

Dimensions of Entrepreneurial Orientation Among Indian Students: A Regional Perspective

Purna Prabhakar Nandamuri

*Assistant Professor, Department of Marketing and Strategy, IBS-IFHE University, Hyderabad, INDIA.
Email: purnapnandamuri@gmail.com; prabhakar.nandamuri@ibsindia.org*

Abstract:

Entrepreneurs need a variety of competencies to realize their aspirations. Different entrepreneurial abilities have been examined for their relationships with entrepreneurial performance. Various types of entrepreneurial characteristics like age, gender, parental background etc. influence entrepreneurial performance. The present study focuses on the aspect of gender differences on managerial competency as an essential dimension of entrepreneurial orientation among the graduating youth willing to become entrepreneurs. A sample of 200 students, who indicated beforehand that they were interested in becoming entrepreneurs among a population of around 1200 final year post-graduate students were served with a questionnaire schedule containing five statements. The responses were analysed through statistical techniques such as ANOVA, t-test and effect size measurement to understand the gender-specific variance. The components of proactiveness and self-confidence attracted similar preferences from both genders while the aspects of autonomy, risk-taking and drive and energy yielded gender-specific variances.

Key Words: *Entrepreneurship, Entrepreneurial orientation, Managerial competency, Gender, Demographic factors.*

1. Introduction:

Entrepreneurship is the ability and enthusiasm to build up, organize and manage a business venture along with its risks with the aim of making profit. Professor Howard Stevenson of the Harvard Business School says that entrepreneurship is the quest for opportunities further than resources available. The Merriam-Webster dictionary defines entrepreneur as one who organizes, manages and assumes the risks of a business or enterprise. Entrepreneurial orientation refers to the set of personal and psychological traits, values, attributes, and attitudes robustly correlated with an impetus to undertake entrepreneurial activities. Entrepreneurs need a variety of competencies to realize their aspirations. Entrepreneurs must be able to make efficient decisions regarding different functions of their business such as production, pricing, marketing, resource allocation etc., by availing themselves of the principles of managerial science. The entrepreneur, therefore, is diversely projected as a self-employed owner

of business, initiator, manager, innovator, decision-maker, and risk taker and many more. Hence an entrepreneur is supposed to possess versatile competencies. Entrepreneurial competencies are regarded as distinguishing attributes encompassing personality traits, skills and knowledge, and therefore can be seen as the total ability to perform a role effectively. Forbes magazine outlines that management skill and strong team building abilities are often perceived as essential leadership attributes for successful entrepreneurs. As entrepreneurs and managers involve in similar roles and perform similar tasks in many aspects of business management, it is coherent to take up the competency approach to study entrepreneurs. In fact, the competency approach has become an increasingly acceptable means of probing entrepreneurial attributes (Chandler and Jansen, 1992). Sony and Iman (2005) categorised entrepreneurial competencies into four dimensions: management skills, industry skills, opportunity skills and technical

skills. Boytazis (1982) argues that the characteristics leading to competence can be a person's motive, trait, self-image or social role, skill or knowledge. Further, entrepreneurs' family background, experience, education and training, and other demographic variables also should be considered as critical factors influencing the entrepreneurial competency (Herron and Robinson, 1993). Specifically, managerial skills are essential for the success of any business. A firm's gradual growth into multifaceted operations augments the need for incorporating professional management practices.

2. Managerial Competence:

Competency by and large means possession as well as exploitation of configurations of knowledge and meticulous skills at different levels to carry out specific task effectively and efficiently. Managerial competency is an approach to optimal utilisation of resources to meet organizational objectives on a sustained basis. Managerial Competency of an entrepreneur is the capability to define the outcomes clearly, guide the people involved and finally to get the things done by efficient ways and means. Built on McClelland (1973)'s research, Boytazis (1982) had categorized managerial competencies and defined them as underlying characteristics of a person which results in effective and superior performance. Entrepreneurs, in fact, are both administrators and decision-makers. Optimization of any business activity depends on the rationality of the decisions made based on the principles of managerial science. Given the present state of business, an entrepreneur without enough managerial competency will be doomed to suffer defeats and may end up in discontinuance of business. Resource allocations and establishment and adaptation of organization will never be rationally achieved if involvement and the support from management knowledge are not made. Entrepreneurs' management competence is one of the vital aspects that form the essential content of entrepreneurship and entrepreneurial orientation. Since management is a series of activities focusing on planning, organizing and controlling a firm, it is associated with experience, education, and training through which knowledge and skills can be passed on to entrepreneurs. The

