic thinking on decision making with the standard score

$H_0 : \mu \geq 3$

$H_1 : \mu \prec 3$

H_0: managers with systematic thinking make better decisions

H_1: managers with systematic thinking make better decisions

The average score of the respondents and SD were 1.89 and 0.383, respectively. Since observed t was significant at $p<0.01$, the zero hypothesis is rejected. In other words, there is a significant relationship between the systematic thinking and making better decisions.

The variance analysis test

Table 10- a comparison of the respondents' mean scores based on their management years

Since observed F was not significant at $p<0.05$, the respondents' opinions were not different based on their management years. In other words, managers with different management years have the same opinions about the influence of moderation, conservativeness, systematic thinking and intuition on making better decisions. Managers with 0 to 5 years of management believe that intuition, moderation, systematic thinking, and conservativeness had the largest influences on decision making, respectively.

Managers with 5 to 10 years of management believe that intuition, moderation, conservativeness, systematic thinking had the largest influences on decision making, respectively managers with 10 to 15 years of management, believe that intuition, moderation, systematic thinking, and conservativeness had the greatest influences on decision making, respectively. Managers with 15 to 20 years of management believe intuition, moderation, systematic thinking, and conservativeness had the greatest influences on decision making, respectively. Managers with over 25 years of management believe that intuition, conservativeness, moderation, and systematic thinking had the greatest influences on decision making, respectively.

The independent t test

Table 11- a comparison of male and female scores regarding research indexes

Since observed t was not significant at P<0.0.5, the male and female opinions were not different. In other words, male and female respondents have similar opinions regarding the influence of intuition, conservativeness, moderation, and systematic thinking on better decision making. Male respondents believe that intuition, moderation, systematic thinking, and conservativeness had the greatest influences on decision making, respectively. Female respondents believe that intuition, moderation, conservativeness, and systematic thinking had the greatest influences on decision making, respectively.

Conclusion and implications

Analysis of the first question

The first question: managers with stronger intuitive thinking tend to make better decisions

The analysis of the results regarding the first secondary question indicates that the mean score and SD of the influence of intuition on making better decisions were 3.13 and 0.73, respectively. Since observed t was not significant at p<01 (p=0.000), it is concluded that managers believe intuition does not influence decision making.

The greatest influence of intuition on decision making was for the first question (I always use my intuition in making decisions) with 60.2. this implies that managers should be trained how to use their intuition in making decisions.

The comparison of the responses based on the respondents' management years revealed that there is not a significant difference among the respondents' opinion regarding the influence of intuition on decision making (p=0. 101).

The comparison of the male and female responses did not show a significant difference among their opinions regarding the influence of intuition on decision making (p=0.652).

2- Analysis of the second question: more conservative managers tend to make better decisions

The analysis of the results regarding the second secondary question indicates that the mean score and SD of the influence of conservativeness on making better decisions were 1.20 and 0.514, respectively. Since observed t was significant at p<01 (p=0.000), it is concluded that managers believe conservativeness influences decision making.

The greatest influence of conservativeness on decision making was for the 7th and 11th questions (I don't make decisions until I have a complete picture of the situation) and (I never decide in and ad hoc way, and always decide based on accurate statistics and information) with 94.4. This implies that managers should have access to updated information to be able to make better decisions.

The comparison of the responses based on the respondents' management years revealed that there is not a significant difference among the respondents' opinion regarding the influence of conservativeness on decision making (p=0. 664).

The comparison of the male and female responses did not show a significant difference among their opinions regarding the influence of conservativeness on decision making (p=0.164).

3- Analysis of the third question: more moderate managers tend to make better decisions

The analysis of the results regarding the third secondary question indicates that the mean score and SD of the influence of moderation on making better decisions were 2.00 and 0.505, respectively. Since observed t was significant at p<01 (p=0.000), it is concluded that managers believe moderation influences decision making.

The greatest influence of moderation on decision making was for the 12th question (I try to be moderate in making decisions) with 97.8. This implies that managers should be trained to avoid being biased and take everything into account while making decisions.

The comparison of the responses based on the respondents' management years revealed that there is not a significant difference among the respondents' opinion regarding the influence of moderation on decision making (p=0. 283).

The comparison of the male and female responses did not show a significant difference among their opinions regarding the influence of moderation on decision making (p=0.241).

