A Comparative Study of Creativity in Entrepreneurship amongst Technical and Management Students

Nishith Dubey, R G Chouksey and Abhilash Thakur

Abstract—Creativity is accepted as an important input of entrepreneurship and academicians are re-carving their curriculum to generate more and more creativity amongst students. In this research personality test has been applied, open-ended interviews were conducted to explore creativity between two groups of master’s students one from a management institute and other from a technical institute. The findings of open-ended interviews explores that both groups have high creativity, but the students of technical institute have the ability to convert and channel creativity into practical outcomes. The students from management institute were more concerned to use creativity for their behavioural processes. The findings have been utilised to develop good platform for entrepreneurship education and development.

Keywords— Creativity, entrepreneurship, technical, management.

I. INTRODUCTION

Creativity is the driving force of an entrepreneur leading to the success of enterprise. It provides a potential of evolving alternate solutions to different problems and usually generate a management preposition to an entrepreneur. On an ongoing basis creativity helps in delivering new value prepositions to marketing channels and customers. An entrepreneur by virtue of his creative skills can think beyond the existing limits of an issue, and his entrepreneurial skills provide the perseverance and willingness to take intellectual risks to offer something new. The out of box thinking ability helps an entrepreneur in identifying issues of startup venture like an entrepreneur impulsively identifies opportunities which are unique for creating differentiation. Be it product selection, process selection, resourcing, advertising, marketing, pricing, distribution, promotion, customer service creativity is utilized everywhere by an entrepreneur. Therefore it is essential that entrepreneurship students should posses creativity skills enabling them in pursuit of their career.

II. REVIEW OF LITERATURE

There have been numerous researches on creativity; few related ones are referred below. Creativity is a very indistinct concept that tends to give different meanings depending on the situation, practice or subject to which it is referred (Runco, 2004). This diversity becomes prominent when it is referred to enterprise and entrepreneurship. Some of the experts emphasise on the economic function personified in the creative actions of courageous entrepreneurs, but management oriented experts often treat creativity in a manner, that emphasising the creative behaviours and thought styles facilitating opportunity search, management model development, social networking, etc. (Drucker, 1985).

While educating entrepreneurship, an additional concern about entrepreneurial demands for creativity, novelty and synthesis often clash with the traditional academic focus. This concern is increased and becomes clearer as the researchers likely to distinguish between small firm management and entrepreneurship through concepts such as materialization, evolution and variation (Gartner, 1993). This concern, also excel the academic conversation, as poor pedagogy and path content risks become more harmful than a good and prospective entrepreneur (Gibb, 1996). Preliminary psychometric creativity testing indicated the greater differences between the students with different subjects and backgrounds, than between entrepreneurship students and non-entrepreneurship students (Wennberg et al., 2004). This indicates toward the need of more detailed analysis of creativity in reference to entrepreneurship education.

Combination of established personality tests and open-ended interviews are performed to explore the creativity in two different academic programmes. Such a broad investigation may assist academicians who are trying to encourage the creativity. Some tentative inferences may be drawn, such as, the divergence of creative styles including different ‘lay theories’ of creativity, points to the problems of a ‘one-size-fits-all’ approach to entrepreneurship education and the need to be sensitive to individual differences (cf. Hytti and Kuopusjärvi, 2004). The main objective of present study is to conduct a broad and exploratory description of creativity among the entrepreneurship students of different discipline.

Entrepreneurship has been recognised as essential quality...
for growth, innovation and job creations. Therefore policy makers are highly interested in the ways of enhancing entrepreneurship in different ways viz, through entrepreneurship education. Many universities offer entrepreneurship courses and programmes, in the third world countries (Vesper and Gartner. 1997) and in developed countries (Garavan). One of the reasons for this increase is the structure and teaching style of traditional management education spoiling the entrepreneurship quality (Gibb, 1996).

More explicitly, traditional management education tends to focus on distribution of information and training of analytical abilities, but the essential skills for entrepreneurs are less about information distribution, processing and analysis and more about creativity and actions (Gibb, 1996).