entrepreneurial orientation in terms of management professionalization thus implies that the entrepreneurs' propensity, practice, performance and decision making etc. have to be made in a managerially proficient manner, so that they are able to minimize administrative errors and maximize the efficiency and effectiveness in business operation. Various types of entrepreneurial characteristics have been examined for their relationships with entrepreneurial performance. One category of these characteristics is demographic characteristics like gender (Changanti and Parasmaman, 1996), age (Begley and Boyd, 1985), ethnic (Cooper, Dunkelberg, and Woo, 1988). A common thread among these literatures is that whether possessing specific characteristics help the firm to be successful or not. Keeping in mind the significant role of an entrepreneur in the venture success, the present study focuses on the aspect of gender orientation of the managerial competency and to understand the entrepreneurial orientation of the present generation youth. The following five components have been adapted from the literature to define managerial competency essential for entrepreneurial orientation.

2.1. Autonomy: Autonomy means the capability and determination to be self-directed in search of opportunities. The history of entrepreneurship is filled with stories of self-determined pioneers. The need for autonomy of an entrepreneur is characterized by a drive to control and influence others, an urge to win arguments and a passion to persuade and prevail, which are essential qualities of managerial competency.

2.2. Risk Taking: The foremost factor that distinguishes entrepreneurs from non-entrepreneurs is the uncertainty and riskiness of self-employment. All business endeavors involve some degree of risk. Entrepreneurs must not only be risk takers but also risk handlers (Longenecker & Schoen, 2001). Risk handling is an essential managerial behaviour.

2.3 Proactiveness: Proactiveness means 'acting in anticipation of future problems, needs, or changes'. A proactive person is someone who can actively take personal initiative (Crant, 2000) to create favorable conditions for influencing and changing the status quo in a persistent and action-oriented manner (Bateman and Crant, 1993). Individuals with proactive personality are unconstrained

by situational forces when pursuing their goals in the external environment. A manager needs to be essentially proactive.

2.4. Drive and Energy: Entrepreneurs are driven to succeed and expand their business. They are always on the move, full of energy and highly motivated. They are driven to succeed and derive plenty of self-motivation.

2.5. Self Confidence: An entrepreneur is regularly called upon to perform tasks and make decisions that require great amounts of faith in one self. He or she needs to have a strong but realistic self-belief and sustained ability to achieve the predetermined goals.

3. Gender:

Based on the findings of previous research, it can be said that gender plays a major role in involvement in entrepreneurial activity. Despite the rapid growth of women in professional and managerial jobs, the gender gap in entrepreneurship remains significant. Rosa et al, (1994) found that women were unenthusiastic to start new businesses while men were 50% more likely to be involved in entrepreneurial activity than their counterparts. Global Entrepreneurship Monitor (2002) found that there was no country where women were more active than men on entrepreneurship though differences among them were not statistically significant. Kolvereid (1996) found that males had significantly higher entrepreneurial intentions than females. However, the process of involvement appears to differ significantly in comparison to the processes that affect men. There are variables that influence entrepreneurial behavior across countries and across gender. In other words, they influence both sexes but not necessarily in the same way or with the same intensity. Clearly, female entrepreneurship is a cross-cultural phenomenon with culture specific aspects. Harris and Gibson (2008) determined that there was a significant difference between male and female business students in their need for innovation in business, with males having higher scores on the entrepreneurial attitude scale than females. Cross-national empirical studies report significant differences in female and male entrepreneurial activity. Among the possible constraints that female entrepreneurs face, education and training background are important and higher level of

