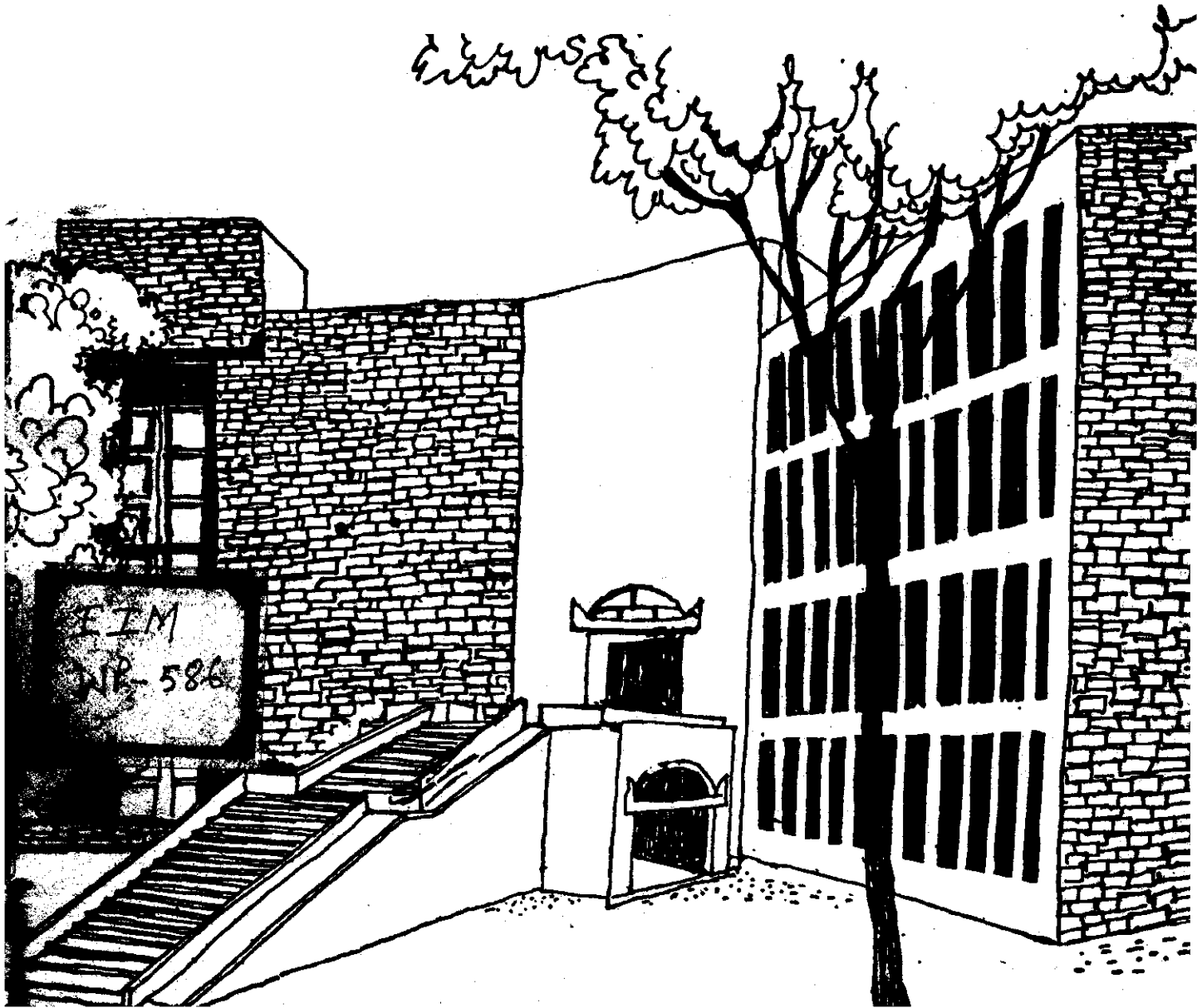


Working Paper



TALENT AND THE PIONEERING -
INNOVATING MOTIVE

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TALENT AND THE PIONEERING - INNOVATING MOTIVE

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Abstract

The paper argues that the **wish** to pioneer and innovate is essential if talented persons are to give their best to society. The paper reports the relationships between the pioneering - innovating and five other motives, namely, growth, effectiveness, conscientiousness, status, and safety, for a sample of 750 Indian professionals, and relationships between these motives and environmental characteristics, long term career choices, fluency, blockage, initiative, etc., for smaller samples of professionals. The paper also presents some intriguing data on the differences in correlations between the six motives under conditions of high and low conflict among motives. The paper concludes with a discussion of the implications of the findings for the nurturance of talent.

