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The Work Behavior Styles of The Administrative Reform Managers

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Abstract

In this paper the situation of Iranian reform agents from their style of work behavior point of view (such as problem solving and decision making) is analyzed.

The assessment is based on a modified version of Kirton's theory of adaptors and innovators (modified KAI). The purpose of this study is to see whether the reform agents were seen as innovative enough to bring about fundamental changes in the Iranian bureaucracy. Although the results indicated that the reform program was not perceived as having been successful as expected, about 75 percent of Iranian reform agents could be categorized as "innovative-inclined". Differences in the (modified) KAI mean scores of the agents of reform working in different organizations may explain some communication problems.

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Key Words

Administrative Reform - Adaptor - Innovator - Reform Agent - Iran.

Introduction

In this paper the situation of Iranian reform agents from their style of work behavior point of view (such as problem solving and decision making) is analyzed.

The assessment is based on a modified version of Kirton's theory of adaptors and innovators (modified KAI). The purpose of this study is to see whether the reform agents were seen as innovative-oriented or adaptive-inclined. The study of work behavior makes a difference in how people approach, solve and communicate problems, and therefore, may influence the success of reform program. The results indicate that about 75 percent of Iranian reform agents could be categorized as innovative-inclined, and level of education and age account for little of the variance in the responses. Differences in the (modified) KAI mean scores of the agents of reform working in different organizations may explain some communicational problems.

Kirton's Theory of Adaptors-Innovators

The items in the questionnaire, used for this study are based on Kirton's theory (Kirton, 1961, 1976) of adaptors and innovators.

The theory posits that individuals have characteristically different styles of creativity, problem solving and decision-making. This theory contends that all individuals can be located on a continuum ranging from an "ability to do things better" to an "ability to do things differently" (Thomson, 1980: 383). The Kirton Adaption-Innovation Inventory (KAI), as a measure of the Adaptor-Innovator continuum, evolved as a result of a study of corporate management initiative (Kirton, 1961) and aimed to investigate the ways in which ideas that had resulted in major changes within companies were developed and put into practice. KAI is designed to measure at which point an individual falls on the continuum with adaptors at one extreme and innovators at the other. The theory has been extensively tested and developed in the private sector, and studies had some testing within the public sector (Hayward & Everett, 1983).

In Kirton's typology, the adaptor tends to operate within the confines of the appropriate and consensually agreed paradigm (Kuhn, 1970) where a problem (novel stimulus) is initially perceived (Thomson, 1980; Kirton, 1980). Adaptors have characteristics which are more consistent with the attributes of the bureaucratic personality or in Whyte's (1957) word, an "Organization man". They could more easily be fitted in bureaucratic organizations which "exert a constant pressure on officials to be methodical, prudent, disciplined ... [and to attain] an unusual degree of conformity" (Merton, 1957: 198). Innovators,

Table 1- Characteristics of Adaptors and Innovators

Implications	Adaptors	Innovators
For Problem Solving	Tend to take the problem as defined and generate novel, creative ideas aimed at doing things better". Immediate high efficiency is the keynote of high adaptors.	Tend to redefine generally agreed problems, breaking previously perceived restraints, generating solutions aimed at "doing things differently.
For Solutions	Adaptors generally generate a few well-chosen and relevant solutions, that they generally find sufficient but which sometimes fail to contain ideas needed to break the existing pattern completely.	Innovators produce numerous ideas many of which may not be either obvious or acceptable to others. Such a pool often contains ideas, if they can be identified, that may crack hitherto intractable problems.
For Policies	Prefer well-established, structured situations. Best at incorporating new data or events into existing structures or policies.	Prefer unstructured situations. Use data as opportunities to set new structures or policies accepting the greater attendant risk.
For Organizational "Fit"	Essential to the ongoing functions, but in times of unexpected changes may have some difficulty moving out of their established role.	Essential in times of change or crisis, but may have some trouble applying themselves to ongoing organizational demands.
For Potential Creativity	The Kirton inventory is a measure of style, but not level of creativity problem. Adaptors and innovators are both capable of generating original, creative solutions, but which reflect their overall different approaches to problem solving.	
For Collaboration	Adaptors and innovators do not really get on, especially if they are extreme scorers. Middle scorers have the disadvantage that they do not easily reach the heights of adaption or innovation as do extreme scorers. This, conversely is a positive advantage in a team where they can more easily act as "bridges", forming the consensus group and getting the best (if skilful) out of clashing extreme scorers.	
For Perceived Behavior	Seen by Innovators: as sound, conforming, safe, predictable, relevant, inflexible, wedded to the system, intolerant of ambiguity.	Seen by adaptors: as unsound, impractical, risky abrasive; often shocking their opposites and creating dissonance

Source: Mudd (1995: 241-242)

by contrast, are more liable to treat (formally or intuitively) the enveloping paradigm as part of the problem (Kirton, 1980, 1984; Thomson, 1980), "Innovative man" is less conforming to rules, social norms, and accepted work patterns (Kirton, 1976: 624).

Briefly, extreme adaptors "tend to solve problems frequently by applying conventional solutions while extreme innovators ... tend more often to try novel approaches to the problem" (Mudd, 1995: 241). Table 1 sets out Kirton's characterization of adaptors and innovators with respect to the implications of those two extremes on the (AI) continuum on seven relevant organizational behavior dimensions (Mudd, 1995: 241).

The Kirton Adaption-Innovation Inventory (KAI) consists of 32 items and uses a 5-point scale from Very Hard to Very Easy, giving a theoretical mean of 96 and theoretical range of 32-160. The observed range is slightly more restricted (46-146) based on 1000 subjects; the mean so obtained approximates 95 (95.33) and the distribution conforms almost exactly to a normal curve (Kirton, 1977, 1980, 1985, 1990; Hayward & Everett, 1983).

