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Abstract

Recent economic meltdown triggered worldwide search for viable options for generating employment through entrepreneurial opportunities for the youth. Not many countries succeeded although India has fared much better. I discuss the challenges faced by India soon after meltdown and the strategies that could work. While many ideas have still potential to influence the pedagogy and the content of educational programmes in the short term, some have value for longer term entrepreneurial revolution. I pay particular attention to converting grassroots innovative communities into viable entrepreneurial networks. The need for empathetic innovation eco system cannot be over-stressed. I also underline the fact that ethical standards seem to be higher among micro and small and medium enterprises. There is a need for transition from mass consumption to high degree of customisation.

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Anil K Gupta¹

In the context of economic meltdown two years ago, a relevant question was: can the entrepreneurial opportunities particularly at grassroots, really blossom? My answer was and is *yes* provided we recognise the emerging ability of market to reward those who think frugally, creatively and collaboratively. Pedagogy for inculcating entrepreneurial spirit for social and economic enterprises requires several innovations in the content, mode of engagement with real life actors, and in the analysis of market opportunities. I will like to analyse the entrepreneurial imperatives in the current emerging market economy in the country. Having done that, I will look at the transformative elements that education in formal and informal sector needs to build upon. Lastly, I will summarize the lessons that follow from the efforts being made by young entrepreneurs. My purpose is to expand the space in the mind and institutions that govern education at different levels. Many countries still facing the meltdown effects may find ideas in the paper useful.

PART I

Entrepreneurial imperatives in emerging markets:

There are several reasons why the entrepreneurial approach to economic and social development is considered inevitable in most parts of the world. However, creating institutional conditions which favour such an approach remain to be properly defined and developed in many places. Large number of enterprises set up by people in the informal sectors of various scale and scope demonstrate widely understood because among common people. However, the rate at which any society transforms into an entrepreneurial society depends upon (a) the degree to which new enterprises are allowed to take birth but also allowed to die²; (b) the nature of support system whether of technological or managerial or financial nature available to a start up; (c) the knowledge network existing or being created to promote learning and resource sharing among small and medium enterprises; (d) the nature of skill development among the working class such that specialization and diversification are enabled and promoted; (e) linkage with the educational and training institutions upgrading the skill, knowledge and

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² While many developing countries have improved processes for *birth* of an enterprise in recent years, they still consider *death* to be abnormal or an aberration and thus avoid setting clear institutional conditions in place for the same.

perspective of entrepreneurs as well as the work force periodically and (f) the ethical basis of promoting entrepreneurship so that by reducing transaction cost, upholding high ethical values becomes easier and purposeful.

The role of science and technology is pivotal in entrepreneurial transformation because the efficiency the long run will depend upon technological, energy and material efficiencies. Institutionally, the transformation would depend upon the degree to which cooperation and competition are facilitated simultaneously. Let me illustrate some of the processes through which entrepreneurial transformation can be facilitated.

- I. Creating Capacity Exchange: The economic melt down has aggravated the problem of under utilization of the capacities and therefore the need for creating a capacity exchange. Distributed manufacture of various components or products would require pooling of mutually compatible capacities for specific technical functions. A knowledge network will also have to be created for the purpose.
- II. Creating Horizontal supply Chains³: Sustainability requires reducing carbon footprints and improving prospects for short term and short distance exchanges. The utopia of self-reliant village republic mooted by Gandhi may not be completely feasible or even desirable today. At the same time for meeting such needs in small loops, we require an interdependent model. The energy locked up in logistics and packaging with conventional approach of long distance, long-term consumption has costed the economy so much that it is no more viable to continue with such an approach.
- III. Converting Grassroots Communities into Entrepreneurial Networks: I have argued elsewhere that statist approach to employment generation at grassroots level is not sustainable. Keeping people just alive can neither be morally defensible nor efficiency-wise justified. Opportunities have to be provided to knowledge rich, economically poor people to express their potential fully. *New kinds of supply chains* have to be organized which will make such a phenomena possible. Every household, in this framework, can be an entrepreneurial household. Let us say that an urban resident or non resident Indian or anybody else wants to order an ethnic vegetable or pickle or a specific food dish made out of location specific biodiversity resource. He goes to the e-commerce enabled GIS platform and selects the product made by women or whole household in any part of the country. The portal communicates the demand to a courier industry. The