Motivation, Talent, and Development

A critical antecedent for the fuller development and manifestation of creative talent in our country may be motivation. Without a strong motivation, a talented person is unlikely to make the titanic effort needed to actualise his or her potential. Biographies of outstanding individuals (e.g. Untermeyer, 1955) as well as psychological research (McClelland, 1961; Vroom, 1964) indicate the centrality of motivation in human achievement. This may be especially true of poor societies, such as India, where facilities and opportunities for creative work may not be as abundant as in the West, the work ethic may be weak, and indeed, there may be social as well as economic obstructions to pioneering or innovative work. Thus, strong motivation is needed both to make the effort to develop one's potential and to overcome socio-economic hurdles in the way of pioneering or creative work.

But what kind of motivation may be particularly appropriate for the development and manifestation of creative talent? Many different motives seem to have led to innovative acts. Feelings of insecurity or deprivation, captured in the adage "necessity is the mother of inventions" may have led to major inventions, especially during war time and other periods of adversity. Sociological research suggests that desire for upward mobility, that is, higher status, leads "followers" and social groups to innovate in a limited

way, by adopting many aspects of the lifestyles of higher status social groups (Merton, 1957; Robertson, 1967; Rama Murthy and Hanumanthappa, 1979; Smelser and Lipset, 1966; Zaltman and Stiff, 1973). McClelland's research on entrepreneurship suggests that the need for achievement may be a significant predictor of entrepreneurial behaviour (McClelland, 1961, 1975). The need for originality may impel scientists to discovery (Busse and Mansfield, 1984). However, some of these motives may not be very durable predictors of creative behaviour, because they are extrinsic. Once situations of insecurity pass, the desire to innovate may decline. Similarly, once a group or an individual achieves the membership of its reference group, the desire to innovate may decline. McClelland's need for achievement is not extrinsic, but then the kind of entrepreneurial behaviour it predicts is not necessarily of the pioneering, innovative, Schumpeterian kind (Schumpeter, 1934). Busse and Mansfield's need for originality, too, may not be extrinsic, but it appears to be specific to scientific creativity. In the context of a developing society, in which creative talent in hundreds of different fields needs to be harnessed to spur socio-economic transformation, the identification and nurturance of an intrinsic, durable motive that can impel hundreds of thousands of talented individuals to actualise their potential by undertaking pioneering and innovative work in their respective areas of interest assumes strategic importance.

The paper reports some aspects of just such a motive. It has been labelled the pioneering-innovating (PI) motive (Khandwalla, 1985), since those with high levels of this motive may have an intrinsic, durable desire to innovate, pioneer, create, do something unique and distinctive. The data on the reliability and validity of this motive, its importance for 750 professionals and different groups of professionals, and its relationship with five other motives, has been reported earlier (Khandwalla, 1985). In this paper some interesting relationships of the PI and five other motives with one another under conditions of high and low conflict, the relationships of these motives with dimensions of a creativogenic environment (Arieti, 1976: ch.14; Khandwalla, 1984: ch.6), with divergent thinking ability, with some personality variables, etc., are reported, and their implications for socio-economic development are discussed.

Foundations of the PI Motive

Biographies of outstanding individuals (Rai, 1980; Untermyer, 1955) suggest that many of them have a strong need to pioneer, be it to be the first to reach the top of Everest or to found a new industry. Some of them have a great desire to innovate, that is, to change the status quo in an area or activity. Thus, pioneering Indian industrialists like Tata (Harris, 1959) and Walchand (Khanolkar, 1969) sought to found such industries as steel, shipping, air transportation, and construction engineering. Pioneering institution builders like Vikram Sarabhai (Ganesh and Joshi, 1983) sought to found a series of socially relevant institutions (Vikram Sarabhai launched dozens of institutions including Indian Institute of Management, Ahmedabad, Ahmedabad Textile Research Association (ATIRA), Physical Research Laboratory, Indian Space Application Centre, and Community Science Center). On the other hand, inventors like Edison (Untermyer, 1955), and J.C. Bose and Ramanujam (Nandy, 1980) may not have pioneered activities, but they made great discoveries or inventions. They seem to have a great need to discover or modify an existing paradigm. Common to both the pioneering and the innovative spirit is the thirst to venture into the underknown, and to initiate activities that change life. At the core of both pioneering and innovation, therefore, may be the spirit of creation.