Creativity is a highly diverse concept that has been studied basically in disciplines such as arts, economics, science and technology (Runco, 2004). While precisely it differs between disciplines, creativity is usually defined as amalgamation of innovation and aptness that associated with problem-solving and originality cohort along with reactive and adaptive behaviour that allow the people to cope-up with turbulent working environments. Even if we consider the most common psychological perspectives, creativity become very strenw and multidisciplinary. One common way of structuring creativity is to divide it into person, process and product (Rhodes, 1987), where the approach includes research on personal characteristics and traits; process research is more behavioural and involves creative thinking and techniques; research on creative products assumes that products can be investigated through measures of their quality and quantity and press refers to factors within and especially outside individuals which affect the creativity. Many researchers emphasise the importance of relevant social systems in both defining and shaping creativity. Combining sociological and psychological perspectives on creativity, Ford (1996) suggested that intentional action and social situations constitute an evolutionary framework where an individual’s creative and routine actions are selected or rejected by social constituencies forming an evolutionary process that guides individual creative action.

Innovative management behaviour has long been associated with creativity and the two are often used interchangeably. In the management context creative novelty and appropriateness is often translated into idea development (Ward, 2004), new product innovations and adapting or improving existing innovations). Methodologically, creativity in entrepreneurship and innovation has been explained through cognitive processes, attitudes, motivation, existing knowledge, work environment and personality traits. Both parts in tandem are however seen as vital to the overall process of creative entrepreneurship. In a similar vein, Walton (2003) speculates that during early phases, entrepreneurs’ creative goals may be highly private, only to become more geared towards organisational benefits as an organisation is established and developed.

III. METHODOLOGY

Measuring creativity - There are many ways to assess creativity. These include experiments (Ward, 2004), assessment of creative tasks based on observations (Amabile, 1996) and various types of psychometric tests. While psychometric tests are perhaps the most established way of creativity assessment, they have been criticised due to inappropriate way of capturing domain-specific qualities or that the artificial nature of the test situation does not reflect the natural creativity or real life. In an evaluation of creativity test methods, found that personality and behavioural tests generally had the most valid results but recommended a mixed methods’ approach. Thus, while psychometric tests are regarded as somewhat blunt instruments for measuring creativity they are still useful as indicators of general creative potential and may be useful in combination with more specific instruments. Most creativity researchers advocate a mixed approach when investigating creativity, for instance combining personality tests with examinations of previous creative output. In this investigation, the personality test, 16 personality factors (16PF) (Russel et al., 1997), was therefore complemented with semi-structured interviews, where students described creative experiences (cf. Hocevar and Bachelor, 1989).

Sampling - As mentioned the present study is an effort to develop understanding about the promotion of creativity in entrepreneurship education. In this study, a psychometric analysis of different disciplines of educational programmes showed that the educational background is a dominating indicator of creativity. To go beyond indicators of general creativity, we have chosen the two programmes for further study based on the different specialisation one technical education, and other management they are the most popular educational programmes in Indian sub continent. Specifically, the sample consists of two groups of students: 48 from a management institute and 48 from a technical institute. These samples of 48 students are converted in to the 16 clusters for both the sets of students to generalise the interpretations. Samples were chosen from eight technical and eight management institutes of western Madhay Pradesh.

Test - Students were therefore instructed that there were no correct answers and they were urged to be honest. Also, it was stressed that findings would only be used for research purposes, presented on a group level and that no one outside the research group would be allowed to handle results. Random interviews confirmed that the students did find the test interesting and meaningful. After three months, the students were individually interviewed for about 30 min in their institute offices. The gap in time between tests and interview minimised the risk that students would remember certain questions and answers from the 16PF tests in the interview session. The interviews were semi-structured and students were asked to freely recall and describe, with as much detail as possible, different episodes of their own choosing where they had felt creative. Focus was on concrete
examples since asking for general descriptions tends to yield socially desirable answers or reiterations of popular concepts (Edwards, 1990).