Adaptors and Innovators in Different Occupations

From among the general British population samples originally studied by Kirton (1987a), 88 managers were identified. The mean score of this group was 97.1, s.d=16.9. The result was almost identical to the results for Italian managers (Prato Previde, 1984). Kirton (1990) argues that different occupation groups yield

means on either side of this score if they are both select and homogeneous, but reveal means close to the mean if the groups are non-select and heterogeneous. For example, three samples of apprentices and their teachers yielded: mean = 82.4, with s.d=7.1, N = 22 (Mathews, cited in Kirton, 1990) mean = 88.4, s.d = 10.6, N = 50 (Flegg, cited in Kirton, 1990). This compares R & D personnel with a mean of 100.9, s.d - 14.3, N = 256 (Keller & Holland, 1987) and a mean = 104.2, s.d = 13.2, N = 90 (Davies, Cited in Kirton, 1990).

Ettlie and O'keefe (1982) reported the result of study on a more heterogeneous group of American undergraduate business students: Mean = 98.1, s.d = 14.21, N = 123. Kirton (1980) reported a further British sample of 79 managers yielding a mean of 96.9, s.d = 15.27, and a small group of engineers in a British pharmaceutical company with a mean of 97.3 covering a wide range of individual scores. Other studies focused on three groups of American teachers, and a group of British teachers. The first (Pulvino, 1979) with 430 samples yielded a mean score of 95, s.d=13. The second sample of N=202 (Dershimer, 1980) also showed a mean of the same magnitude 97, s.d=14. The third sample of 119 American teachers (Jorde, 1984) showed a mean of 95.5, s.d=13.8. The British sample of N = 182 also showed a mean of similar magnitude at 94.5, s.d=18. The above studies indicate that where the group has an occupation or tasks in which the adaptors and innovators can do equally well (e. g. engineers in

general, managers in general, teachers in general) the samples should have mean scores approximate to those in the general population. Where the group tasks are more structured (e.g., apprentices, production, accounting, etc.) the mean should locate toward the more adaptive end of the scale. For less structured tasks (e.g., mostly marketing, personnel, or finance) it will be placed towards the innovative pole. These findings are supported by other studies (e.g., Gryskiewicz et al, 1987; Hayward and Everett, 1983, Kirton, 1980; Thomson, 1980).

Adaptors and Innovators in Different Cultures

The Kirton Adaption-Innovation Inventory (KAI) has been examined in different countries. Table 2 demonstrates the results of the tests in some countries. From these data it can be realized the extent to which mean scores of different samples shift from culture to culture. Samples indicate that Canada (Kirton, 1980), New Zealand (Kirton, 1978b), and Mexico (Keller, 1984) have produced remarkably similar mean scores. Also, the KAI was validated on a sample of Eastern managers from Singapore and Malaysia (Thomson, 1980). The results showed that their mean scores of 95 (s.d= 12.6; N= 145) were compatible with those of their Western counterparts. However, according to some comparative studies (Hossaini, 1981; Dewan, 1982; Khaneja, 1982) samples of Indian and Iranian managers yielded lower means than similar samples from other countries mentioned

Table 2- Means and ranges of general population samples

	N	Mean	S.D.	Range
UK	(562)	94.99	(17.9)	45-145
Italy	(835)	94.07	(17.7)	46.146
USA	(214)	94.98	(13.9)	—
Slovakia	(385)	95.06	(15.6)	51.149
Dutch/Flemish	(422)	95.30	(17.0)	53.142
French	(265)	94.61	(19.3)	43.133

above (mean = 91, N = 622).

Method

Subjects of the Study

The respondents included 174 persons (32 females and 142 males), who were all reform agents in different Iranian public organizations. For the total group of 174 persons, 8 were top managers, 58 were middle managers, 8 were low-level managers, and 96 were non-managers (for the rest, position was not recorded). The accumulated results of the subjects as reform agents (in 1998) were from 12 to 15 years.

Measurement

As mentioned above, KAI, is a test based on a 5-point scale from Very Hard to Very Easy. As explained by Kirton (1977: 15)

"across each item is a line of 17 dots along which the respondent places a cross to indicate the degree of this response" (In KAI inventory of 1984 version, the lines of 14 dots were applied).¹ In the current study, to keep the internal validity and consistency of the questionnaire, and prevent the confusion of the respondents, a new scale was adopted. A 5-point Likert-type scale ranging from "not at all", to "a very great extent", where midpoint represents a moderate level was used here.

To test the reliability of the questions and the adapted scale, before distribution of the questionnaire, 17 Iranian reform agents, were selected by the investigator to be interviewed on the same items, and through the same scale as applied by Kirton. The results of interview checks revealed that in both methods the results were the same. However, since the interview subjects might not be properly representative of the population under study, and due to application of different scales (five-point scale), the measurement is considered a modified version of KAI.²

1- Kirton (1977) Points out that, most respondents place a cross under one of the four headings (Very Hard, Hard, Easy, and Very Easy) or exactly in the middle, and so far no work has been done using the full 17-point score range possible. In practice, therefore, it is a 5-point scale, ranging from Very Hard to Very Easy.

2- In the original KAI version, some items should be reverse scored, so that the same response for different items has opposite meaning (Kirton, 1977). However, by the adopted scale in the current study, there is no need of reversing the scores. Although

Regardless of the degree of compatibility (which is based on the aforementioned pilot study and the results of further analysis, are very high), as scores move higher above the Kirton's theoretical mean (96), more of the innovative traits are thought to be indicated. If the scores move lower from the mean, the subject of the study are perceived into possess more of the adaptor's style.

