



**SWP 39/87 MANAGERS IN TRANSITION: AN EMPIRICAL TEST OF
KIRTON'S ADAPTATION - INNOVATION THEORY AND
ITS IMPLICATIONS FOR THE MID-CAREER MBA**

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Forthcoming in Technovation Journal

Working Paper 85.11

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ABSTRACT



Adaption-innovation theory makes fundamental predictions about the differences in cognitive style of adaptors and innovators. It draws particular attention to the potential for conflict when adaptors and innovators are involved in decision-making and problem-solving in organisations. This paper reports a test of hypotheses derived from the theory in the context of a full-time MBA course for midcareer managers. It draws conclusions relating to the validity of the theory and its implications for the training of these and similar managers in transition.

ADAPTION-INNOVATION THEORY

Kirton's adaption-innovation theory proposes that individuals normally exhibit one of two styles of problem-solving and decision-making. The analytical and decision processes of 'adaptors' are confined to the frame of reference within which they perceive the initiating problem. Their definitions of both the problem and its frame of reference are inextricably linked and both remain intact whilst solutions are sought and the chosen solution implemented. 'Innovators', by contrast, do not simply seek solutions: they also tend to evaluate the frame of reference within which a problem has arisen and in the process of solving it they often redefine and reconstitute both [9, 14].

Adaptors generally contribute to organisational problem-solving by suggesting more technically-efficient working methods which are similar in character to those currently employed. They might, for instance, offer proposals for the more effective exploitation of tried and tested techniques, as long as this can be achieved consistently with the established consensus on managerial and working practices. Solutions proposed by innovators are, however, likely to entail some realignment of objectives, plans and strategies as well as the adoption of novel operations and functions [12].

Adaptors and innovators differ in terms of the creative styles they exhibit but not the extent of the creativity of which they are capable [11]. The theory assumes that all individuals strive for originality, for example, but that some achieve it primarily through the production of better ideas and solutions, whilst others seek different ideas and solutions.

Thus, adaptors' exercise of creativity in problem-solving is characterised by continuity; that of innovators inevitably invites discontinuity. Several management authors have made similar observations which they have described in different terms. Drucker [2], for instance, contrasts those managers who 'do better' with those who 'do differently'; and Legge [16] differentiates 'conformist' and 'deviant' innovators who have much in common respectively with Kirton's adaptors and innovators.

Particular organisational processes and the tasks they entail may bring one or other of these cognitive styles to the fore. There is evidence from studies designed to test the theory that corporate objectives, resource bases and cultures make overwhelmingly innovative or adaptive demands on specific departments or even entire organisations. Local authority managers emerge as predominantly adaptive [5] as do bank employees [3, 6], but members of the research and development functions of large, technologically-based organisations have been found to be predominantly innovative [7, 15]. It appears, therefore, that corporate culture includes an overall tendency towards adaptiveness or innovativeness. New recruits cope with varying degrees of success with the adaptive or innovative bias of the prevailing culture. Those whose cognitive style matches the organisational culture will accommodate easily to the demands of their working environment. Those whose cognitive style clashes with that of the culture sometimes find a niche within the alien environment, becoming - as will be discussed later - agents of change as and when conditions permit. Failing this, many leave the organisation: Hayward and Everett [5] report a turnover of local authority employees which was

heavily biased towards innovators, whilst Linsay [18] describes the case of a highly innovative senior systems analyst who sought alternative employment rather than endure the adaptive environment of the firm which employed him. Others who cannot move to more favourable climates within their organisations may simply fail to cope creatively, enduring but hardly enjoying the consequences of working in an antagonistic organisational context which cannot assimilate them [6].

Most mature organisations rely in large measure on a bureaucratic structure in which reliability and precision are preferred to risk-taking and initiative; not only is this central to the classical and neoclassical models of bureaucratic organisation [e.g. 19, 26]; it is also overwhelmingly supported by detailed empirical observation [e.g. 17, 20]. Nevertheless, as has been noted, organisations including businesses employ both adaptors and innovators, accommodating them with different degrees of sensitivity and success to the functional area to which they are more suited by expertise and disposition [12]. Conflict arises when adaptors and innovators are jointly faced with the need to change, be it as a result of externally-imposed strategic contingencies [1, 4, 21] or as part of a planned and predictable programme of internal development. Some of the effects of change can be forecast simply from a list of the characteristics of adaptors and innovators but the ways in which these groups perceive one another provide a more useful key. (Table 1 summarises both the general characteristics of the two groups and their mutual perceptions).