The Operational Measure of PI and Five Other Motives

Different motives compete for the psychological and other resources of the individual. Motivation is not cost free. Thus, it was thought desirable to build certain costs into the instrument measuring PI and five other potentially competing motives. For this, first a number of situations were identified. For each situation the respondent was asked to allocate 30 points among six alternative responses to the situation. Each of the six alternatives tapped a different motive. The six included the PI motive. This way, a zero-sum conflict (Schelling, 1960) was created: a person could give more points to, say, the PI alternative only by reducing the points available for other motives. Five other motives, all of them significant in a developing country context were the competitors of the PI motive. The first was the growth or self-development motive, conceptually similar to the self-actualisation motive of Maslow (1954), which may be an important motive of professional elites, at least in India (Singh, 1979; Soares, Valecha, and Venkataraman, 1981; Maheshwari, 1983); the second was the effectiveness motive, similar conceptually to McClelland's achievement motive (1961) and White's competence motive (1959), another value that may characterise the modern work ethic in a traditional society. Two other motives that may represent the socio-historical heritage of a traditional and poor society, were the status and the safety motives. The last was the conscientiousness motive measuring concern for others, and the need to fulfill one's family and other obligations, which may

be partly a heritage of a social obligations oriented traditional society, but in part also represents the modern good citizen ethic. The costs of PI (as also of other motives) were further accentuated by building an approach-avoidance conflict (Lewin, 1948) in each of the six alternatives for a situation.

An example of a situation with six alternatives may clarify the procedure. The respondent is asked to allocate 30 points to the six alternatives a to f listed below (no ties allowed; a minimum of 1 point to be given to an alternative and a maximum of 15; decimals not permitted):

"I prefer a spouse who is:

- a. Quite original and gifted, even if somewhat moody and unpredictable.
- b. Very obliging and helpful, even to the point of being somewhat gullible.
- c. Strongly inclined to develop his/her talents, even if this means some neglect of family duties.
- d. Rich, even if somewhat plain.
- e. Highly achievement oriented, even if a bit aggressive.
- f. From a high status family, even if a bit snobbish."

The six alternatives above seek to measure respectively the PI, conscientiousness, growth, safety, effectiveness, and status motives. It may be observed that in each alternative, something desirable (gifted spouse, helpful spouse,

self-development oriented spouse, rich spouse, achievement oriented spouse, and a spouse from a high status family) is associated with something undesirable (moody spouse, gullible spouse, spouse who neglects family duties, a plain spouse, an aggressive spouse, and a snobbish spouse), thus creating an approach - avoidance conflict in the respondent. It was hoped that such a conflict may also minimise the social desirability problem.

This sort of a scale structure mimics a relatively harsh world in which people have to trade off between alternative goals, and positive as well as negative outcomes are likely no matter what the choice. This choice-as-stress model may be especially applicable in developing societies like India in which alternative (to traditional) life paths are opening up due to socio-economic development and modernisation, but in the context of limited resources, trade offs between alternative mixed outcomes are inescapable. Thus, the scale may be particularly useful in social environments in which choice is possible but costly. A copy of the instrument can be made available on request.

For measuring PI and the other motives, ten situations were used. These were (1) the respondent's priorities on a holiday; (2) main aim in life; (3) preferences in the work situation; (4) preferences in the home situation; (5) preferences for certain types of career; (6) attractiveness for

certain types of persons; (7) preferences for certain types of biographies; (8) the use of Rs.20000 received by the respondent among specified alternatives; (9) approaches to accomplishing a tough task; (10) ambitions for one's child (present or prospective). The respondent's scores for the ten situations for each motive were aggregated. These scores were transformed into percentages by multiplying by 100 and dividing by 300 (the total of the scores for the ten situations). Thus, the strength of a motive was its percentage score of the total points allocated for all motives. Since the respondents had to allot, for each situation, at least one point out of 30 but no more than 15 points, the minimum possible score for each motive was 3.33% and the maximum possible score was 50%.

As measured the PI motive was found to have adequate reliability (Cronbach's alpha as well as test-retest reliability) and validity (Khandwalla, 1985). Reliability (Cronbach's alpha) for the six motives ranged from .61 to .81. For validation, the PI scores of groups identified on a priori grounds as high on the PI motive were compared with the scores of groups believed to have low scores on a priori grounds. In each of three pairs of comparisons, the "high PI" groups significantly outscored the "low PI" groups. PI also had reasonable predictive validity. A group with a high PI score outscored a group with a relatively lower PI score on the uncommonness of aims and life goals and uncommon hobbies.

A significant finding for a sample of 750 Indian professionals was that the highest scoring motive was the effectiveness motive (similar conceptually to McClelland's achievement motive (McClelland, 1961) and White's competence motive (White, 1959), followed by the growth motive (similar to Maslow's self-actualisation need, Maslow, 1954), followed by the PI motive (Khandwalla, 1985). The weakest was the status motive. The finding suggests that Indian professionals may be modernising elites in an ascriptive society.