risk aversion by female business owners (Coleman, 2002) found that females were generally less likely to be founders of new businesses than males. Despite the emerging debate between conflicting ideas on the actual state of entrepreneurship engagement by gender, there is still a persistent story that was concisely titled by DuRietz and Henrekson (2000) as 'The Female Underperformance Hypothesis' which narrates that women have less motivation for entrepreneurship and for growth of their businesses; less desire to start a business; less self-confidence; less preparatory education; and more risk aversion; they use less optimal management practices; behave irrationally by turning to unqualified family members for help; and they do not network optimally. However, there is a silver lining to this backdrop. It is encouraging to note that the proportion of women entrepreneurs continues to increase steadily worldwide (GEM, 2004). Around 40% of 73 million people who are active entrepreneurs in 34 nations were women. This substantiates Sitterly's (2001) findings where 40% to 50% of all businesses are owned by women with an admirable success rate of 75%. Although women have made great strides in recent years toward closing the entrepreneurship gap, concerns persevere that women are under-represented among business owners because they lack the same motivation as men when considering entrepreneurship as a career choice. Recently Kepler and Shane (2007) found that gender does not affect new venture performance. However, there are marked differences between male and female entrepreneurs on reasons for starting a business, expectations for success and growth, and types of opportunities sought. Also at issue is whether women approach management in the same way as men.

4. Review of Literature:

Research widely confirms that entrepreneurship is a male oriented activity. By and large, researchers have argued that entrepreneurship is an activity which involves a sense of dominance tied to notions of masculinity (Bruni et al, 2004). In addition to the stereotype opinion, there are no uniform agreements upon the criteria that essentially deem a person capable to be entrepreneur. The major findings that constantly surface from the relevant literature is that businesses

owned by men and women differ in some success measures (e.g., Alsos, Isaksen & Ljunggren, 2006). With a few exceptions declaring no gender differences among specific success measures (e.g., Johnsen & McMahon, 2005; Menzies, Dichon & Gasse, 2004), most studies established gender specific inconsistency. In a study, Jyoti, Sharma and Kumari (2011) revealed that female entrepreneurs are willing to take business risk. Akhtar, Keith and Riaz (2011) found a partial impact of the demographic variables such as gender, residence, parents' qualification and occupation on entrepreneurial orientation of university students in Pakistan. Rana et al, (2011) found that females have less risk preferences than males and were reluctant to take risky decisions. Welmilla et al (2011) identified a positive correlation between gender and development of small and medium enterprises (SMEs) in tourism in Sri Lanka. Seongbae and Brooke (2011) conducted a multi culture study among the university business management students in the U.S, Korea, Fiji, and Malaysia and found a significant difference between male and female students in their need for perceived personal control of business outcomes and innovation in business. Gupta et al. (2009) strongly associate entrepreneurship with stereotypically masculine characteristics among the business students in the United States, India and Turkey. Subhash and Sunita (2008) explored the impact of gender and family background on entrepreneurial attitude orientation (EAO) and found significant disparity between male and female trainees. Kepler and Shane (2007) found that males prefer high degree of risk taking than female entrepreneurs while both seem to value autonomy similarly.

5. Need of the Study:

Even though gender discrimination in entrepreneurship continues to be articulated in many societies, women have started businesses in significantly greater numbers over the past decades (Aldrich, 2005). A UNDP (2008) survey reveals that women comprised 56% of professional and technical workers and 42% of legislators, senior officials, and managers in 2005. But, during the same period, women own or hold major shares in only 30% of private businesses in USA (Center for Women's Business Research, 2004). Men are still about twice the number of women to

pursue business creation even after taking standard demographic factors into account (Kim, Aldrich, and Keister, 2006). Further, a majority of the entrepreneurial orientation theories have emerged primarily from research among the developed countries, it is vital to observe the scope to which these apply in the milieu of developing countries such as India where the policy makers are looking upon the youth as the future pool of employment generators. Secondly, a large section of students pursuing higher education today are women and they too wish to be independent and establish their own identity either through formal employment or by being self-reliant. Studies in this area are very few at least in the Indian context and hence the motivation to pursue this study. We also wish to propose our own set of suggestions based on analysis and findings.