The revolutionary frames of reference employed by innovators as a context for their solutions, and the potentially

subversive assumptions and implications of their proposals threaten adaptors whose preferred cognitive and behavioural style involves conformity to and the maintenance of systems. Innovators appear insensitive and abrasive to adaptors, unwilling to contemplate the consequences of their actions and precipitating change before it is necessary or justified. The innovator tends to view the adaptor as regimented and conservative, unco-operative and, in its pejorative sense, bureaucratic. Nor do innovators always perceive each other favourably, since their assumptions and frames of reference seldom mesh well together. Adaptors, however, work well with other adaptors, finding common ground more easily as they establish rules and contexts for the tasks on which they combine [13].

(Table 1 here)

A Measure of Adaptiveness/Innovativeness

In addition to his detailed conceptualisation of adaptive and innovative behaviours, Kirton [9, 10] offers a measure of cognitive style which is intended to classify respondents in terms of a continuum whose poles are extreme adaptiveness and extreme innovativeness. The Kirton Adaption-Innovation Inventory (KAI) comprises 32 questions relating to the degree of ease or difficulty with which the respondent feels he or she could maintain a specified style of adaptive or innovative behaviour, e.g. never seeking 'to bend (much less break) the rules' or responding to 'the stimulation of change'. Responses (on a five-point scale) can be computed into an overall score

which theoretically ranges from 32 to 160 inclusive, increasing in the direction of innovativeness. Respondents who score below the midpoint (96) are termed adaptors; those scoring higher than this, innovators.

The observed mean of the general population is 94.99 (N = 562, SD 17.90) and the observed range extends from 45 to 145 [10]. The individual's total score (T) is composed of scores on three independent subscales which measure Originality (the O scale), Efficiency (E) and Rule conformity (R). The O score reflects preferences for either the production of fewer (albeit sound and useful) new ideas within the existing mores, which is an adaptive trait, or the proliferation of outlandish ideas, which is innovative. The E subscale is also based on a continuum, from the precise, orderly and reliable evolutionary actions of the adaptor to the discontinuous, anti-status quo and possibly revolutionary actions of the innovator. The R scale indicates the range of methodical, socially-prescribed and conformist behaviour of the adaptor as opposed to the more spontaneous and unconstrained behaviour of the innovator. (All three subscales are scored in such a way that they increase in the direction of innovativeness.)

THE STUDY

Objectives and Setting

The purpose of the research reported here was to test hypotheses derived from adaption-innovation theory in the context of mid-career managers attending a full-time MBA (Master of Business Administration) course at a university

business school. The research had two aims: first, to replicate and extend previous research on the incidence and location of innovative and adaptive managers in business organisations; and secondly, to draw from the findings implications for the education and training of managers in mid-career transition. The setting of the study was Cranfield School of Management which offers an intensive, 12 month MBA course to graduates with at least three years' industrial or commercial experience. In fact, most entrants have much more experience of employment than this: seven and a half years on average for the intake which provided the subjects for this study. The course is unusual in having four intensive terms of instruction and a highly practical emphasis.

Derivation of Hypotheses

Several empirical studies indicate that self-selecting course participants are more innovative than those selected - e.g. by their superior managers [12, 15, 22]. Since most of the students involved in this study were self-financed, having left employment in order to pursue the MBA qualification, it was felt that (a) they constituted an unusual group within the population and that (b) the minority of sponsored students had not risked so much by coming on the course and were probably more adaptive than the others. The first two hypotheses were, therefore:

H1: The MBA students will be more innovative than the general population.

H2: Self-financed students will be more innovative than those who are sponsored by employers.