The Cost of PI

Table 1 (reproduced from Khandwala, 1985, Table 5) shows the inter-correlations of the 6 motives for the sample of 750 professionals. PI and growth are not only significantly correlated; both are significantly negatively correlated with the remaining four motives. Thus, both reinforce each other. But both are psychologically quite expensive, for they seemingly require the sacrifice (at the margin) of concern for safety, status, conscientiousness (i.e. social obligations), as well as "success". It should be emphasised that this is the perceived reality (in actuality the cost may or may not be so high). In Indian conditions, professionals seem to feel that they can pursue pioneering, innovating, and self-actualisation only by resisting the temptation to opt for economic safety, social legitimacy, social status, and approval that comes from demonstrating one's effectiveness in conventional tasks. Thus, in the eyes of professionals, pioneering, innovating, and self-actualisation may not be socially very legitimate activities. This, of course, makes sense in a society in which socialisation at home is in traditional safety, status, and social obligations-centered values, though Western education evokes a "modern" hankering for individualism, pioneering, etc. (Parikh, 1979). This schizoid socialisation may mean a sense of guilt if the choice is growth and pioneering, and a sense of frustration if the choice is conventional middle class living. The large negative correlation of $-.62$ between safety and PI is especially worrisome, for it indicates that PI-types of activities are seen as excessively risky in economic terms. More

PI-type activities may be forthcoming if the psychological costs of PI are decreased through educational reorientation or social engineering.

(Table 1 about here)

The PI Personality

What sort of a personality profile a PI person (that is, a person with a strong desire to pioneer and innovate) may have? Would he have high or low divergent thinking ability (Guilford and Merrifield, 1960), high or low psychological blockage (Davis, Danzig, and Nevis, 1970; Khandwalla, 1984 : ch.3)? Would he be fatalistic or a dynamic person of initiative?

For a group of 61 MBA students and 28 entrepreneurship trainers, data were available for fluency (a measure of divergent thinking) and psychological blockage (that is, various fears like fear of failure, fear of ambiguity, fear of social disapproval, etc., and disabilities like rigidity, resource myopia, starved sensibilities, etc. - see Khandwalla, 1984 : ch.3). For a sample of 50 entrepreneurship trainees, data were also available for personal initiative or dynamism, as measured by Entrepreneurship Orientation Inventory (Rao, 1985), in which respondents are asked to choose, in each situation, between two alternatives, one of which represents fatalism or external control of the situation, and the other, the possibility of change through one's own efforts (the higher the score the higher the initiative score). Table 2 shows the correlations of the six motives with fluency, blockage, and internality or initiative.

(Table 2 about here)

The data indicate that PI and fluency and growth and ~~of~~ fluency may be positively related, while safety and fluency and status and fluency may be negatively related. If we can think of PI and growth as "development" spurring motives and status and safety as "status quo" spurring motives, it would appear that divergent thinking ability spurs a developmental orientation and depresses a status quo orientation. Conversely, a developmental orientation strengthens the capacity for divergent thinking and a status quo orientation weakens it. Since brainstorming, a well-known technique for *increasing divergent thinking (Osborn, 1953) is easy to learn and practice*, if employed widely it may also stimulate the desire for pioneering, growth, and innovation.

The data indicate that PI and blockage are negatively related and safety and blockage are positively related. Thus, training programmes aimed at "deblocking" persons may strengthen the PI motive and weaken the safety motive, thereby increasing the energy available for development - aiding activities. A number of such programmes are available, such as sensitivity training (Siroka, Siroka, and Schloss, 1971), Est, and creativity training (Khandwala, 1984 : Appendix). The data also indicate that PI is significantly positively related with, and the status motive is significantly negatively related with, initiative and dynamism.

The three sets of correlations with the motives suggest that PI persons tend to be dynamic and good divergent thinkers.

while safety and status oriented persons tend to be fatalistic, fearful, and poor at divergent thinking. Thus, programs aimed at increasing the capacity for divergent thinking, unblocking persons, and strengthening their initiative and general drive level should re-inforce their pioneering and innovating orientation. Creativity training programs appear to give good results vis-a-vis unblocking, strengthening divergent thinking ability, strengthening PI motivation, etc. (Parnes and Noller, 1973; Khandwalla, 1984).

PI's Nurturance

For social engineering purposes, as well as for more limited, organization-specific needs, it is useful to know the kind of environment that can nurture a desired motive. Table 3 shows the correlations of the six motives with ten dimensions of the person's perceived environment that global research (summarised in Khandwalla, 1984 : ch.6) suggests constitutes a "creativogenic environment" (Arieti, 1976), that is, an environment that stimulates creative behaviour and divergent production. The measure of each dimension was an aggregate of the person's rating of his recollected childhood, recollected school, and current social environment. The data are for a sample of 160 professionals, including managers, MBA students, and scientists.