The questionnaire subjects were asked to assess their style of work behavior in their organizations. The items of KAI was translated into Persian, which is the dominant and official language in Iran. To check the accuracy of the translation, the Persian version was checked with several Iranians.

Results

The result of the test conducted for all subjects (N=174) showed the mean score of 111.5, with s.d=15.1, ranged from 70 to 151. The analysis showed that the mean score of 14.9 percent of the subjects was 96 (the theoretical mean, if the KAI model can be applied) or below, and for 75.1 percent the mean score was more than 96.

The following tables include the results of the analysis based on sex, education, age and position.

not necessarily a better scale, nevertheless, it seems its administration is easier, and more importantly, it was in consistent with the rest of the questionnaire.

Table 3- Means and Ranges of modified KAI based on gender of the subjects

Gender	N	Mean	S.D.	Range
Male	142	114.2	13.8	70.151
Female	32	103.3	14.8	81.137

Table 3 shows the mean score of different sexes. In general, the survey indicates that, among the Iranian reform agents, male agents were more innovator-inclined (Mean=114.2) than females (mean = 103.2). This may be consistent with findings of other studies which indicate that "females, on average, tend to be more adaptive than males" (Kirton, 1990: 61). The result of t-test analysis verifies that the difference in mean scores of male and female subjects is statistically significant ($t=5.14$, $df=171$, $p<.01$).

Table 4 shows the differences among the mean scores of reform agents with different level of education. The difference between the frequencies is considerable, so, the generalization of the findings may not be so valid. Those with high school diploma and associate diploma degrees may be more innovative-inclined. However, regardless of the level of education, all those identified in this study as reform agents had mean scores higher than Kirton's theoretical mean (96). The results on One-way ANOVA indicate that , the difference among mean scores of the subjects, if their level of education is accounted for, is not statistically significant:

Table 4- Means and ranges of modified KAI based on level of education of the subjects

Education	N	Mean	S.D.	Range
Diploma	4	127.5	13.3	116.2-139
Associate Diploma	2	127.5	13.1	116.3-139
Bachelor	80	110.9	16.6	77.8-151
Master or Ph.D.	88	110.7	13.8	70-140.5

$F(2, 171) = 2.75, (p > .05)$.

As Table 5 indicates, the age factor had no apparent effect on the mean score of the subjects of the study. As expected, the younger reform agents (21-30 years old) had mean scores higher than the older ones. But it is not generalizable at all age groups, and the table shows that the mean score of the oldest subjects (those more than 50 years old) is more than those between 31 to 40, or those between 41-50 (this may be in contrast with the findings of Hayward and Everett (1983) in which the under thirty-year olds within a local authority were more innovative than older groups).

Nevertheless, the differences are not essential, and again all those identified in this study as reform agents, regardless of their ages have mean scores of higher than Kirton's theoretical mean. Also, the test of One-way ANOVA reveals that there is not statistically significant difference in the mean scores of different age groups: $F = (2, 159) = 1.195, (p > .05)$.

Table 5- Means and ranges of modified KAI based on the age of the subjects

Age	N ¹	Mean	S.D.	Range
21-30	16	117.1	8	104-127
31-40	60	111.5	14.2	82.9-137
41-50	68	110.8	15.6	70-140.5
More than 50	18	112.3	18.6	85.1-151

Difference in the mean scores of reform agents, based on their position, as presented in table 6 for middle level managers (mean = 116.8) had the highest score. Based on the test of One-way ANOVA, the difference in four groups of subjects categorized according to their position is (at $p=.05$) statistically insignificant: $F = (2, 167) = 2.60, (p>.05)$.

The findings of this study, if the KAI model can be applied, support the previous findings that, "correlations between KAI and occupational status, level of education, age and sex have been repeatedly reported less than 0.2, a magnitude that can be statistically significant but nevertheless accounts for little of the variance" (Kirton, 1990: 61). The variation among scores of reform agents is considerably high (70-151), which is consistent with other findings that, "there was always a wide variation among scores of individuals within relatively homogeneous groups"

1- Twelve Subjects did not mention their ages

(Kirton, 1990: 61).

Table 6- Means and ranges of modified KAI based on position of the subjects

Position	N*	Mean	S.D.	Range
High level managers	8	110.4	14.8	91.6-127
Middle level managers	58	116.8	13.4	89.9-151
Low level managers	8	112.8	16.6	89.9-132
Non-managers	96	109.6	14.8	70.1-137

* Four Subjects did not mention their positions

Correlation between Style of Work Behaviour Factors and Reform Factors

To find the correlations between style of work behavior and the perceived degree of success of reform program, the items in the latter were factor analyzed. The reform agents were asked to specify how they perceived the degree of success of reform efforts in three broad areas: reorganization of public organizations at central and local levels, reform of human resource management, and reform of procedures, etc., to expedite service delivery.

Table 7 represents the factors for reform program, and also includes: (1) the number of items, and (2) means, standard deviations and internal consistency reliabilities of the factors. The reliabilities of factors listed in table 7 are highly acceptable.

Table 7- Descriptive Statistics and Reliabilities for factors of Perceived success
of the Reform Program

Instrument	No. of Items	Mean	S.D.	Reliability*
Reform Program Dimensions				
Training and Research	7	2.4	0.908	0.86
Simplicity and Capacity-Building	7	3.00	0.912	0.86
Participation and Delegation	6	2.5	1.011	0.82
Pay System-Performance Dependency	5	2.3	0.897	0.76
Procedures and coordination	4	2.7	0.829	0.75

* Calculated using Cronbach's coefficient alpha

Examination of factors of the first section of the questionnaire related to the degree of success of reform plan suggested the following descriptive titles:

Factor 1- Training and Research: This factor has the highest eigen value of 10.45 and the variables explain 36.1 percent out of the total variables relating to climate of reform agencies (Table 8). Factor 1 is composed of items relating to improvement in quality and increase in quantity of training courses, together with empowerment of training units, enhancement of research and expertise capabilities of public organizations, and items relating to

change of attitudes and increase in skills of employees, and attracting and retaining the experts and professionals to public sector (items 12, 16, 17, 20, 21, 22 and 23 of the questionnaire).