³ Also see, Crujssen, Frans ; Dullaert, Wout ; Fleuren, Hein, 2007, Horizontal cooperation in transport and logistics: a literature review., *Transportation Journal*, http://www.accessmylibrary.com/coms2/summary_0286-32609552_ITM?email=anilg@iimahd.ernet.in&library=, downloaded on march 25, 2009.

packaging industry is then contacted by courier industry to provide the right package for the request product. Courier industry approaches the intended provider and collects the product in the package taken along and delivers to the consumer. Such supply chains will require different kinds of models of knowledge, product and services network. Unless we buy things produced by the local people, there is no way money from our pocket can go to the pockets of local people. Invariably, we may also promote conservation of biodiversity by generating demand for diverse products.

- IV. Agro-processing through returned industrial workers: Large number of agricultural commodities are exported or sold unprocessed. The result is that value is added either outside the country or very far away from the place of origin. Obviously much of the wealth on account of value addition, does not get shared by the primary producers. For instance, in psyllium, almost a monopoly crop of India, out of a few hundred patents in US, only four are by Indians. It is not surprising that India exports primarily the raw material. How can growers of this crop then ever aspire to get better returns? Can millions of technically trained workers returning to rural areas be mobilised for transforming agricultural sector?
- V. National Innovation Foundation (NIF) has built a huge database of grassroots innovations and traditional knowledge practices. A very small proportion of these have been converted into economic or social enterprises yet. Students of management, entrepreneurship and various other disciplines can join hands with innovators and develop business plans to set up enterprises. NIF also has a Micro Venture Innovation Fund set up with the help of SIDBI through which such enterprises can be supported for several years.
- VI. Societal needs cannot be met only by mediations in the market place. Meeting a lot of needs require social enterprises in which the consumer of product or services may not bear full, partial or any cost of the same. Such social enterprises are essential to make the development process more inclusive and compassionate.

PART II

Educational Implications of Entrepreneurial Imperative:

Only a few illustrative approaches for promoting entrepreneurship have been mentioned in Part I. Many more ideas are given in an accompanying paper for revival of small scale industries (sristi.org/anilg). What kind of pedagogy at school as well as higher education level will promote entrepreneurial approach among young people is the question that remains to be

properly answered. Just as one cannot learn cycling by practising it on blackboard or computer screen, one cannot learn entrepreneurship without trying things out. NITIE has done a very interesting experiment in this regard where every student of entrepreneurial courses has to set up an enterprise and make money. We need many more initiatives of such kind. May be similar earnestness has to be shown for social enterprises as well.

Educational processes can counteract the entrepreneurial spirit by reinforcing conformity, compliance and congruence. Let me share some thoughts on making educational environment more entrepreneurial at school as well as college level.

1. Forging an entrepreneurial attitude: Any student, scholar or professional or for that matter even an untrained worker can have an entrepreneurial attitude. Primarily when a person is willing to take risk, stick one's neck out, pursue an uncharted path and experiment a new way of solving problem, one starts showing an entrepreneurial attitude. One can have such an attitude in any task one performs. Teachers have to recognize that forging such an attitude can create a serious 'burden'. More young people start developing such an attitude, more demand will be placed on the teachers to handle diverse expectations, projects, ideas and endeavours. While learning will be maximized by maximizing uncertainty, the transaction cost of teachers will increase so as to reduce the same for the students. There are several games, exercises and small ventures which can be thought about for promoting this attitude among the young and senior students. There are several psychological tools available which can also be used to measure and monitor the moment of mind along the entrepreneurial trajectory. Argument is not that everybody can develop such an attitude but one can certainly suggest that majority can indeed take entrepreneurial approach to solve various problems and expand opportunities for others.