Women in general tend to have more adaptive KAI scores than men drawn from the same population. In Kirton's general population sample [11], the mean score for males was 98.1, whilst that for women was 90.8. The score for the 88 male managers in the current sample was, at 97.1 (SD 16.9), not significantly different from that of men in general. However, studies of entrepreneurial Indian and Iranian women show that they tend to be significantly more innovative than both non-entrepreneurs and their male counterparts [8]. This presumably reflects their having breached their cultural mores both by becoming managers and by achieving status as risk-takers.

Both of these considerations apply to female, mid-career MBA students who have also had to surmount two barriers, first becoming managers at all in a male-dominated industrial system and secondly taking a mid-career break in order to pursue a degree. The male students have had to overcome only the second of these barriers. Research has shown that the difference of eight or nine points between the general population means for men and women is about equal to the difference between the means of any two groups which evince similar levels of adaptive or innovative behaviour though one faces a social barrier whilst the other is unencumbered [Kirton, personal communication]. Moreover, successive barriers appear to have a roughly equal and cumulative effect on scores [15]. Given these assumptions and the generally higher starting scores of males, it was expected that both male and female MBA students would have similar KAI scores. Hence:

H3: Male and female MBA students (unlike males and

females in the general population) will show equal levels of innovativeness.

Many of the functional specialisms found in commercial organisations contain both adaptors and innovators. Kirton [13] reports that 'engineers', for instance, included both individuals who were involved in external relationships and transactions and more internally-oriented maintenance and technical personnel. In the current research, this observation, which involved an important extension to the theory, was extended to all of the major groups of managers present in the survey. Thus, the fourth hypothesis was based upon the assumption that all of the general categories of managers could be subdivided:

H4: Within functional specialisms, managers who interface with other departments and external organisations will be more innovative than those concerned with the maintenance of internal stability and continuity.

Managers who have changed career in the past, achieving a radical redirection of their professions, are more likely to be innovative than those who have remained within the same occupational boundaries. The final hypothesis was, therefore:

H5: Managers who have changed their functional specialism will be more innovative than those who have pursued the same specialism throughout their careers.

The KAI was administered to 115 MBA students who intended to seek new employment in the UK after graduation and to 31 sponsored students who intended to return to their old jobs. Hypotheses H1 to H3 were tested by means of data for all 146 students. However, only the 115 student subset provided a detailed curriculum vitae, intended for employers, which supplied the data required in order to test the hypotheses H4 and H5. In order to avoid bias on the part of the investigator, the analysis of the curriculum vitae was undertaken independently by two research assistants whose judgement provided the secondary measure employed in the testing of the hypotheses.

Results

The results are summarised in Tables 2 to 10. The first hypothesis is clearly accepted (Table 2): the MBA students are more innovative than the general population and there are statistically significant differences between the two samples not only in terms of the KAI total means but for each of the subscales means.

The second hypothesis is rejected, however: both self-financed and sponsored students are highly self-selecting and do not differ significantly on innovativeness (Table 3).

The third hypothesis is accepted. The difference between male and female students is not significant (Table 4).

(Tables 2, 3 and 4 here)

The fourth hypothesis is accepted, along with the assumption which underlies it. As has been noted, Kirton [12] concluded that 'engineers', which group included both adaptors and innovators, would, on the basis of their mean KAI scores, fall between marketing managers on one hand and production managers and accountants on the other. The present study goes beyond this in investigating the possibility that general managers would similarly occupy an intermediate position since this group is also likely to be composed of both adaptive and innovative task subsets.

As Table 5 shows, this expected pattern of scores is indeed evident. Moreover, the difference between the marketing managers on one hand, and the production managers and accountants on the other is significant ($t = 2.051$; one-tailed $p < .05$). (The KAI mean for production managers and accountants combined = 105.93; SD 19.628). General managers, taken as a whole, mediate these two groups, as do the engineers.

The present study goes beyond Kirton's investigation of adaptors and innovators in organisations in another respect. The analysis of curriculum vitae indicated, however, that it was possible to distinguish, within each broadly-defined occupational/professional category, adaptors and innovators. Those engineers who were concerned with planning and designing construction work could be differentiated from other engineers, similarly qualified in formal terms, who were predominantly concerned with the maintenance of systems. Similarly, general managers could be divided into those who were concerned with the direction of the whole organisation including its external relationships and those who administered internal systems. Financial and cost accountants also divided along these lines

but production and marketing managers could not be so separated, principally because of the small samples of each involved. The production managers were nevertheless classified as internally and adaptively oriented, whilst the marketing managers were classified as externally and innovatively oriented. Since no significant differences were found between these managers on the basis of either total KAI or subscale means, this part of the research should be replicated. The results of subdividing the larger samples - of engineers, general managers and accountants - according to adaptive and innovative potential are shown in Table 6.