Factor 2: Simplicity and Capacity - Building: This factor is made up of the items relating to removal of contradictory laws, consideration of simplicity in setting laws and regulations, providing new technologies and dispersing concentrated national operations from capital through assigning policy and standard setting to central agencies, and also the items related to increase in managerial capacity and strengthening of capacities of administrative units (items 6, 7, 11, 24, 27, 28 and 29). These variables explain 9.8 percent out of the total variables relating to reform program. This factor carries an eigen value of 1.5 (Table 8).

Factor 3- Participation and Delegation: This factor carries an eigen value of 1.9, and its variables explain 6.7 percent out of the total variables relating to climate of reform program (Table 8). Factor 3 is composed of items relating to increase in public participation, full utilization of potential of public employees, and items related to delegation of authorities, and proper distribution of personnel between central and local agencies (items 5, 8, 9, 10, 13 and 15).

Table 8- Results of factor analysis (Varimax) for reform program

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	h
12	.85				.75	
16	.81					.81
17	.69					.64
20	.63					.52
21	.57					.60
22	.48					.49
23	.44					.61
6		.80				.74
7		.80				.73
11		.69				.64
24		.55				.53
27		.51				.68
28		.45				.65
29		.43				.60
5			.74			.58
8			.71			.66
9			.69			.50
10			.63			.52
13			.50			.65
15			.48			.64
3				.74		.66
4				.66		.58
14				.50		.59
18				.49		.64
19				.35		.28
1					.77	.84
2					.74	.70
25					.55	.72
26					.53	.48
Eigen values	10.50	2.80	1.9	1.6	1.3	
percentage of variance	36.1	9.8	6.7	5.5	4.3	

Note: h = Communalities

Factor 4- Pay System-Performance Dependency: The items of this factor are mostly about pay system (adjusting of pay levels based on pay level in private sector, establishing unified pay system) and its dependency with performance (items 3, 4, 14, 18 and 19). These variables explain 5.5 percent out of the total variables relating to reform program. This factor carries an eigen value of 1.6 (Table 8).

Factor 5- Procedures and coordination: Decrease in redundant procedures, reform of procedures, and elimination of duplication and overlapping jobs, together with improving coordination among public organizations are the main items of factor 5 (items 1, 2, 25 and 26). This factor carries an eigen value of 1.3 and its variables explain 4.3 percent of total variables relating to climate of reform agencies (Table 8).

Relationship Between Modified KAI Dimensions and Reform Program Factors

To find the probable relationship between the KAI scores of reform agents and the success or failure of the reform program, the correlation between the two was calculated. The result reveals that there is a statistical relationship between modified KAI scores of the reform agents and the perceived success of reform program ($p < .01$, $N = 174$). The coefficient correlation between two variables is 0.31, which is indicative of a significant

correlation.

It was argued earlier that , the more competent reform managers appear to be, the more successful they are expected to be as agents of reform. The reform managers, together with the assumption of the responsibility of leading the reform programs, are part of the whole reform agents as subject of the study. One possible conclusion is that, the more creative the reform agents, the more the probability of inclusion of new ideas in the reform plans, and, if implemented, the more the possibility of change in the traditional bureaucracy.

However, the above correlation coefficient is very simplistic and does not help the decision makers to realize what needs precisely to be changed. Merely identifying some relationships between modified KAI dimensions and factors of reform program will not reveal the relationship details and directions. Therefore factor analysis of the items seems necessary.

The 32 items of Kirton Adaptive-Innovative Inventory was factor analyzed. Having examined different solutions (from 3 to 8) a 5 factor solution was selected, one which examined 55.2 percent of the total variance (the result of analysis using three factor solution is presented in Appendix 2). Examination of the items of factors suggested the following descriptive titles:

Factor 1- Originators: This factor (alpha .90) is composed of items relating to original and new ideas, risk taking and fresh

perspectives on old problems, and also items prescriptive of people who are predictable, stimulating and those doing things differently (items 11, 3, 26, 21, 12, 31, 18, 33, 23, 19, 16 and 10).

Factor 2- Fitters-In: This factor (alpha.90) is made up of items descriptive of persons who conform, fit readily into the system and agree with the team (items 2, 30, and 20).

Factor 3- System-Oriented: The items referring to persons who are mostly thorough, consistent, steady plodder and also methodical and systematic, are categorized under factor 3 (alpha. 54) (items 5, 15, 14, 17, 22, 25).

Factor 4- Rule-Oriented: Factor 4 (alpha. 68) mostly includes the items that are related to persons who never seek to bend or break the rules, work without deviation in a prescribed way, and those who feel safe under the precise instruction, and never act without proper authority (items 8, 29, 4, 28, 27, 6, and 7).

Factor 5- Conservative: This factor (alpha. 52) is composed of items relating to traits of people who prefer gradual change, and work on one problem at a time with consistent partners and colleagues who never "rock the boat" (items 13, 24, 32 and 9).