Interview analysis - The interviews were transcribed and then read jointly by two of the researchers to get a feel for what was said. After this, the transcripts were read again with an eye to identify common categories, which captured the essential dimensions of what the respondents had said. This process produced six categories, which were found to capture creativity as expressed by the interviewees (see Table 1). This process took no notice of the group to which interviewees belonged. Cross tabulations indicated that the categories were quite independent, with only one category (Origin of Creativity) relating somewhat to three other categories.

### IV. RESULTS

Results from 16PF - Earlier investigations of the 16PF test have found that the five factors ‘Openness to change’, ‘Dominance’, ‘Social boldness’, ‘Perfectionism’ and ‘Abstractedness’ strongly correlate with other measures of creativity (Rieke et al., 1994). This was partly reflected in the findings as the average scores for both student groups were highest for the factors ‘Openness to change’, ‘Social boldness’ and ‘Dominance’. Among the technical students, these three categories were the highest. whereas the Management students scored somewhat lower on Abstractedness (see Figure 1). A- Warmth, B-Emotional Stability, C- Dominance, D- Liveliness, E- Rule Consciousness, F- Social Boldness, G- Sensitivity, H- Vigilance, I- Abstractedness, J- Privateness, K- Apprehension, L- Openness to Change, M- Self Reliance, N-Perfectionism, O- Tension, P- Reasoning.

According to the 16PF manual (Russel et al., 1997), people scoring high on Openness to change tend to think of ways to improve things and they enjoy experimenting with the status quo. If things are unsatisfactory or dull, they seek change. These people find individuals with differing viewpoints exciting and interesting. People scoring high on Social boldness are adventurous in social groups and show little fear of social situations. They are not shy to initiate social contacts and may have a need to self-exhibitionism. They seem to fit in with most social situations. They are not shy to initiate social contacts, and maintain their privacy at the expense of their emotional life. They recover from upset easily and usually feel satisfied with their day’s accomplishments.

The lowest scores were found on the factors ‘Rule consciousnesses’, ‘Apprehension’ and ‘Perfectionism’. This is a bit surprising as Rieke et al. (1994) found Perfectionism to be associated with creativity. Again the 16PF manual (Russel et al., 1997) states that Liveliness measures exuberance and the natural self-expression exhibited by children before they learn self-control. People scoring high on Liveliness are enthusiastic, spontaneous and seek attention. They are drawn to stimulating social situations. Emotional stability measures feelings about coping up with day-to-day life and its challenges. People scoring high on Emotional stability feel more in control of their life and surroundings. They take a proactive approach in dealing with strains of daily life and are good at managing their emotional life. They recover from upset easily and usually feel satisfied with their day’s accomplishments.

These factors have not previously been associated with creativity in 16PF, but the traits are not difficult to relate to creativity. Again the 16PF manual (Russel et al., 1997) states that Liveliness measures exuberance and the natural self-expression exhibited by children before they learn self-control. People scoring high on Liveliness are enthusiastic, spontaneous and seek attention. They are drawn to stimulating social situations. Emotional stability measures feelings about coping up with day-to-day life and its challenges. People scoring high on Emotional stability feel more in control of their life and surroundings. They take a proactive approach in dealing with strains of daily life and are good at managing their emotional life. They recover from upset easily and usually feel satisfied with their day’s accomplishments.

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They may be perceived as lackadaisical, unorganized, or unprepared and they may not be able to muster a clear motivation for behaving in planning or organized ways, especially if these behaviours are unimportant to them. The only factor where the two groups differ significantly is Privateness, where the management students scored considerably lower than the technical students. People with high scores on privateness tend to ‘put all the cards on the table’ and talk about themselves readily and openly (Russel et al., 1997). They are genuine, self-revealing and forthright. Extreme scorers may get into trouble by putting too much on the line about themselves when it is not be in their best interests. People with low scores are non-disclosing and private about themselves. They are hesitant to new social contacts, and maintain their privacy at the expense of establishing and maintaining quality relationships. People find

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them hard to get close to.