(Table 3 about here)

The data indicate that a creativogenic environment may stimulate the PI, and to a lesser extent, the growth motives, depress the safety motive, and essentially not affect the effectiveness, conscientiousness, and status motives. In terms of pioneering, innovation, growth, etc., a creativogenic environment offers a double advantage : it accentuates their importance and decreases their principal psychological cost (safety). Conversely, and this is equally significant, a non-creativogenic environment dampens pioneering, growth,

etc., and raises security consciousness. To the extent that the nation's schools, homes, work organizations, etc., have low levels of a creativogenic environment, the social cost, in terms of producing sheep, becomes clearer.

Five features of the creativogenic environment seem to have strategic value from a social engineering viewpoint, since all five are significantly correlated with PI, growth, and safety. These are, a stimulating environment with exciting tasks and interactions; an environment that rewards creative initiatives; a pluralistic environment with a diversity of opinions; one which accords high status to pioneers and creators; and one which provides reasonable facilities and resources to pursue "wild" ideas. These dimensions are eminently engineerable in a democratic society with a developmental focus and access to modern telecommunications technology for classroom, home, and organizational use.

Motivation and Conflict

Human motivation under conditions of high and low conflict has rarely been studied. But it may be worth studying for both theoretical and practical reasons. In a benign world, where wishes suffice, and careful trade offs between alternatives do not have to be made, people may reveal a different motivational pattern than when they must make hard choices between alternatives. The situations correspond broadly to conditions of munificence versus conditions of scarcity. In resource and opportunity poor conditions, prevailing among the poor of the developed world and the teeming millions of the developing world, trade off models of motivation, values, goals, needs, behaviour, etc., are likely to be more relevant than low conflict models of motivation, behaviour, etc. In the developing world, especially in India, models of motivation developed in the opulent West are currently in vogue, especially the need hierarchy model of Maslow (Maslow, 1954), the valence model of Vroom (1964), and McClelland's model of motivation (McClelland, 1961). None of these explicitly builds in conflict between motives or behavioural outcomes. For instance, in Maslow's need hierarchy model, the question of conflict between needs is finessed by the assumption that affiliative and ego needs do not become salient until the physiological needs are satisfied, and the actualisation needs do not become salient until the affiliative and ego needs get satisfied. But what if socio-economic conditions activate both security, affiliative, and ego needs and actualisation needs, as in .

cultures such as India's where poverty and deprivation are widespread but modern education, nationalism, democracy, economic development, and Westernisation powerfully stimulate ego and personal growth needs?

In terms of a model of motivation, we may expect that for groups operating under scarcity conditions, that is, where conflicts among alternative goals, etc., are acute, correlations among motives or needs may (a) be larger, and (b) more often negative, than for groups operating under munificent conditions in which trade offs need not be made so clearly. To test this expectation, Table 4 shows correlations among the six motives for a group of 28 MBA students for two conditions. In the first condition, the motives were measured as indicated in this paper, namely, by allocating, for each of ten situations, a fixed number of points for six alternatives (each seeking to measure one of the six motives). Thus, the measurement was under a situation of zero-sum conflict. In the second condition, the respondents rated each alternative on a 4-point Likert scale, with 1 = strongly disagree, and 4 = strongly agree. Here, whatever conflict the respondent perceived between the six alternatives was minimal, since he or she had the freedom to rate all the alternatives 4.

(Table 4 about here)

The table shows some dramatic differences in correlations. Signs match in only seven out of 15 pairs of correlations. The

number of pairs in which the correlations are statistically different (at the 5% level, 2 tails) are seven. Although for both groups, ten correlations are negative, the number of statistically significant negative correlations are 8 for the high conflict group versus 2 for the low conflict group. Disregarding signs, the average inter-correlation for the high conflict group is .35; for the low conflict group, only .20.

More important, perhaps, is the difference in the pattern of relationship of the six motives. Both PI and growth are rather strongly negatively correlated with the remaining four motives in the high conflict situation, but positively (though not statistically significantly) correlated with one another. This is clearly not so for the low conflict group, in which there is a weak negative correlation between PI and growth, a modest positive correlation (not significant) between PI and conscientiousness and growth and conscientiousness, and a positive (but not significant) correlation between PI and effectiveness. The data suggest that under high conflict ("scarcity") situations, individuals tend to see conventional achievement, fulfilling duties (conscientiousness), and safety as the major costs of pioneering, innovating, and self-actualisation. Under conditions of "munificence", those who wish to pioneer or self-actualise, see little conflict with being efficient or dutiful. Clearly, in societies or groups where scarcity or zero-sum conflict conditions commonly prevail, pioneering, innovative, or personal growth oriented

behaviour will be seen as highly risky, because of the perceived sacrifices it entails in terms of security, "success", social approval, status, etc. The implication is that if pioneering, innovating, self-actualisation, etc., are desirable in that society or group, either perceptions of costs must be changed and/or the persons must be helped to acquire skills (resourcefulness, creativity, etc.) so that despite general scarcity they can satisfy their multiple needs.