2. Triggering collaborative enterprises: Much of the literature considers entrepreneurial processes to be essentially individualistic. In fact such may have been indeed be the case. But there are numerous examples of cooperative enterprises, or individual enterprises with collective participation. Pedagogically, business schools have been known to foster highly individualistic, competitive and secretive approach. Schools have abandoned the collective enterprise more or less. The excessive stereotyping of the career choices preceded by a very competitive approach fosters individualistic streak in the young minds. Unless parents and teachers start encouraging a diverse profiling of future choices, vicious circle of narrow career choice, competitive attitude, highly stressed schedule of learning, narrow

focus on clearing exams, reinforces narrow choices. We have to break this circle by exposing children to diverse role models, discuss the pros and cons of these models, argue with the parents to get freedom to pursue one's inner desire and by mentoring children to pursue their path. Group assignments and ventures can be encouraged with sufficient weightage in the final exams. Rather than testing the ability to recall, we should test the ability to apply the knowledge. Similarly, at higher education level, different kinds of assignments fostering collective problem solving can be encouraged with a serious result orientation. A good example of meaningless collective exercise is the business plan competition organized by the business schools in which almost every participant has no intention to pursue these plans to their logical conclusion. Such exercises may develop some skills but also make young people very cynical.

3. Developing passion to pursue a purpose:

This is one of the most important driver of entrepreneurship. A person or a group thereof can develop a desire to pursue a business with varying degree of social and economic outcomes. Every economic enterprise has a social outcome and vice versa. Business Bazigar programme on Zee TV (in which I was one of the Jury) mobilized thousands of ideas from young people from all over the country. Some of the rejects of that programme actually have ended up doing much better in business than the winner. Wini Chaddha had an interesting idea. She wanted to collect shoes of the people in the evening and give them back in the morning after refurbishing them. Her enterprise viz. Reboot has received wide acclaim. Likewise, Prakash Mundhra developed a concept of branded Pooja kit for various rituals and sacred ceremonies. Transforming an existing market by introducing no-hassle way of pursuing sacred duties was an innovative business plan, accepted by the market. Likewise, providing insurance, news magazines and papers, water and music in rickshaw was an attractive idea of Irfan. It has received very wide support in Bihar. This is just a tip of Iceberg. Various issues of Honey Bee magazine (sristi.org) carry large number of ideas pursued by children, farmers, artisans and others. Not all of them have become business initiative.

4. Learning to link innovation, investment an enterprise: Three vectors of golden triangle for rewarding creativity:

The experience of GIAN (gian.org) and NIF (nifindia.org) besides SRISTI has made it very clear that the transaction costs of innovator in finding investment funds or entrepreneurs is

very high. It is even higher when innovator happens to be from informal sector. Similarly an investor may not know the most potent ideas in the minds of rural or urban artisans or mechanics or other young technocrats. And so is the case with entrepreneurs who may lack both ideas and investment. How do we teach the students the skills to reduce transaction cost (*ex ante and ex poste*) of various players involved in innovation based entrepreneurship value chain. Unless students interact with the innovators and entrepreneurs struggling to forge the right partnership, how can one really understand the complexity. Similarly, angle investors may have their own misgivings about the attitude and skill shown by the entrepreneurs. Apart from field research, entrepreneurial clinics can be a useful way of understanding the dynamics of making this triangle happen. Organizing clearing houses can be another way. Recently in our IPR class, I gave an assignment to students to find licensing opportunities for the innovators. There is nothing more exciting for a student than to close the deal for someone who otherwise wouldn't have been able to do so. I have organized four Inventors of India workshop during last 10 years. First of this workshop in 1998 lead to the establishment of CIIE (Centre of Innovation, incubation and Entrepreneurship) at IIMA with the help of Gujarat Government and NIF. To get fifty to sixty inventors even from formal sector, I have had to go through about 2500-3000 patents in Indian Patent Office before every workshop. Large number of them have very viable technologies. And yet none of them had been approached either by an investor, entrepreneur or even a technology or management school to provide support before the workshop. If every business school identifies the inventors through the patent database or otherwise in one's area of influence and offers them the support, the whole eco system will begin to change.

5. **Designing a supportive and empathetic innovation eco system:**

Every innovator has a large number of requirements before he/she can become a good entrepreneur. She needs to get her innovation benchmarked in market as well as technology terms. Once benchmarking is done, areas of improvement would be identified which need to be communicated back to the innovator. She may or may not be able to incorporate those ideas given weak access to the workshops or R&D labs and experts. Such linkage have to be triggered for value addition. Programmes like TePP and MVIF and Value Addition Support at DST and NIF serve the needs of innovators from formal and informal sectors respectively. At this stage a business development plan may be needed. Students can help in doing market research, finding potential licences, filing patents, doing prior art

search, and mobilizing financial support. If innovator does want to become an entrepreneur, then building partnerships with budding entrepreneurs or existing companies is another task in which students can help. Thus students don't just study how to analyse the eco system but also try to create one around different innovations and business ideas.