Interview analysis - Analysis of interview protocols resulted into six general creativity categories that described: 1) Source of a creativity as insight or the result of a process, 2) Which aspect of the creative process was emphasized, generation of idea or implementation of idea, 3) whether the preferred mode of idea enactment was restricted to paper work extended into practice, 4) if the respondent saw him/herself as the source of creative ideas or the group, 5) whether ideas were incremental developments or radically different from the context in which they emerged, and 6) the driving force as personal involvement or more external rewards. These six categories are summarized in Table 1 and also elaborated briefly using illustrating quotes.

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<th>CREATIVITY CATEGORIES FROM INTERVIEWS</th>
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<td>1) Source of creativity</td>
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<td>2) Focus in the creative process</td>
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<td>3) Enactment of creative processes</td>
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<td>4) Locus of creativity</td>
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<td>5) Type of creative outcomes</td>
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<td>6) Driving force</td>
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V. DISCUSSIONS

Results depict that technical and management students as well scored high on three factors of creativity. It conforms with previous findings which suggests ‘while distinguishing little about domain-specific or subject specific creativity practices and thought styles, this result indicates a high potential for creativity, which may be channeled in different ways’ (Cropley, 2000). One of the creativity factor is ‘perfectionism’ and both the groups scored low in this factor. This finding suggests a potential for modifying curriculum and adopting such teaching practices which will enhance ‘perfectionism’ amongst students. If we look at differences between the two groups, the management students tended to score somewhat higher on Perfectionism and in Abstractedness, two of the factors associated with creativity, whereas technical students were higher on Openness to change, Social boldness and Dominance. None of these differences are however statistically significant. The results also show that the two groups of entrepreneurship students were remarkably similar in their general personality profiles. Many results such as ‘Rule consciousness’, ‘Warmth’, ‘Emotional stability’ and ‘Sensitivity’ were almost identical for both groups, something which points to a certain consistency within the whole cohort of entrepreneurship students. One should note that this similarity concerns average scores and that there is considerable variation between individual students. This is in line with overwhelming evidence from previous personality-oriented research on entrepreneurs, where entrepreneurs have been found to be a very disparate group (e.g. Gartner, 1988).

The results of the interview indicated a similar and generally high creative potential in both technical and management groups. These results contained considerable internal variation. This variation was echoed in the interviews, where the high creative potential was structured six generic categories. Results suggested that the different styles were more or less salient in different individuals. These categories or creativity dimensions also make it possible to discuss differences between technical and management students. However, by reexaming the student’s stories along with the creativity categories in Table 1, a pattern begins to emerge. The technical students believed in action and practical work in case of ideas or actual products. Management students preferred thinking and reflecting in their creative processes. Technical students used creativity for problem solving, identifying defects and making incremental but often important improvements. The management students usually had a clear focus on marketing context, and were creative in implanting radical ideas.

VI. CONCLUSIONS

Students of both the streams posses high creativity scores claiming enhanced potential. On further elaboration through interviews technical students emphasized incremental development and problem solving skills, while management students tended to focus on the new radical changes and generally were more market-oriented in their creative styles. Based on the results and findings it can be suggested that technical entrepreneurship education should include more market orientation. Also systems approach be included in the curriculum so that they are able to see the system in totality. technical knowledge should also be blended with commercial knowledge enabling the students for the realities of entrepreneurial life.

Another finding, which received a lot of support in the literature, is that entrepreneurs are a very heterogeneous group (Gartner, 1988) it is recommended that this fact should be reflected in the pedagogy. Flexible educational structures, which can cater to both group and individual needs, should improve heterogeneity. technical students and managements students had similar personality structures. This stands in contrast to the overwhelming evidence that entrepreneurs are not a homogeneous group with respect to personality (Gartner, 1988). Perhaps this is due to self-selection of individuals who for some reason want to study entrepreneurship.

REFERENCES


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