Table 9 includes the results factor analysis for modified KAI factors, and their eigen values. Also, table 10 represents the

Table 9- Results of factor analysis (Varimax) for modified KAI

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	h
10	.81					.67
25	.77					.62
2	.77					.65
12	.71					.60
20	.71					.54
30	.69					.57
17	.62					.43
18	.59					.53
22	.59					.55
32	.59					.60
15	.53					.53
9	.40					.31
1		.91				.86
29		.87				.83
19		.74				.73
6			.68			.49
5			.68			.60
26			.61			.62
27			.59			.44
3			.58			.60
28			.49			.66
7			.37			.17
21				.67		.69
13				.64		.61
4				-.58		.51
24				.54		.45
16				.51		.58
14				.49		.52
8					.62	.57
31					.55	.67
12					.57	.33
23					.38	.16
Eigen values	7.8	3.9	2.4	1.8	1.7	
percentage of variance	24.4	12	7.6	5.7	5.5	

Note: h= communalities & E.V= Eigen value

relationship between modified KAI dimensions, and the reformprogram factors (specified in the last chapters).

As Table 10 shows, there are some significant relationships between the modified KAI factors and the reform program dimentions. "Training and research" factor has no significant relationship with three out of five factors of modified KAI. In this category, the only significant relationships are found with "System-Oriented" ($r = .30, p < .01$) and "Conservative" factors ($r = .15, p < .05$). It means for improvement of "Training and Research" goals, those categorized under "Ssystem-Oriented" factor (or consideration of items in this factor) may lead to better results.

"Simplicity and Capacity-Building" is the only factor of the reform program which has significant relationships with all modified KAI factors. The highest correlation of this factor is with "Fitters-In" and "Rule-Oriented" ($r = .31$, for both, $p < .01$). Implicitly, it could be argued that for accomplishment of the goals under the "Simplicity and Capacity-Building" factor, all reform agents could be helpful, but emphasis in selection of the reform agents, should be on those who are categorized as "Fitters-In", and "Rule-Oriented".

"Participation and Delegation" has significant relationship with 2 out of 5 factors of modified KAI (Fitters-In with $r = .24, p < .01$, and System-Oriented with $r = .17, p < .05$).

Table 10- Correlation between modified KAI and reform program Scales

Reform Program Dimensions	Modified KAI Dimensions				
	Originator	Fitters-In	System-Oriented	Rule-Oriented	Conservative
Training and Research	.03(.73)*	.02(.71)	.30(.001)***	.08(.41)	.15(.04)
Simplicity and Capacity Building	.30(.001)**	.31(.001)	.25(.001)	.31(.001)	.27(.001)
Participation and Delegation	.11(.14)	.24(.002)	.17(.025)	.11(.145)	.14(.056)
Pay system-Performance	-.05(.51)	.05(.51)	.33(.001)	-.09(.35)	-.03(.54)
Dependency					
Procedures and Coordination	.01(.89)	.18(.02)	.25(.001)	.019(.89)	.054(.515)

* Parentheses include the p value of correlation coefficients

** $p < 0.01$

*** $p < 0.05$

*** Significant correlations are highlighted

The only significant relationship between "Pay System-Performance Dependency" is with "System-Oriented" factor ($r = .33$, $p < .01$), which also is the highest correlation among all reform program factors and modified KAI dimensions.

Finally, "Procedures and Coordination" factor, as table 10 shows, has relationships with factors 2 and 3 of the KAI. In the first case, the coefficient correlation is .18 ($p < .05$) and in the latter one the coefficient correlation is .25 ($p < .01$).

The overall analysis indicated that, there was a general tendency for reform factors to be associated with "System-Oriented" factor. The analysis of correlation between the whole reform program and dimensions of modified KAI, too, supports this tendency (figure 1):

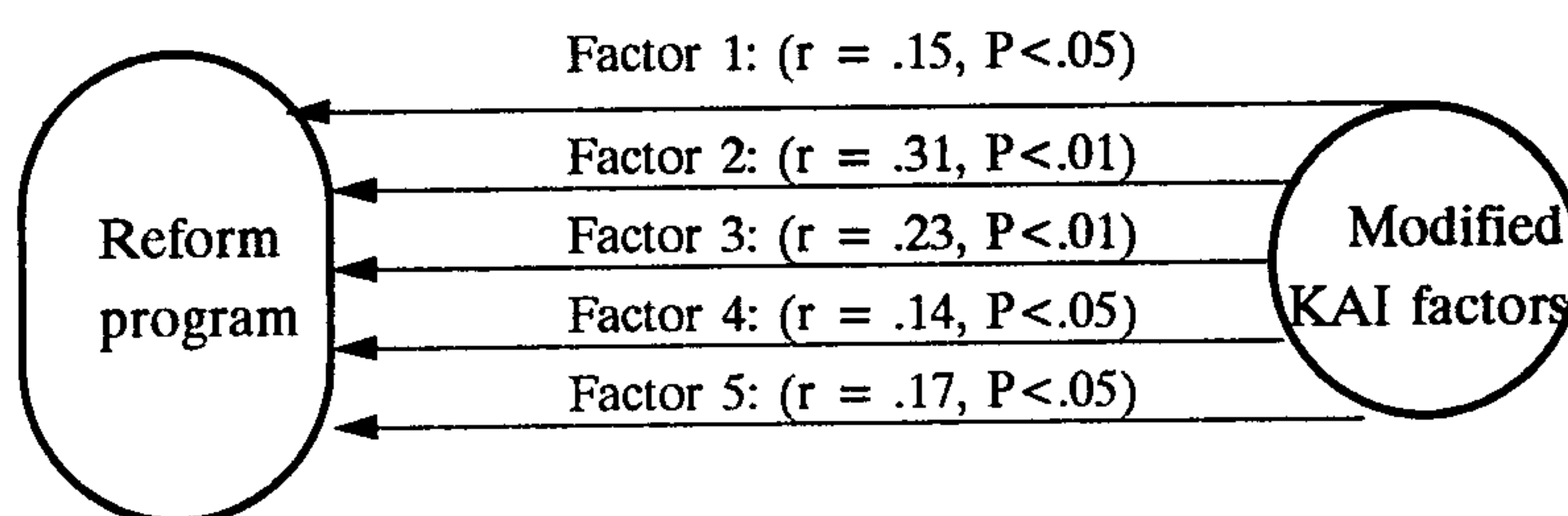


Figure 1- Correlation between KAI factors and reform program

The Most Appropriate Reform Agents

In analysis of different types of change agents Kirton (1994) explains that, the agent for change may be either an innovative or an adaptor (p. 47). He is challenging the traditional assumptions that the announcing and initiating of change is the prerogative of the type of person to whom the term innovator is applied. In his belief, a precipitating event may require either an innovative or an adaptive solution, for which the adopted approach depends on the original intention of the group and nature of its task.