Table 6 indicates, in line with the hypothesis, that the functional titles of managers are generally of little help anyway in allocating managers to either the adaptive or innovative camp. Nevertheless, with the exception of marketing and production, the functional specialisms could be subdivided into adaptor-oriented and innovator-oriented elements: there is a clearcut distinction between the two in terms of KAI total score and subscale means (see Tables 6 and 7). Moreover, the subdivisions of each broadly-defined occupational/professional subsample differ from each other in terms of total KAI scores (Table 8). Financial and cost accountants differ significantly in terms of all three factors, as do the 'maintenance' and 'managerial' engineers; administrative and directive general managers differ only in terms of rule conformity (R), however (Table 9).

(Tables 5, 6, 7, 8 and 9 about here)

The final hypothesis is accepted. Students who had changed

direction before embarking on the course were more innovative than those who had pursued a single career path. Each of the subscales shows a significant difference between the groups (Table 10).

(Table 10 here)

DISCUSSION

The results confirm those propositions of Kirton's adaption-innovation theory tested. As expected, midcareer MBA students exhibit higher levels of innovativeness on average than the general population but do not differ in terms of their being self-financed or sponsored. The lack of difference between males and females is interesting in that it confirms the repeated finding to the effect that the higher scores of certain groups are associated with their demonstrated ability to surmount social barriers.

The results reported above draw particular attention to the need to investigate the adaptive and innovative subgroups within general occupational/professional categories rather than relying on standard classifications and job descriptions. This finding, at which Kirton [12] hinted in the absence of firm evidence, deserves further research attention. Similarly, the finding that students who have made radical changes in their occupation/career before embarking on the course confirms the theory and invites more research on the relationship between cognitive style and occupational discontinuity.

Of equal interest are the implications of the findings for the training, recruitment and career development of MBAs.

Kirton [12, p. 223) has written that, whilst business organisations must recruit both adaptors and innovators, 'The subsequent induction (the "lick 'em into shape") process which may spread over the first few years of a career in the organisation markedly favours adaptors. This puts the bulk of the intake under pressure - to which the young and the innovator are particularly vulnerable. The outcome may be a part explanation of the oft-noted high frustration and casualty rate of this type of entrant.' What, then, are the implications of adaption-innovation theory for the mid-career MBA?

That this group presents anomalies in terms of their KAI profile on entry - especially in that innovators predominate - is hardly surprising since it is a highly selected sample. Whilst the theory stresses that adaptive and innovative responses are not situation specific, that individuals do not change their fundamental dispositions, they inevitably encounter situations which are alien to their underlying cognitive style. They cope in such circumstances with varying degrees of success. In view of the conflicts which may arise when adaptors and innovators within the same organisation encounter change, and when adaptors or innovators are located within departments or functions dominated by the alternative cognitive style, learning to cope emerges as one of the most important components of managerial behaviour. Both adaptors and innovators who have taken a mid-career MBA of the sort described briefly above can be expected to possess not only technical training but some ability to cope with the behaviour of their own and the other group, and the requirements of adaptive and innovative working environments.

Employers should find, in the graduates of such courses,

adaptors who have learned to cope with the demands of an intensely innovative environment and innovators who have learned both adaptive techniques and how to work alongside adaptors. Both groups should be capable to a greater than average degree of effective working in both adaptive and innovative departments, because the instruction they have received has made this explicit and has provided them with special insight. Adaption-innovation theory and the observations it has stimulated also stress that attempts to change the individual's underlying personality, as reflected by his or her cognitive style, is unnecessary (and probably impossible). Rather, it is training in coping which provides the most effective responses.