4- Analysis of the 4th question: managers with more systematic thinking tend to make better decisions

The analysis of the results regarding the 4th secondary question indicates that the mean score and SD of the influence of systematic thinking on making

better decisions were 1.89 and 0.383, respectively. Since observed t was significant at p<01 (p=0.000), it is concluded that managers believe systematic thinking influences decision making. This implies that managers who deal with problems wisely and analytically make better decisions.

The greatest influence on intuition on decision making was for the 19th question (even if a problem is too complicated, I break it into smaller parts and then I decide) with 98.9. In other words, most managers in Lar believe that if they break problems into smaller parts, they can make better decisions. This implies that managers should not make decisions based on their personal interests and based their judgments on accurate information.

The comparison of the responses based on the respondents' management years revealed that there is not a significant difference among the respondents' opinion regarding the influence of systematic thinking on decision making (p=0. 706).

The comparison of the male and female responses did not show a significant difference among their opinions regarding the influence of systematic thinking on decision making (p=0.875).

Suggestions

Since the managers in the Lar Bureau of Education do not believe in the influence of intuition on making better decisions, it is proposed that managers become aware of the problems in the organization and then be allowed to give opinions based on the goals and problems of the organization.

Since the managers believe in the influence of conservativeness on making better decisions, it is proposed that managers be given all information required for making decisions and be asked to use all instruments and methods which reduce risks in order to make the best decisions.

Since managers believe in the influence of systematic thinking on making better decisions, it is proposed that since research based on gathering useful information plays a key role in decision making, managers should gather precise information and avoid huge costs due to making improper decisions in today's turbulent conditions.

It is suggested that managers not decide based on their personal judgments, feeling and inspirations; rather, they make decisions based on accurate information. They should be provided with relevant, real, valid, and accurate information gained through logical investigations so that they get prepared to make decisions.

Future researchers are advised to clarify the meaning of the keywords to respondents so that they answer questions in the best way (Chart 1).

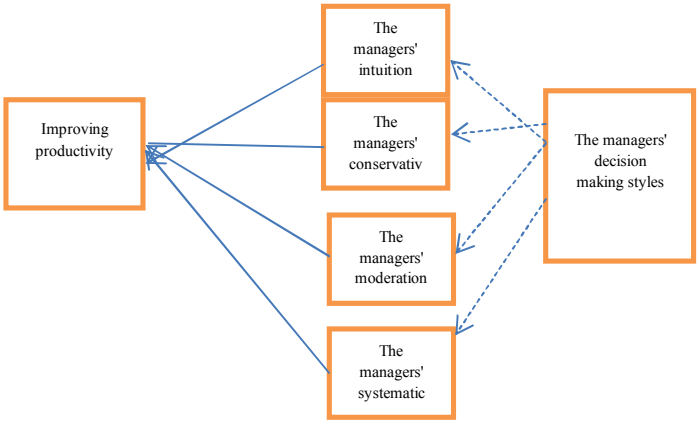

Chart 1: the conceptual model of the study

Table 1: sample size

Operational managers	Middle managers	Top executives
154	3	1

Table 2: testing questions of the first hypothesis

Question 6	Question 5	Question 4	Question 3	Question 2	Question 1	choice	
8	5	15	3	10	11	frequency	Absolutely agree
9.9	5.6	16.9	3.4	11.2	12.4	percentage	
11	31	30	10	24	42	frequency	agree
12.4	34.8	33.7	11.2	27	47.2	percentage	
11	19	20	3	7	19	frequency	neutral
12.4	21.3	22.5	3.4	7.9	21.3	percentage	
47	30	16	40	38	10	frequency	disagree
52.8	33.7	18	44.9	42.7	11.2	percentage	
12	4	7	33	10	6	frequency	Absolutely disagree
13.5	4.5	7.9	37.1	11.2	6.7	percentage	
21.3	40.4	51.1	14.6	38.2	60.2	Accumulative percentage of agree and absolutely agree	
3.49	2.69	2.65	4.011	3.15	2.52	median	
1.14	1.04	1.14	1.08	1.26	1.07	SD	

Table 3- a comparison of the index score of the influence of intuition on decision making with the standard score

P	t	SD	median	index
0.95	1.69	0.73	3.13	The influence of intuition on better decision making