Notice also the preponderance of positive correlations among effectiveness, status, and safety in the high conflict situation and the preponderance of negative correlations among these three in the low conflict situation. The data suggest that, by and large, in scarcity situations efficiency may be seen as contributing to prestige and security, and its absence may be seen as jeopardising prestige and security. In munificent situations this causal linkage may not be perceived.

Thus, people in scarcity, high conflict situations may play one of two distinctive strategies: seek to pioneer, innovate, and actualise one's potential, but at a high psychological cost in terms of social approval, safety, status, etc.; and seek safety, status, etc., through efficiency but at the cost of the excitement of creation and personal growth.

Table 5 shows the correlation of each motive with itself under the high and low conflict situations. The highest two correlations are for PI and growth (.64 and .62); the lowest

three, all below .4, are for effectiveness (.28), status (.38), and conscientiousness (.39). The data suggest that the PI and the growth motives substantially survive scarcity and conflict; concerns for efficiency, status, and fulfillment of duties, may not. Thus, PI and growth may be more "intrinsic" motives than effectiveness, status, or conscientiousness.

(Table 5 about here)

The Consequences of PI

What kind of choices and behaviours may we expect from PI persons? Some 160 professionals were asked to rank order seven alternative long term careers for themselves. These alternatives are described in Table 6, along with the correlations of their ranks with the six motives. A positive correlation implies a negative relationship between motive strength and the importance of the career choice to the person, while a negative correlation indicates a positive relationship.

(Table 6 about here)

The data indicate that the PI person tends to aim for employment or association with a pioneering organization, and tends to avoid associating with merely prestigious or job security-centered organizations. This is true, to some extent, also for the self-actualising type. Conversely, the safety-first type tends to avoid pioneering organizations and opts for bureaucratic organizations that offer much job security. This may well produce an interesting reinforcement cycle. Missionary, pioneering organizations may attract the PI and personal growth types, who in turn may strengthen the missionary and pioneering culture of the organization. On the other hand, bureaucracies may attract the safety-first types who in turn may make the organization even more bureaucratic. There may be interesting implications for those organs of the government that are involved in developmental activities, one being

that there may be striking differences in the developmental orientation within governmental developmental agencies, and that much of this difference may be accountable by the kinds of leaders these agencies have had.

The correlations of effectiveness make interesting reading. They suggest that the conventional high achieving type seeks a career in a meritocratic organization but avoids it in a missionary or pioneering organization. Achievement motivation training of the McClelland (1961, 1975) variety may, therefore, inadvertently dampen pioneering activity.

Discussion

In the context of a developing society, in which innovation and change in various aspects of national life are essential for socio-economic transformation, it would be useful to identify, measure, and strengthen the pioneering-innovating (PI) motive. The identification, operational measure, reliability, validity, incidence among various groups of professionals, and relationship with five other motives of particular relevance to a developing society have been reported earlier (Khandwala, 1985). In this paper, the psychological cost of PI, the correlations with initiative, blockage, divergent thinking, dimensions of a creativity - fostering environment, and ranks of long term career choices, and the inter-correlations of the six motives under conditions of zero-sum conflict (scarcity conditions) and of low conflict are presented. The major findings and conclusions are:

1. For Indian professionals, at least, PI and growth motives are psychologically costly. Unless the perceived costs of pioneering, innovation, or self-actualisation are decreased by appropriate training, propaganda, or other social action, little PI or growth behaviour would be forthcoming, even among talented professionals.
2. The high PI individual may not only be dynamic (high initiative, low psychological blockage from fears and disabilities), but also be a good divergent thinker,

compared to the low PI person. He may also prefer to work in pioneering (even if vulnerable) organizations. Thus, the high PI person may be especially well suited to playing pioneering, entrepreneurial roles, not only in commercial, but also scientific, social, and cultural or other non-commercial activities.