Mid-career MBA courses may provide a unique source of individuals who possess the comparatively rare ability to combine several years' commercial experience with a technical training for high-level general management and the skills which enable them to cope well with colleagues whose typical approach to decision-making and problem-solving rests on antithetical assumptions and follows divergent patterns. Teaching faculty should, therefore, consider the extent to which coping can be learned - is it, for instance, most effectively imbibed by example or through non-directive instruction? - and the role of adaption-innovation theory in student counselling [18].

Recent developments in the theory [13] deal in greater detail with the reaction of employees to changes in the mean adaptor-innovator scores of the group in which they are located. Whilst there is mounting empirical evidence to show that the range of KAI scores within a working group remains constant over time [3, 5, 6, 10], shifts in corporate culture may radically change the composition of groups and, thereby,

group means. A predominantly innovative group may, by turnover, become increasingly adaptive over the years, and vice versa. When this occurs, the individual whose cognitive style differs from that of the emerging group is in a strong position to act as an agent for change. The highly-trained individual who uses the appropriate precipitating circumstance as a signal to act contrary to expectations is likely to show leadership precisely because the dominant cognitive style of the group precludes the lateral thinking upon which a solution to the problems wrought by change can come. Clearly, the ability to fit into a group whose style is alien to one's own constitutes a considerable skill - one which business schools catering to the mid-career manager in transition ought to be well-placed to supply.

But there is another way in which the mid-career MBA student stands to gain from the type of course investigated. The ability of an adaptor or innovator to act as a change agent depends on his being able to exercise specific skills which ensure his survival prior to the appropriate precipitating events [13]. These skills include expertise in his functional specialism, the capacity to obtain the respect of his colleagues and the managerial abilities to initiate change when circumstances require it. These are skills which can be learned and which business schools such as Cranfield are eminently able to impart. In addition, the business schools should now supply insight into the nature and implications of adaptive and innovative behaviours, and train their students to cope with them in an organisational context.

ACKNOWLEDGEMENT

The author is grateful to: M.J. Kirton, Director of the Occupational Research Centre, Hatfield Polytechnic, for comments on an earlier draft; C. Haskins and F. Murphy, Cranfield School of Management, for their research assistance; and the students who provided the data.

REFERENCES

1. Child, J. 1970. Organisational structure, environment and performance: The role of strategic choice. *Sociology* 6: 1-22.
2. Drucker, P. F. 1969. Management's new role. *Harvard Business Review* 47: 49-54.
3. Gryskiewicz, S.S., Hills, D.W., Holt, K. and Hills, K. 1985. Understanding Managerial Creativity: The Kirton Adaption-Innovation Inventory and Other Assessment Measures. Technical Report. Greensboro, NJ: Centre for Creative Leadership.
4. Hickson, D.J., Hinings, C. R., Lee, C.A., Schneck, R.E. and Pennings, J.M. 1971. A strategic contingencies theory of intra-organisational power. *Administrative Science Quarterly* 16: 216-229.
5. Hayward, G. and Everett, C. 1983. Adaptors and innovators: Data from the Kirton Adaptor-Innovator Inventory in a local authority setting. *Journal of Occupational Psychology* 56: 339-342.
6. Holland, P. 1982. Creative thinking: An asset or liability in employment? Unpublished MEd thesis. University of Manchester.
7. Keller, R.T. and Holland, W.E. 1978. A cross-validation study of the Kirton Adaption-Innovation Inventory in three research and development organisations. *Applied Psychological Measurement* 2: 563-570.

8. Khaneja, D.K. 1982. Relationship of the adaption-innovation continuum to achievement orientation in entrepreneurs and non-entrepreneurs. Unpublished PhD thesis. Delhi: Institute of Technology.
9. Kirton, M.J. 1976. Adaptors and innovators: A description and measure, *Journal of Applied Psychology* 61: 622-629.
10. Kirton, M.J. 1977. Manual of the Kirton Adaption-Innovation Inventory. London: National Foundation for Educational Research.
11. Kirton, M.J. 1978. Have adaptors and innovators equal levels of creativity? *Psychological Reports* 42: 695-698.
12. Kirton, M.J. 1980. Adaptors and innovators in organisations. *Human Relations* 33: 213-224.
13. Kirton, M.J. 1984. Adaptors and innovators: why new initiatives get blocked. *Long Range Planning* 17: 137-143.
14. Kirton, M.J. 1985. Adaptors and innovators: A theory of cognitive style. (In press.)
15. Kirton, M.J. and Pender, S. 1982. The adaption-innovation continuum, occupational type, and course selection. *Psychological Reports* 51: 883-886.
16. Legge, K. 1978. Power, Innovation, and Problem-solving in Personnel Management. London: McGraw-Hill.