PART III

Lessons for Entrepreneurial Learners:

1. *Ethical standards seem to be higher among MSME.* There is a general feeling that most small entrepreneurs cut corners, don't pay taxes and follow unethical practices in terms of environment or business practices. Nothing could be farther than truths. Let me illustrate. Around three dozen technology transfers mediated by Honey Bee Network (NIF, SRISTI and GIAN and other collaborators) have involved small and medium size entrepreneurs. In majority of the cases, patents had not been granted and yet entrepreneurs chose to licence technologies by paying fees even when they could have easily copied the technologies. And we could not have done anything legally. We have not come across such examples as yet from large companies who would have liked to support the innovator or licence the technologies.
2. Ethical concerns have also guided the attitude of licensees while selecting technologies in ways that were not always obvious. For instance, an entrepreneur selected four sprayers including a bullock drawn sprayer, cycle drawn sprayer, micro spray and human motion powered sprayer for pesticide. After doing initial market testing and due diligence, he came back to GIAN West and withdrew the offer of licensing one of the sprayers which was drawn by bullocks. He said that being an animal lover, he did not want to take the risk of hurting the bullocks by the spray of the pesticides. He would rather not license the technology which involved such risk. This was the first time when we learnt that among various considerations, ethical values can indeed play an important role in mediating technology transfer.
3. Ethics of transparent benefit sharing: There are many examples where companies offered to help the innovator, took the technology, improved it, commercialised it and never shared any benefits on an ongoing basis with the innovator. The argument was that technology actually commercialised was much modified over the original one. This is obviously an unethical practice which Honey Bee Network does not approve. That is why a prior informed consent is taken and all the transactions are pursued transparently. The lesson is that sustainable business development requires safeguarding the interest of knowledge providers without any excuse or alibi. Another positive example is that of a company in

Hyderabad which licensed several technologies developed by pooling the best practices in SRISTI Lab. They put the name and in a few cases, the photograph of the innovator on the cover of the bottle of Herbal growth promoter. They also printed an appeal on the package that if the consumers had any innovative idea, they could write to National Innovation Foundation. What is popularly called as crowd sourcing or mass sourcing, was attempted by making every consumer feel like the producer of potential solutions for future entrepreneurship. Such models constitute important indigenous innovations in India and can provide future direction for market development around the world.

4. Innovators seldom make good entrepreneurs: We have to recognize that many innovators are incorrigible improvisers. They can seldom make two things alike. They are masters of customisation. But they are often very poor in batch processing. If such is indeed the case among many innovators, why make them loose their strength. Why not find entrepreneurs who can provide batch to batch consistency among products. The students have to learn to build upon the strength of each stakeholder in the value chain.
5. From mass consumption to high degree of customisation: Over the last two to three decades, the mass consumption of uniformly designed products and services became almost a rule in the market place. Most classical consumer needs (tailoring, shoe making, building houses, other household consumer goods like furniture etc.) became standardized. Thus even when we know that our left and right foot are not same size or shape, we still bought shoes that were based on the assumption of similarity. The result was quiet suffering of uneasiness for a while. Can we reverse the design and consumption patterns. Can customisation return to the centre place of the market with new ways of fabrication, distributed manufacturing and user level design and development of final product. Thus new industry segments might emerge in which cell phones will be designed by the users on the street corners with minimal or maximal functionalities as the need may be. Thus a farmer might want only three buttons to call three children and receive their call. He might pay only 50 Rs. for such a cell phone. India has to develop new models of decentralized, distributed, self design product markets and help other developing countries move along the low cost, low junk and high sustainability through higher affordability and functionality. The pedagogy in technology and management schools must be guided by new social contract of inclusion based on synergy between creativity, compassion and collaboration.

In this paper I have drawn attention to only a few ideas and lessons hoping that readers would participate in designing a more elaborate version of the paper. If I can practice what I am

preaching, than the pedagogy will become not only a passion but also a very inclusive and participative purpose. Amen