Table 4- testing the second question

Question 11	Question 10	Question 9	Question 8	Question 7	choice	
37	31	48	14	40	frequency	Absolutely agree
41.6	34.8	53.9	15.7	44.9	percentage	
47	41	38	30	44	frequency	agree
52.8	46.1	42.7	33.7	49.4	percentage	
3	4	2	21	2	frequency	neutral
3.4	4.5	2.2	23.6	2.2	percentage	
2	13	1	24	2	frequency	Absolutely disagree
2.2	14.6	1.1	27	2.2	percentage	
0	0	0	0	1	frequency	disagree
0	0	0	0	1.1	percentage	
94.4	80.9	96.6	49.4	94.4	Accumulative	
1.66	1.98	1.50	2.61	1.65	median	
0.65	0.99	0.60	1.04	0.74	SD	

Table 5- a comparison of the mean index score of the influence of conservativeness on decision making with the standard score

P	t	SD	median	index
0.000	-20.45	0.514	1.88	The influence of conservativeness on better decision making

Table 6- testing questions related to the third hypothesis

Question 15	Question 14	Question 13	Question 12	choice	
21	16	32	36	frequency	Absolutely agree
23.6	18	36	40.4	percentage	
46	33	52	51	frequency	agree
51.7	37.1	58.4	57.3	percentage	
14	13	4	0	frequency	neutral
15.7	14/6	4.5	0	percentage	
7	25	1	2	frequency	Absolutely disagree
7.9	28.1	1.1	2.2	percentage	
0	2	0	0	frequency	disagree
0	2.2	0	0	percentage	
76.1	55.1	94.4	97.8	Accumulative percentage for agree and absolutely agree	
2.07	2.59	1.70	1.64	median	
0.84	1.14	0.606	0.607	SD	

Table 7- a comparison of the mean index score of the influence of moderation on decision making with the standard score

P	t	SD	median	Index
0.000	-18.55	0.505	2.00	The influence of moderation on making decisions

Table 8: testing questions related to the 4the hypothesis

Question 21	Question 20	Question 19	Question 18	Question 17	Question 16	choice	
29	16	36	25	33	27	frequency	Absolutely agree
32.6	18	40.4	28.1	37.1	30.3	percentage	
57	32	52	55	22	49	frequency	agree
64	36	58.4	61.8	58.4	55.1	percentage	
1	14	1	6	4	5	frequency	neutral
1.1	15.7	1.1	6.7	4.5	5.6	percentage	
1	23	0	3	0	7	frequency	Absolutely agree

1.1	25.8	0	3.4	0	7.9	percentage	
1	4	0	0	0	0	frequency	agree
1.1	4.5	0	0	0	0	percentage	
96.6	53.9	98.9	89.9	95.5	84.4	Accumulative percentage of agree and absolutely agree	
1.74	2.62	1.60	1.85	1.67	1.90	median	
0.64	1.18	0.51	0.68	0.55	0.82	SD	

Table 9- a comparison of the mean index score of the influence of systematic thinking on decision making with the standard score

P	t	SD	median	index
0.000	-26.92	0.383	1.89	The influence of systematic thinking on better decision making

Table 10- a comparison of the respondents' mean scores based on their management years

over 25		20-25 years		years 20-15		years 15-10		5-10 years		0-5years		index
P	F	variance	mean	variance	mean	variance	mean	variance	mean	variance	mean	
0.101	1.91	0.25	3.20	0.47	4.33	0.35	3.333	0.75	3.32	0.66	3.07	0.81	2.94	**intuition**
0.664	0.647	0.85	2.16	0.42	2.30	0.38	1.88	0.55	1.83	0.497	1.90	0.474	1.82	**conservative**
0.283	1.27	0.54	2.00	1.06	2.75	0.33	2.15	0.52	2.06	0.44	1.97	0.52	1.90	**moderate**
0.706	0.592	0.45	2.00	0.23	2.16	0.29	2.03	0.28	1.93	0.40	1.89	0.42	1.82	**Systematic thinking**

Table 11- a comparison of male and female scores regarding research indexes

		female		male		index
P	t	variance	mean	variance	mean	
0.652	0.453	0.81	3.09	0.68	3.16	intuition
0.164	-1.40	0.49	1.97	0.51	1.82	conservative
0.241	-1.18	0.49	2.07	0.51	1.94	moderate
0.875	-0.158	0.37	1.90	0.39	1.89	Systematic thinking

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