17. Lindblom, C.E. 1959. The science of 'muddling through. Public Administration Review 19: 79-88.
18. Lindsay, P.R. 1985. Counselling to resolve a clash of cognitive styles. Technovation 3: 57-67.
19. Merton, R.K. 1957. Bureaucratic structure and personality. In: Social Theory and Social Structure. New York: Free Press.
20. Mintzberg, H. 1973. The Nature of Managerial Work. New York: Harper and Row.
21. Pfeffer, J. and Salancik, G.R. 1978. The External Control of Organisations. New York: Harper and Row.
22. Thomson, D. 1980. Adaptors and innovators: a replication study on managers in Singapore and Malaysia. Psychological Reports 47: 383-387.
23. Weber, M. 1970. Wirtschaft and Gesellschaft. In: H.H. Gerth and C.W. Mills (eds. and trans). From Max Weber: Essays in Sociology. London: Routledge and Kegan Paul.

TABLE 1

Behaviour descriptions of adaptors and innovators

Adaptor	Innovator
Characterised by precision, reliability, efficiency, methodicalness, prudence, discipline, conformity.	Seen as undisciplined, thinking tangentially, approaching tasks from unsuspected angles.
Concerned with resolving problems rather than finding them.	Could be said to discover problems and discover avenues of solution.
Seeks solutions to problems in tried and understood ways.	Queries problems' concomitant assumptions; manipulates problems.
Reduces problems by improvement and greater efficiency, with maximum of continuity and stability.	Is catalyst to settled groups, irreverent of their consensual views; seen as abrasive, creating dissonance.
Seen as sound, conforming, safe, dependable.	Seen as unsound, impractical; often shocks his opposite.
Liable to make goals of means.	In pursuit of goals treats accepted means with little regard.
Seems impervious to boredom, seems able to maintain high accuracy in long spells of detailed work.	Capable of detailed routine (systems maintenance) for only short bursts. Quick to delegate routine tasks.
Is an authority within given structures.	Tends to take control in unstructured situations.
Challenges rules rarely, cautiously, when assured of strong support.	Often challenges rules, little respect for past custom.

(Table 1 continued)

Tends to high self-doubt. Reacts to criticism by closer outward conformity. Vulnerable to social pressure and authority; compliant.

Is essential to the functioning of institution all the time, but occasionally needs to be "dug out" of his systems.

When collaborating with innovators: supplies stability, order, and continuity to the partnership.

Sensitive to people, maintains group cohesion and co-operation.

Provides a safe base for the innovator's riskier operations.

Appears to have low self-doubt when generating ideas, not needing consensus to maintain certitude in face of opposition.

In the institution is ideal in unscheduled crises, or better still to help avoid them, if he can be controlled.

When collaborating with adaptors: supplies the task orientations, the break with the past and accepted theory.

Insensitive to people, often threatens group cohesion and co-operation.

Provides the dynamics to bring about periodic radical change, without which institutions tend to ossify.

Source: First published in Kirton [9]. Reproduced by permission.

TABLE 2

KAI means: general population compared with MBA students

	N	KAI	SD	O	SD	E	SD	R	SD
General pop- ulation	562	94.99	17.90	40.78	8.89	18.82	5.59	35.39	8.56
BA students	146	110.02	15.52	46.40	6.77	21.80	5.27	41.70	7.65

Differences between means (one-tailed):

t=	10.089	8.336	6.010	8.658
p	<.0005	<.0005	<.0005	<.0005

TABLE 3

KAI total and subscale means for self-financed and sponsored students

	N	KAI	SD	O	SD	E	SD	R	SD
Self-financed	115	110.29	14.77	46.40	6.61	21.80	5.22	42.00	7.18
Sponsored	31	109.03	18.25	46.55	7.46	21.77	5.56	40.71	9.23