However, Kubes (1994, p. xxxiv) through analysis of the political scene of the former Czechoslovakia, concludes that,

"from the standpoint of A - I theory, it is not surprising that those who were willing to take risks by being in disagreement with the official establishment were innovative". In addition, Van der Molen (1990: 79) asserted that, "... ageing institutions suffer in the end from the disadvantageous of not having innovator type creative input available in times of change when policy and methods are required to change as well". He explained that such necessary changes often brought about only when a "precipitating event" or a crisis occurs, and at last the adaptors need innovators. These explanations are true about the cases where a great change, such as revolution occurs and calls for fundamental changes and reform at all aspects.

In the case of the revolution of 1979 of Iran, the changes of values, policies and strategies are presumed necessary. At public organizations, the reform seemed to be more necessary. To reform the whole bureaucracy, the innovator type of input was necessary. The adaptor type output consisting of "residual puzzle-solving and inter-paradigm discoveries with lesser conceptual threat" (Van der Molen, 1990: 180) was expected to be replaced by the innovative type creative output, made up of "conceptual challenges and explorations of the unknown and "unthought" (Van der Molen, 1990: 180).

If the above explanation is considered acceptable, then, based on the findings of the study, at first glance, those who have been selected for positions of reform agent, were suitable persons and

the majority of them were innovative-inclined. As a result, the findings so far, do not support the hypothesis of the study which states: "reform agents were not innovative-inclined enough to bring about fundamental changes in the Iranian bureaucracy". On the contrary, the reform agents, in this study, whether considered by age, position, gender or level of education, were strongly innovative-inclined (mean = 111.5).

The analysis of the last section on correlation between modified KAI dimensions and reform program factors, somehow, reveals the type of persons who could be best fitted with the reform program. Despite initial expectations and explanations, the preceding correlations do not verify that innovative-inclined agents of reform could be the most fitted persons to accomplish the objectives of the reform program.

Based on table 10, the reform program dimensions had only one statistically significant correlation with "Originator", as the closest factor with characteristics of innovators. Those categorized as "System-Oriented", and 'Fitters-In', had, subsequently, the most significant correlations with reform program factors. It may mean, to accomplish the goals of the reform program, and those who had closest matches with items or characteristics identified under "system-Oriented", and "Fitters-In", might be the most appropriate reform agents.

Nevertheless, the overall discussions of the study reveal a contradictory point. The reform program was initiated by a

revolutionary government to bring about fundamental changes in the bureaucracy. Basic reforms, supposedly call for innovative type of inputs and persons to challenge the status quo and old paradigm. The results, however, revealed that "System-Oriented", and "Fitters-In" type of persons could be more appropriate to accomplish the promises of the reform program.

What were was the reason and source of emergent contradictions? The data and information presented here may not be enough to clearly respond this question. Nevertheless, one likely reason and source of contradiction could be the "content of the reform program". The program was designed by those who (based on foregoing analysis) were mostly innovative-oriented. However, the reform program did not include provisions that, even if implemented, could bring about fundamental changes in the bureaucracy. It might mean, those who could work under the established system, could be the most appropriate agents of reform. Again, it implies that, the reform program was more probably designed to keep or even strengthen the status quo, not to bring about fundamental changes, and not to change the existing paradigm.

In sum, there is a need for further research on the "content" of the reform program, and on the question: what would happen if all provisions of the program were implemented comprehensively? At this stage, the reason of contradiction between the outcomes of the reform, and inclination of reform

agents from their style of work behavior, can tentatively be attributed to the content of the reform program that was in favor of keeping the status quo. In other words, the reformists, being "system-oriented" persons, might be able to accomplish more provisions of the program. Implementation of more provisions of the program, however, would not necessarily mean better public administration; it may mean strengthening of existing conditions, and ignorance of fundamental changes.

Another Barrier to Successful implementation of Reform Program

As discussed, reform agents perceived the reform program as "not successful as expected". In the following, another barrier to success of reform which has relevance to reform agents' style of work behavior will be discussed.

The Effectiveness of Communication among Different Organizations

Collaboration and communication between innovators and adaptors are frequently based on inaccurate perception which each group has of the other, Basically, as Kirton (1987) argues:

"Innovators tend to be seen by adaptors as abrasive, insensitive and disruptive, unaware of the havoc they are causing. Innovators, on the other hand, see them stuffy and unenterprising, wedded to the systems, rules and norms of behavior which (in the opinion of

innovators) are restrictive and ineffectual. Consequently, disagreement and conflict are likely to arise when more extreme types of innovators and adaptors come into working contract. ... When the extreme types view each other pejoratively ... the innovator claims that the adaptor originates with a finger on the stop button; the adaptor sees the innovator as an originator who cannot find such a button" (p. 16).

KAI theory states that people sharing common scores, that is, 20 KAI points apart or less, will "speak the same language" and have better communication with each other. Ten points apart is generally thought to be the "just noticeable difference" (Hammerschmidt, 1996: 63). Individuals more than 20 KAI points apart will start to notice significant communication difficulties (Kirton & Mc Carthy, 1988). It means, they will not share the same creative style and will literally approach, solve and communicate problems in a different language or paradigm (Kirton, 1990). These communication difficulties are even more apparent for groups, and a mean difference of five KAI points between two groups can cause inter-group communication difficulties and reduce overall effectiveness (Hammerschmidt, 1996).