The major objective of this study was to analyze gender differences on managerial competency as an essential dimension of entrepreneurial orientation among potential young graduated entrepreneurs.

6. Methodology:

Since, potential entrepreneurs can be anyone, the current research focused only on the sample frame of graduate students. The younger generations of the society are the potential sources of nascent entrepreneurship and hence it is vital to identify their prevailing attitudes towards entrepreneurship which is influenced by socio-demographic factors in addition to many other variables. A sample of 200 students, who indicated beforehand that they were interested in becoming entrepreneurs, among a population of around 1200 final year post-graduate students from 20 institutions existing in Warangal region of the state of Telangana, were selected. The sample comprises of 125 male and 75 female students (Table-2). The respondents were served with a questionnaire schedule containing five statements (Table-1) adopted from the EAO scale of Robinson et al. (1991) and customized for the present study, to be marked on a five-point scale (denoting 5= strongly agree; 4=agree; 3=unable to answer; 2=disagree; and 1=not at all). The responses are statistically tested through ANOVA and T-Test for establishing the differential effects of gender on managerial competence for understanding entrepreneurial orientation.

Table 1: Managerial Competency with Components

Component	Statement
Autonomy	I prefer to make my own decisions
Risk-taking	I prefer to take risk in future life
Proactiveness	I can calculate the future needs of my business
Drive and energy	I depend on my instinct and intuition while making decisions
Self-confidence	I have confidence in my own skills and capabilities

7. Results and Analysis:

Each component of managerial competence is tested for variance between the male and female gender groups and the corresponding means are compared for an in-depth understanding and further, the effect size is estimated for micro analysis of the variations and the error bars are generated to understand the dispersion.

7.1. Scale Reliability: Internal consistency is necessary but not sufficient condition for measuring homogeneity or uni-dimensionality in a sample of test items. Alpha is a commonly employed index of test reliability. The alpha value of the scale employed is 0.867 which is highly significant.

7.2. Analysis of Variance: The responses were processed with ANOVA test to make a conclusion about whether the independent variable – gender, had an effect on the dependent variable – managerial competency. The F ratios (Table-3) are statistically significant for three components out of the total five. The components - autonomy (22.475); risk-taking (41.872); and drive and energy (19.154) have

yielded statistically significant F ratios while the other two components -proactiveness and self-confidence didn't yield significant 'p' values. The significant F ratios for three components imply that the means differ more than would be expected by chance alone. The statistically significant variances establish that there lie the differences between the male and female groups regarding the three competencies tested for understanding the managerial competency. Next, the means of the two groups are compared to determine the nature of difference for three individual competencies which proved statistically significant for variance.

7.3. Difference between Group Means: The t-test for measuring the difference of means between the gender types proves statistically significant in all three cases thus confirming the ANOVA results. The observed mean differences are discussed competency wise.

7.3.1. Autonomy: The statistically significant ($p < 0.01$) t value (4.741) for the competency of autonomy imply that the means of the two groups differ considerably. Further, the

Table 2: Group Statistics

Competency	Gender	N	Mean	Std. Deviation	Std. Error Mean
Autonomy	Male	125	3.44	1.39	0.12
	Female	75	2.53	1.15	0.13
Risk-taking	Male	125	3.24	1.31	0.11
	Female	75	2.13	0.89	0.10
Proactiveness	Male	125	3.76	1.18	0.10
	Female	75	3.66	1.20	0.13
Drive & Energy	Male	125	3.12	1.34	0.12
	Female	75	2.33	1.01	0.11
Self confidence	Male	125	3.44	1.33	0.11
	Female	75	3.66	1.20	0.13

Table 3: Entrepreneurial Foresight Vs Gender

	Cronbach's Alpha	ANOVA		t-test for Equality of Means			0.86
		F	Sig.	Mean Difference	T	Sig. (2-tailed)	Cohen's 'd'
Autonomy	0.86	22.47	0.00	0.90	4.74	0.00	0.80
Risk-taking		41.87	0.00	1.10	6.47	0.00	0.98
Proactiveness		00.28	0.59				
Drive and energy		19.15	0.00	0.78	4.37	0.00	0.66
Self-confidence		1.45	0.22				

positive nature of the derived t value indicates that the mean of the 'male' group is much higher than that of 'female' group by a margin of 0.9 on a scale with maximum at 5.0000 (Table-3). The error bar (Figure-1) graphically presents the extent of mean difference between the two groups of respondents for autonomy. The directional difference of the means indicate that male respondents exhibit stronger inclination towards autonomy than their counter gender.