3. Professionals, including talented professionals, in a developing country context of limited options, may be expected to pursue one of two alternative strategies : seek to pioneer, innovate, or otherwise actualise their potential, but at a high psychological cost; or by being efficient and successful in conventional tasks, seek safety, social status, etc., but at the cost of the excitement of creation, pioneering, or personal growth. The first strategy is likely to be more common for professionals from "modern", relatively well-to-do family backgrounds; the second more common for professionals from "traditional", less well-to-do backgrounds. Since in India professionals from traditional family backgrounds are likely to be far more numerous than those from "modern" backgrounds, there may be a serious national shortage of innovative and pioneering behaviour. Social action may, therefore, be necessary to increase the supply of this behaviour. This, however, may not be easy, since PI and growth may be more intrinsic, difficult to modify, than the other four motives. Even so, social attempts to increase the PI and growth motives and decrease their perceived costs may bear fruit.

What can be done to strengthen PI, especially in talented persons? Much has been made of identifying talent early (Dehann and Havinghurst, 1961; Gallagher, 1979; Taylor, 1978; Raina, 1985). But for the same reasons it is equally important to identify PI motivation early through measurement (in schools, colleges, etc.). It would be useful to concentrate attention on neither the really low PI persons (who may be very resistant to change) or the really high PI persons (who will probably do pioneering work regardless of circumstances), but on the moderate PI persons, who otherwise, over time, would very likely degenerate to the low PI condition. If properly nurtured, this numerous fraternity may well yield a large number of at least modest pioneers and innovators, so useful in the task of nation building. A particularly important group would be talented persons with a moderately strong PI motive. If this group is nurtured, it could well yield rich social dividends.

Since a creativogenic environment seems to strengthen the PI (and growth) motive, and decrease its psychological cost (safety motive), it would be particularly useful to create, in formal as well as non-formal learning environments, as well as in work environments, creativogenic conditions : stimulating tasks and interactions; reward or encouragement for creative effort; exposure to multiple perspectives (diversity of views); spot light on pioneers, innovators, and creators; and

facilities and resources for pursuing novel ideas. The point is not to reach in one leap some "ideal" environment; the point is movement towards a creativogenic environment. Non-formal education (TV and radio-based programs, shibirs, video material, cassettes, etc.) offers especially promising avenues for moving towards a creativogenic environment for students. Also, text-books can be rewritten to highlight discovery, innovation, pioneering, self-actualisation, and creativity. Much can be made to improve employment opportunities for PI persons such as by decreasing the obstacles to a pioneering kind of entrepreneurship (easier finance and infrastructural facilities, less controls, more information, more tax incentives and subsidies, more initial support); by putting PI-types of leaders as heads of various public sector enterprises and governmental agencies so that they recruit PI-types for lower level jobs. Finally, much more can be done by the government and by social institutions to raise the social status of PI activities - e.g. many more awards than now for pioneering or innovative work could be offered.

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TABLE 1

PRODUCT MOMENT CORRELATIONS OF PI MOTIVE WITH FIVE
OTHER MOTIVES

N = 750 Professionals

	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>
1. PI motive	.31*	-.34*	-.37*	-.28*	-.62*
2. Growth motive		-.27*	-.42*	-.34*	-.45*
3. Effectiveness motive			-.11	-.08	-.04
4. Conscientious- ness motive				-.24	.09
5. Status motive					.23
6. Security motive					

* Significant at $P \leq .01$ (2 tails)

(Reproduced from Khandwalla, 1985, Table 5).

TABLE 2

CORRELATIONS OF SIX MOTIVES WITH FLUENCY, BLOCKAGE, AND
INITIATIVE

Samples: (1) N = 61 MBA students
(2) N = 28 Entrepreneurship trainers
(3) N = 50 Entrepreneurship trainees

<u>Motives</u>		<u>Fluency</u>	<u>Correlations with</u>	
			<u>B lockage</u>	<u>Initiative (EOI)</u>
<u>PI motive</u>	: MBA students	.12	-.27*	
	: Entrepreneurship trainers	.40*	-.36	
	: Entrepreneurship trainees	.20	-.12	.28*
<u>Growth motive</u>	: MBA students	.15	-.36**	
	: Entrepreneurship trainers	.51**	-.11	
	: Entrepreneurship trainees	.18	.06	.13
<u>Effectiveness motive</u>	: MBA students	-.04	.20	
	: Entrepreneurship trainers	.42*	-.21	
	: Entrepreneurship trainees	-.05	.09	.01
<u>Conscientiousness motive</u>	: MBA students	-.18	.32**	
	: Entrepreneurship trainers	-.23	-.13	
	: Entrepreneurship trainees	-.09	.07	.22
<u>Status motive</u>	: MBA students	-.12	.13	
	: Entrepreneurship trainers	-.52**	.40*	
	: Entrepreneurship trainees	-.05	-.16	-.44**
<u>Safety motive</u>	: MBA students	-.01	.17	
	: Entrepreneurship trainers	-.52**	.42*	
	: Entrepreneurship trainees	-.18	.10	-.20