Table 11 includes the mean scores and standard deviation of different groups of reform agents working in various organizations of the Iranian bureaucracy. The purpose is to compare their means to see if there is any difficulty in their communications,

based on their style of work behavior.

To keep the privacy of the respondents and their concerned organizations, a label of X_1 to X_n is used to replace the names of the organizations. (The mean scores are arranged in ascending form to make the comparison easier).

The lowest mean is 98.6 (s.d=10.3), and the highest 128 (s.d=5.3). Theoretically, as mentioned, a mean difference of five KAI points between two groups can cause inter-group communication difficulties and reduce overall effectiveness. The surveyed reform agents can be grouped, roughly, based on their mean score on modified KAI, in four categories (Table 11).

Table 11- Categories of reform agencies based on their (modified) KAI mean score

Category No.	Reform agencies	Mean ranges	Average
C1	X16, X11, X21, X1, X2, X13, X9	98.6 to 102.7	86.7
C2	X20, X10, X12, and X17	110 to 112	110.75
C3	X6, X22, X7, X15, X8, X18, X3, X19 and X5	116 to 120.7	118.8
C4	X4 and X14	124.7 and 128	126.35

As table 11 shows, there are some overlaps among different categories. However, the overall results may explain some communicational difficulties among some groups, especially among the first group with those classified at the third and fourth

categories, and between the reform agents of organizations in C2 and C4 categories. Since preparation and implementation of the reform program at national level calls for cooperation and effective communication of different groups (reform agents) at different reform agencies, the communicational difficulties among the groups could act as a barrier to success of reform. In such case, reform managers will have enough skills and competencies to enable them to reduce the communicational difficulties among different groups of reform agents.

Limitations

The analysis presented in this study may have some limitations. First, the questions employed to tap the respondents' perceptions of their own style of work behaviour, were translated from the English language into the Persian language. Although the investigator has tried to provide the clearest translation, still it may have been a limitation, including any ambiguity in questions.

The second limitation arises from differences between the original study (Kirton, 1961) and the current study regarding the scales, and method of data collection. Method of data collection in original study was based on interviewing the respondents, while in the current study a self-administered questionnaire was used to receive the opinion of the subjects of the study. Although the results of interview checklists with 17 reform agents (as pilot study subjects) revealed no difference between these two methods,

however, since the interview subjects may not be properly representative of the population under study, the limitation may still exist. Also, KAI is a test based on a 5-point scale from Very Hard to very Easy, where against each item there is a line of 17 dots along which the respondents place a cross to indicate the degree of their responses. But in the current study a 5-point Likert type scale, ranging from "not at all" to a "very great extent" has been used. These differences may reduce the degree of compatibility of the current study against the original one.

Summary and Discussion

The findings of the study indicate that the majority of the reform agents (75.1 percent) in this study were innovative inclined and only 14.9 percent were adaptive oriented. This is consistent with other findings (Kirton, 1980; Thomson, 1980) that in multi-paradigm-oriented departments which acted as interface either between parts of the same organization or between the organization and the outside, scores tend towards innovativeness. Among the Iranian reform agents, male reform agents were more innovator-inclined (mean=114.2) than females (mean = 103.2).

The results indicate that correlations between modified KAI and occupation status, level of education and age, account for little of the variance. In addition, the findings are in support of some other studies (for example Hayward & Everett, 1980; Kirton, 1977) that, if established long enough, the mean of the

personnel approaches the aims of the organization. Reform agencies, as the organizations in charge of reform of public administration, at least theoretically, expected to be innovative-inclined. So, the related expectation is that the reform agents, too, should be innovative - oriented to consider the organizations (reform agencies) suit their personality.

Further analysis indicated that, there were differences in the mean scores of agents working in different organizations. These differences, based on the findings, could create some communicational difficulties among different groups. The analysis of relationship between modified KAI factors and reform program factors, also, are indicative of some significant relationships. Most of the relations of reform program factors are with those factors of modified KAI named as, "System Oriented" and "Fitters-In". However, the relationship is not limited to these factors, and all factors of reform program have, some statistically significant relationships with one or more of the KAI dimensions.

Based on the findings, it can be concluded that the style of work behaviour makes a difference in how reform agents approach, solve and communicate problems. These style differences may influence the performance, and therefore the success of different aspects (or factors) of reform program. Based on the correlation between the reform program and dimensions of modified KAI and competency factors, in creating teams for specific reform purposes, decision makers and reform managers,

have to consider the KAI style and type of each team member. However, consideration of personal traits of reform agents, alone, is not sufficient. The right person (from his/her style of work behaviour point of view) has, also, to possess the relevant and necessary skills and competences. In addition, the nature of the reform program, too, should be considered as a criteria for selection of the reform agents. In case of Iranian reform program it was realized that, although a combination of adaptors and innovators would be necessary, however, domination of adaptive-inclined persons could be more appropriate for the concerned reform program. Nevertheless, if fundamental changes are expected to be achieved, dominance of creative-minded persons would be appropriate only if there was a comprehensive revision in the content of the program toward more genuine and fundamental changes in public administration.

References

- 1- Dershimer, E. L. (1980); "Study to Identify the Characteristics of Teachers Willing to Implement Computer Based Instruction Using Microcomputers in the Classroom", *Ph.D. Thesis*; Memphis State University.
- 2- Devaus, D. A. (1991); *Survey in Social Research*; 3rd ed., Allen and Urwin, Sydney.
- 3- Dewan, S. (1982); "Personality Characteristic of Entrepreneurs", *Ph. D. Thesis*; Institute of technology, Del. Hi.
- 4- Emry, W. C., and D. R. Cooper (1991); *Business Research Methods*; 4th ed., United States of America: Richard D. Irwin Inc.