7.3.2. Risk-taking: The highly significant t value (6.471) implies that the probability of similarity of the means of the two groups of respondents is very weak. The means of two groups differ considerably by a margin of 1.10 on a maximum scale of 5.00 (Table-3). The positive nature of the mean difference implies that the males strongly believe in autonomy as a component of managerial competency than females.

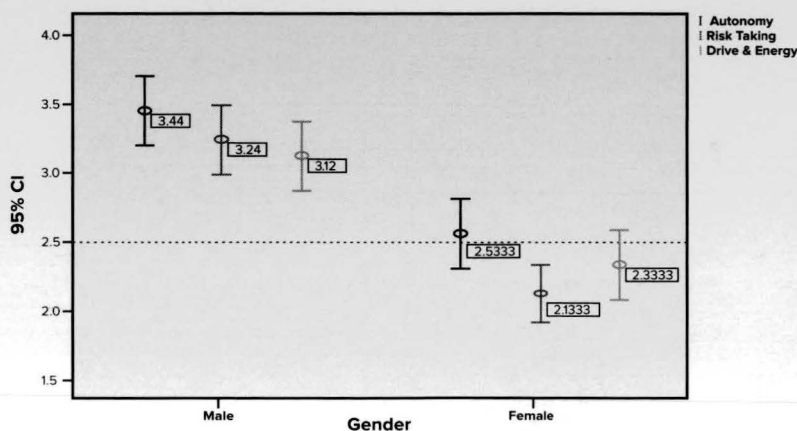
7.3.3. Drive and energy: The t value (4.377) is statistically significant while the means show a relatively lesser difference of 0.78 (Table-3) on a maximum scale of 5.00 for the competency of drive and energy implying that the probability of similarity between the two groups is higher regarding drive and energy as an essential

component of managerial competency. However, the males believe more strongly than females as evident from the positive nature of the t value. Figure-1 graphically represents the variance and means of the male and female groups for the component of drive and energy.

However, despite the directional difference of mean values, the confidence intervals of both male and female groups for the three components stand more or less similar indicating that the responses of both groups are similarly scattered around the respective mean values for the three statistically significant components of managerial competency.

7.3.4. Effect size: In the case of ANOVA test, it is possible to have a strong statistical significance and a low effect size at the same time. Such result implies that an association exists between the two variables under study, but that the relationship is small and not of great practical significance. Hence, significant p-values alone aren't sufficient to indicate the size of an effect. Then, it is imperative for the researcher to define the size of the effect for the cases where group means are closer to each other. Statistically, Cohen's d

Figure 1: Managerial Competence Vs Gender



standardizes the effect size measurement at three levels indicating small, medium, and large effects. In general, the value ≤ 0.20 is a small effect size, 0.50 is a moderate effect size

and ≥ 0.80 is a large effect size (Cohen, 1992). Thus, the 'd' score indicates the practical significance of the associations under study.

'd'	Standardized mean difference	Percentage of variance explained
Small	0.20	1%
Moderate	0.50	10%
Large	0.80	25%

The Cohen's 'd' values are derived from the mean values and respective standard deviations of each group on each of the three components. The 'd' values of the components of autonomy and risk taking stand at 0.80 and 0.98 respectively implying a large effect. However, the 'd' value for the component of drive and energy (0.66) falls in the range between 0.50 and 0.80 on the standardized mean difference scale implying a moderate effect of gender as an independent variable on drive and energy as the dependent one. Hence it can obviously be understood that the gender (IV) can influence the respondents on the skill of drive and energy (DV) to a maximum extent of 10% only while it runs up to a maximum of 25% in case of autonomy and risk taking components. Thus, unlike other competencies which are largely influenced, the component of drive and energy is least influenced by gender of the respondents, as supported by the effect size measurement.