** P ≤ .01 (2 tails)

* P ≤ .05 (2 tails)

TABLE 3

PRODUCT MOMENT CORRELATIONS OF CREATIVITY SUPPORTIVE DIMENSIONS OF ENVIRONMENT WITH SIX MOTIVES

N = 160 Professionals

<u>Environmental Dimensions</u>	<u>Correlations With:</u>					
	<u>PI</u>	<u>Growth</u>	<u>Effectiveness</u>	<u>Conscientiousness</u>	<u>Status</u>	<u>Safety</u>
Stimulating tasks and interactions	.35**	.27**	-.22*	-.13	-.15	-.32**
Reward and encouragement to creativity	.30**	.18	-.09	-.14	-.13	-.27**
Patient hearing to innovative ideas	.19*	.07	-.12	-.01	-.08	-.16
Availability of constructive feedback on innovative efforts from knowledgeable persons	.25**	.09	-.13	.00	-.08	-.26**
Opportunity to learn from innovative instructors	.20*	.15	-.12	-.14	.10	-.26**
Diversity of opinions	.23*	.22*	-.07	-.14	-.03	-.32**
Freedom of action coupled with intolerance of shabby work	.17	.09	-.10	-.03	-.04	-.17
Respect for pioneers, innovators, and creators	.24*	.20*	-.15	-.09	.01	-.34**
Reasonable physical and financial facilities to pursue "wild" ideas	.22*	.24*	-.16	-.17	-.02	-.22*
Commitment of boss figures to creativity and innovation	.21*	.06	.02	-.06	-.06	-.26**

** P ≤ .01 (two tails)

* P ≤ .05 (two tails)

TABLE 4

INTER-CORRELATIONS OF SIX MOTIVES : "HIGH" VERSUS
"LOW" CONFLICT SITUATIONS

N = 28 MBA Students

	2	3	4	5	6
Pioneering- innovating motive	.23 -.13	-.50** .31	-.26 .18	-.41* -.22	-.66** -.29
Growth		-.41* -.01	-.55** .20	-.46* -.20	-.45* -.40*
3. Effectiveness			-.14 .13	.45* .16	.21 -.26
4. Conscientiousness				-.14 -.08	.23 -.47*
5. Status					.31 -.06
6. Safety					

Note: The upper numbers are correlations under the high conflict situation; the lower, under the low conflict situation.

** P \leq .01 (2 tails)

* P \leq .05 (2 tails)

TABLE 5

PRODUCT MOMENT CORRELATIONS OF EACH LOW CONFLICT
MOTIVE WITH HIGH CONFLICT MOTIVE

N = 28 MBA Students

	<u>Correlation with Same</u> <u>"High Conflict" Motive</u>
"Low Conflict" PI Motive	.64
"Low Conflict" Growth Motive	.62
"Low Conflict" Effectiveness Motive	.28
"Low Conflict" Conscientiousness Motive	.39
"Low Conflict" Status Motive	.38
"Low Conflict" Safety Motive	.46

PRODUCT MOMENT CORRELATIONS OF SIX MOTIVES WITH RANKINGS OF LONG TERM CAREER CHOICES

N = 160 Professionals

<u>Long term career choices</u>	<u>PI</u>	<u>Growth</u>	<u>Effect- iveness</u>	<u>Conscien- tiousness</u>	<u>Status</u>	<u>Safety</u>
1. A career in a highly results-oriented organization where one's rise depends entirely on one's competence, and incompetence or failure to achieve results can result in one being fired	.15	.21*	-.27	.04	-.13	-.14
2. A career in an organization that offers job security and reasonably high earnings and perks, though growth prospects may be modest	.28**	.25**	-.14	-.17	.08	-.42**
3. A career in an organization that enjoys very high prestige, though the work involved may not be all that interesting	.19*	.14	-.19*	.04	-.09	-.23*
4. A career in an organization that performs some very important socially relevant function in society, even though the pay etc. are modest	-.07	.05	.18	-.36**	.09	.21*
5. A career in an organization that offers tremendous challenges and scope for actualising one's potentialities and learning of skills, but there is no glamour attached to it	-.06	-.12	-.04	-.05	.21*	.15
6. A career in a pioneering organization that is committed to remaining one of a kind, so unique are its products or mission, even if there is uncertainty about its long term viability	-.43**	-.26**	.37**	.22*	.03	.29**
7. A career as an entrepreneur	-.10	-.19*	.09	.10	-.04	.21*

Note: A negative correlation implies a positive relationship between motive and importance of career to respondent. A positive correlation implies negative relationship.

** $r \leq .01$ (2 tails) * $P \leq .05$ (2 tails).