-
- 5- Gyskiewicz, S. S., D. W. Hills, K. Holt and K. Hills (1987); *Understanding Managerial Creativity: The Kirton Adaption-Innovation Inventory and other Assessment Measures*; Greensboro, NC: Center for Creative Leadership.
 - 6- Hammerschmidt, P. K. (1996); "The Kirton Adaption-Innovation and Group Problem Solving Success Rate", *The Journal of Creative Behavior*; Vol. 30, No. 1, pp. 61-74.
 - 7- Hayward, G. and C. Everett (1983); "Adaptors and Innovators: Data From the Kirton Adaptor-Innovator Inventory in a Local Authority Setting", *Journal of Occupational Psychology*; 56, pp. 339-342.
 - 8- Hossaini, H. R. (1981); "Leadership Effectiveness and Cognitive Style Among Iranian and Indian Middle Managers", *Ph.D. Thesis*; Institute of Technology, Delhi.
 - 9- Jorde, P. (1984); "Change and Innovation in Early Childhood Education: The Relationship Between Selected Personal Characteristics of Administrators and Willingness to Adopt Computer Technology", *Ph.D. Thesis*; Stanford University, California.
 - 10- Keller, R. T. (1984); "A Cross National Validation Study for Research and Development Professional Employees", *IEEE Transactions on Engineering Management*; EM-31, pp. 162-5.
 - 11- Khaneja, D. (1982); "Relationship of the Adaption-Innovation Continuum to Achievement Orientation in Entrepreneurs and Non-Entrepreneurs", *Ph.D. Thesis*; Institute of Technology, Delhi.
 - 12- Kirton, M. (ed.) (1990); *Adaptors and Innovators: Style of Creativity and Problem Solving*; Routledge.
 - 13- Kirton, M. (ed.) (1994); *Adaptors and Innovators: Style of Creativity and Problem Solving*; Routledge.
 - 14- Kirton, M. and S. R. Pender (1982); "The Adaption-Innovation Continuum:

-
- Occupational Type and Course Selection", *Psychological Reports*; Vol. 51, pp. 883-6.
- 15- Kirton, M. (1961); *Managing Initiatives*; London: Acton Society Trust.
- 16- Kirton, M. (1976); "Adaptors and Innovators: A Description and Measure", *Journal of Applied Psychology*; Vol. 61, pp. 622-29.
- 17- Kirton, M. (1977); *Kirton Adaption-Innovation Innovatory (KAI)*; NFGP Publishing Ltd.
- 18- Kirton, M. (1980); "Adaptors and Innovators in Organizations", *Human Relations*; Vol. 3, pp. 213-24.
- 19- Kirton, M. (1987a); *Kirton Adaption-Innovation Innovatorys (KAI)*; Manual 2nd ed., Hatfield UK: Occupational Research Center.
- 20- Kirton, M. (1987b); "Adaptors and Innovators in Culture Clash", *Current Anthropology*; Vol. 19, pp. 611-12.
- 21- Kirton, M. & Carthy R Mc (1988); "Cognitive Climate and Organizations", *Journal of Occupational Psychology*; Vol. 61, pp. 175-84.
- 22- Kirton, M. (1984); "Adaptors, Innovators and Paradigm Consistency", *Psychological Reports*; Vol. 57, pp. 487-90.
- 23- Kirton, M. (1977); "Adaptors and Innovators and Superior-Subordinate Identification", *Psychological Reports*; Vol. 41, pp. 289-90.
- 24- Kirton, M. (1977); "Adaptors and Innovators in Organizations", *Human Relations*; Vol. 3, pp. 213-24.
- 25- Kubes, M. (1994); "Introduction", In M. Kirton (ed.), *Adaptors and Innovators: Style of Creativity and Problem Solving*; Routledge.
- 26- Kuhn, T. S. (1970); *The Structure of Scientific Revolutions*; 2nd ed., International Encyclopedia of University of Chicago Press.
- 27- Merton, R. K. (ed). (1957); *Bureaucratic structure and personality in Social*

- Theory and Social Structure*; New York: Free Press of Glencoe.
- 28- Mudd, S. (1995); "Suggestive Parallels between Kirton's A-I Theory of Creative Style and Koestler's Bisociative Theory of the Creative Act", *Journal of Creative Behavior*; Vol. 29, No. 4, pp. 240-254.
- 29- Prato, P. G. (1984); *Adattatori ed Innovatori: I Risultati Della Standardizzazione Italiana Del KAI*, Kuhn, T. S., 1970, *The Structure of Scientific Revolutions*, 2nd ed., International Encyclopedia of Unified Science, Vol. 2, Chicago: University of Chicago Press.
- 30- Pulvino, C. A. F. (1979); "Relationship of Principal Leadership Behavior to Teacher Motivation and Innovation", *Ph. D. Thesis*; University of Wisconsin Madison.
- 31- Siegel, S. & Castellan N. J (jr) (1985); *Nonparametric Statistics for the Behavior Sciences*; McGraw Hill, New York.
- 32- Thomson, D. (1980); "Adaptors and Innovators: A Replication Study on Managers in Singapore and Malaysia", *Psychological Report*; Vol. 47, pp. 383-387,.
- 33- Van der Molen, P. P. (1990); "Adaption-Innovation and Changes in Social Structure On the Anatomy of Catastrophe", In Michael Kirton (ed.), *Adaptors and Innovators: Style of Creativity and Problem Solving*; Routledge.
- 34- Whyte, W. H. (1957); *The Organization Man*; London: Cape