8. Conclusions:

The analysis confirms with the past research findings that managerial competency is positively influenced by gender of prospective entrepreneurs. Out of the five competencies that constitute competency, three components – autonomy, risk taking drive and energy are influenced by gender variations and the remaining two – proactiveness and self-confidence are not gender specific. Further, among the three gender - sensitive components, only two (autonomy and risk taking) are largely effected by gender and the third one - drive and energy, absorbs a moderate level effect. However, the male group is more focused on all the three components of managerial competency while the female group exhibit wide variance, as understood from the depiction of confidence intervals from the corresponding error bars.

Thus, gender has a great bearing on the managerial competency of prospective entrepreneurs as males are more concentrated towards the higher means while their counterparts are wide apart. On the basis of these results, it can finally be stated that future entrepreneurs, both male and female, are mainly driven by autonomy. The findings provide scope for a wider study of the similar phenomenon to generalize and transcript into entrepreneurship literature.

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Extensibility of E-learning in Rural India using 4G

Sudipto Das

Assistant Professor, Department of MCA, CMR Institute of Technology, Bangalore – 560037
Email: sudipto.d@cmrit.ac.in

Abstract:

The extension of association via remote education is one of the strategies largely being advocated in recent times, for the progress of urban as well as for rural areas, by the Indian government to promote all-round economic growth, for all strata of society, and at all levels. ICT has played a major role in spreading Education to several remote areas, using Information and Communication Technology. Yet, there are evident challenges faced in its implementation, owing to the terrain constraints as well as the lack of basic amenities. This has necessitated another mode to be used to revolutionize this attempt of spreading education further, that of E-learning, with the three perspectives: 1. E-learning could expand and widen access to basic education as well as tertiary learning 2. It would improve the quality of education. 3. E-learning would reduce the cost of education.

This paper inspects these three premises on the basis of available data and facts and examines several features that support the usage of Information and communications technologies (ICTs) for e-learning to meet the needs of particularly rural learners, thereby facilitating the persistence of lifelong education in India.

Key Words: *E-Learning; Non-traditional Learning; ICT; Lifelong Education*

1. Introduction:

Advancements in the fields of Innovation, Knowledge, and ICTs foster a major impact on many commercial sectors such as Communication, Finance, Informatics and Transportation, to name a few (Banerjee et al, 2014, NCERT, 2012). ICT also has a great influence on Educational sector. According to the 2011 census, a major portion of the Indian population (about 72.2%), is comprised of rural settlers, in almost 638,000 villages, while the urban segment (i.e., 27.8%) of the population, inhabits about 5,000 towns and some 400 city clusters. We can see that the larger part of the Indian population still lives in villages, which places maximum importance on rural education in India (Banerjee et al, 2014, NCERT, 2012). Now, e-Learning would supplement ICTs in order to accomplish lifelong education in Indian villages. This is mainly owing to the diversity and topography that make it almost impossible to establish and maintain schools in such remote areas. Indian Government has started several primary and secondary schools in villages but due to the unavailability of facilities and rough topographical features,

teachers and staff do not favour working in such regions. This leads to persistent illiteracy, as a result of the failure of Government policies. This paper aims to promote the Extent, Rationale and Tactics adopted for spreading computer education in Rural India (NCERT, 2012, Roy, 2012).

2. Online Distance Education (ODE): A Historical Perspective:

Distance education has been largely revolutionized due to the rise of the Internet, around the 1990s. This made it relatively cheaper to disperse specialized course material through the Internet, thus marking the beginning of Online Distance Education, or simply, Online Education. Here, the courses are provided mainly over the Internet to learners at remote locations, including their homes. Online courses would however require that the learners and the mentors physically meet face-to-face, either once or at regular intervals, to conduct sessions for theory class, laboratories and also examinations, though it could be limited to about 20-25 percent of the prescribed course duration. This is a highly

flexible mode for the learners, as they can instantly communicate not just among themselves but also with their instructors, through e-mail and chat.