Differences between means (one-tailed):

t=	.354	.102	.027	.722
p	ns	ns	ns	ns

TABLE 4

KAI totals and subscale scores: males and females

	N	KAI	SD	O	SD	E	SD	R	SD
Males	129	109.49	15.57	46.40	6.87	21.50	5.06	41.40	7.75
Females	17	114.05	14.88	47.00	6.12	23.40	6.65	43.50	6.69

Difference between means (one-tailed):

t=	1.181	0.374	1.136	1.193
p	ns	ns	ns	ns

TABLE 5

KAI total means for broadly-defined functional specialisms

FUNCTION	N	KAI MEAN	SD
Marketing	16	115.81	13.13
Engineering	39	111.05	12.71
General management	29	110.89	11.18
Production	7	106.85	20.09
Accounting/Finance	24	105.66	19.92
All managers	115	110.29	14.77

TABLE 6

KAI totals for adaptor-oriented and innovator-oriented groups

ADAPTOR-ORIENTED	N	KAI	INNOVATOR-ORIENTED	N	KAI
Production	7	106.85	Financial accountants	13	120.15
General management/ administrative	8	103.4	Marketing	16	115.81
Technical engineers	5	95.00	General management/ Directive	21	113.76
Cost accountants	11	88.54	Management engineers	34	113.41
TOTALS	31	97.55 (SD 16.21)		84	115.00 (SD 11.03)

Difference between means (one-tailed): $t = 5.538$; $p < .0005$.

TABLE 7

Subscale means for adaptor-oriented and innovator-oriented groups

	N	O	SD	E	SD	R	SD
Adaptor-oriented	31	41.60	7.52	19.60	4.62	36.20	7.93
Innovator-oriented	84	48.20	5.28	22.60	5.23	44.10	5.57

Difference between means (one-tailed):

t =	4.495	2.979	5.102
p	<.0005	<.025	<.0005

TABLE 8

Comparison of KAI means for adaptive and innovative subgroups

ADAPTIVE SUBGROUPS			INNOVATIVE SUBGROUPS			t*	p
	N	KAI		N	KAI		
Cost accountants	11	88.54	Financial accountants	13	120.15	6.381	<.01
Technical engineers	5	95.00	Management engineers	34	113.41	2.261	<.05
General man./administrative	8	103.27	General man./directive	21	113.76	2.352	<.01
Production	7	106.85	Marketing	16	115.81	1.083	ns

*difference between means, one-tailed.

TABLE 9

Subscale means for adaptive and innovative subgroups

ADAPTIVE SUBGROUPS

INNOVATIVE SUBGROUPS

(a) Originality

	O mean		O mean	t*	p
Cost acc- ountants	38.60	Financial accountants	50.30	4.392	<.0005
Technical engineers	40.40	Management engineers	47.60	2.253	<.025
General managers administrative	43.80	General managers directive	47.70	1.685	ns
Production	45.10	Marketing	48.40	0.861	ns

(b) Efficiency

	E mean		E mean	t*	p
Cost acc- ountants	17.10	Financial accountants	25.30	4.522	<.0005
Technical engineers	19.40	Management engineers	22.60	1.918	<.05
General managers/ administrative	21.30	General managers directive	21.60	0.139	ns
Production	21.70	Marketing	21.50	0.097	ns

(Table 10 continued)

(c) Rule Conformity

	R mean		R mean	t*	p
Cost accountants	32.70	Financial accountants	44.30	4.050	<.0005
Technical engineers	35.20	Management engineers	43.10	1.738	<.05
General managers/ administrative	38.30	General managers directive	44.30	2.703	<.01
Production	40.00	Marketing	45.80	1.506	ns

*difference between means, one-tailed.

TABLE 10

Previous career change: KAI total and subscale means

	N	KAI	SD	O	SD	E	SD	R	SD
Change	16	118.56	9.74	48.80	4.63	24.70	4.07	45.00	4.74
No change	99	108.95	15.05	46.00	6.82	21.30	5.25	41.50	7.41

Difference between means (one-tailed):

t =	3.352	2.081	2.966	2.501
p	<.01	<.025	<.025	<.01