The sessions could also be made more interesting and interactive with the use of web cameras. The Internet also made it much easier to implement online education. Learners could appear in, as well as, view the grades they obtained, in tests and online quizzes, instantly. Further, Teachers could make changes to lectures and other supporting material, as and when needed. Distance learning in India has become ever-more popular owing to its online offerings, but it is not a new concept. Actually, people have been taking such courses offered by remote instructors, even before and after Independence. Postal courses have been prevalent as early as 1940s, while radio and television were used since 1959 to relay educational programmes. The launch of the SITE (Satellite Instructional Television Experiment) program during 1975-76 ushered a significant improvement in the field of educational television in India. The experimental program made available a special relay of pre-recorded educational TV programs for the villages of 6 states. These television sessions were dedicated to primary education of the learners and were followed by direct interaction with teachers. Over a brief period, distance learning was growing tremendously and distance-learning universities were comparable in size to traditional universities.

Distance learning in the United States was initiated by the University of Wisconsin-Madison. It was an attempt to integrate various communication technologies to provide educational facilities to learners at off-campus

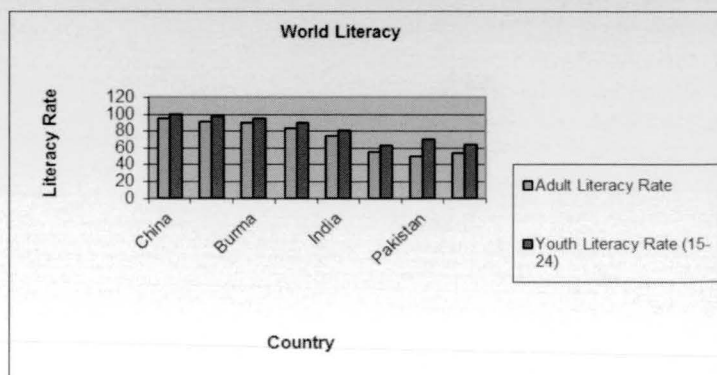
sites. The project was funded by the Carnegie Foundation. (Byrne,1989). These ideas were later imitated by schools around the world and provided a much more rapid and modern way to share information and education with learners who could not attend traditional courses.

Computers have come to play a vital role in escalating the intellect of learners worldwide. With the increasing accessibility to the Internet, distance learning has become quicker and more widespread. Some dedicated online universities such as Sikkim Manipal University have a plethora of learners and several institutions both small and large have emerged in the past decade. Traditional universities also provide online options and around 70% of these offer some kind of online coursework so that a large population of learners can make use of these facilities, nationwide (Tas, 2012). Given the increased attractiveness of such a learning method, it is sure that, distance learning is a reserve for learners that will sustain for several years.

3. Current Scenario of School Education in Rural India:

At present, the status of rural education is still in its infancy. In some villages, there are just a few Government schools and children have to travel great distances to avail these facilities. Schools in the rural areas lack in basic amenities like infrastructure, electricity, telephone facility, experienced and skilled teachers etc. and schools that have computer labs are in a pathetic state. Even the Computers are not installed properly, sometimes lacking even the most basic software. This is mainly because no computer teacher and technical persons are appointed for rural schools by the government.

Figure 1: Literacy Rates in India as Compared to World Literacy Rates



The quality of ICT based education facility is very poor in the non-urban areas. Salaries are very low for teachers, which fails to generate enough interest in teaching and they often remain absent. The Government is making moves and taking initiatives, which are, however, not being implemented effectively in the schools; so the scene is far from changing (Devi et al. 2012).

4. Key Issues and Concerns:

A. Problems Faced in Rural Education in India

1. Teachers of rural schools usually give less attention to students as they have low salaries and limited facilities.
2. Low salaries prevent teachers from seeking positions in rural areas, as it may not be sufficient even to meet their family needs.
3. Infrastructure facilities are not good. Residential amenities such as Water and Electricity supply are not proper.
4. Rural schools are lacking in most of the areas including Computer, Sports and Extra-curricular facilities, and even basic amenities.
5. Lack of proper transportation limits the children from coming to school, if school is located very far. Moreover, there is no access to additional education (Kumar, 2014).

B. Need for Non-Traditional Learning Methods in Rural Areas

The Government has taken several progressive initiatives, along with the social wings of a few leading corporate organizations, as a result of which few rural schools have been able in improving their teaching-learning amenities. However, there is a huge disparity when the progress is viewed on a national scale, owing to the vast geographical diversity.

The Education Department has started initiating the ICT framework in several rural schools, but many areas are still far from getting the basic facilities, mainly owing to topography (Tas, 2011). Due to lack of availability of required facilities to the learners, it is quite difficult to provide education beyond a certain level. This makes the aspirants of knowledge to head towards urban centers of education, which is however not possible for everyone, either due to monetary or familial constraints.

It is thus needed to provide unconventional learning methods, using wireless technologies, so that the restrictions of terrain could be eliminated, to a certain extent. With Internet vendors reaching deep into the rural areas, we could expect E-Learning as well as M-Learning to provide a solution to the problem of rural education, regardless of

Figure 2: Pathetic School Infrastructure and Teaching Methods in Rural India

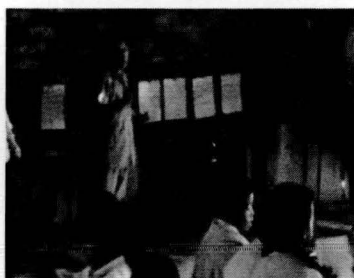
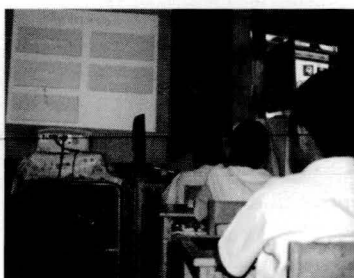


Figure 3: ICT Initiatives for Rural Education



geographical conditions, promoting learning, anytime and from anywhere.

5. E-Learning Using 4G: A Futuristic Proposal to Spread Education Countrywide:

Many people think that E-Learning is learning over the Computer or Internet. However, it is not so restrictive, as E-Learning includes:

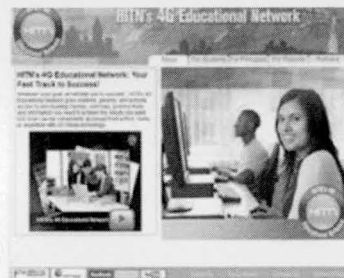
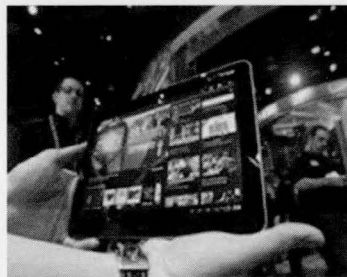
1. Training conducted through the Internet
2. Training conducted through Intranet (local/corporate)
3. Learning through saved electronic media (CD/DVD), being viewed off-line by learners over a web browser
4. Either of these or a combination

The objective of E-Learning is to provide increased access to learning, by using innovative development methods and delivery techniques. The advantages of Web-based learning include wide reach, standardization of content and assessment, procedures,

enhanced interactivity, and learner satisfaction (Sharma et. al 2011). The advent of 4G would provide much higher bandwidth than existing services, and interactive, live sessions would be able to supplement the methods described above, taking advantage of the interactive environment of the Internet. We can integrate distance learning with E-learning to meet the needs of the rural India.

Formal learning is no doubt better than any form of distance learning, but if a similar interactive learning environment could be provided remotely, with teachers available through video-conference sessions, at a realistic pace, it would be possible only with the advanced features of the 4G technology. It could surely complement regular education, and help to extend learning to even those areas, where at present it is just a dream. Interactive courses would be designed to make e-Learning effective.

Figure 4: Possible Impact of 4G on Education



6. Conclusions and Future Enhancements:

Advantages of e-Learning include Combating topographical constraints, beating distance issues and resolving scheduling problems, thus breaking through the barriers of physical space, liberalizing learning and bringing quality education to millions of learners dealing with cultural, religious and political considerations providing cost-effective education suitable to developing nations. For many people, it is also an opportunity to resume or continue their education which, in turn, enables lifelong learning.

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