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Social Responsibility
Research Network
www.socialresponsibility.biz

Discussion Papers in Social Responsibility

No 1002

Published 2010

Universities and Corporate Education 21st Century Social Responsibility for Developing Countries

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Introduction

The Universities in 19th and 20th centuries focused on the academic aspects in which the academic profession established itself and began to assert a dominant role with less focus on the needs and problems of the society in their localities. The society used to believe that the scholarship achieved in the university would help the people to become intellectual to address the various issues they face in real life. For example industries used to believe that there is strong connection between the academic ability and success in the business (Sanderson, 1972). Just as Humboldt's or Newman's visions of the university were born of the experience of the nineteenth century, the present day universities have to reformulate the conception of education as per the experience of the society in the present century and as per the future perspective. There is substantial body of international opinion among major academic institutions around the world regarding the mission of Higher education in the present day context (Anandakrishnan, 2008).

"The mission of higher education is to contribute to the sustainable development and improvement of society as a whole by: educating highly qualified graduates able to meet the needs of all sectors of human activity; advancing, creating and disseminating knowledge through research; interpreting, preserving, and promoting cultures in the context of cultural pluralism and diversity; providing opportunities for higher learning throughout life; contributing to the development and improvement of education at all levels; and protecting and enhancing civil society by training young people in the values which form the basis of democratic citizenship and by providing critical detached perspectives in the discussion of strategic choices facing societies." (AUCC, 2001).

However, a review of trends in literature on higher education and the public good during 1996 (ERIC 1996a,b) suggests that economic development is most represented in the literature, with political and social development significantly less discussed. One of the fundamental questions raised due to commoditization of knowledge under the influence of knowledge economy is how to protect the unique role that the universities have played in the overall cumulative system of knowledge generation and diffusion. This question is more pertinent considering the development of a new model of university catering mainly to economic needs (Clark, 1998, Etkowitz et al. 2000). Kellogg commission on future of Universities in America emphasized the idea for a revitalized, expanded, and far broader involvement of universities with society. The new model of university should be broad based and covering all sections of the society as it can be said that the solution of virtually all the problems which government is concerned: health, education, environment, energy, urban development, international relationships, economic competitiveness and defense and national security, all depend on creating new knowledge – and hence upon the health of universities. But as Narasimharao (2009a) points out the important point is - the universities should be able to transfer their knowledge and apply in the community effectively. They need to develop the key competencies of using academic capacity in practice and a considerable effort is required by developing countries like India in this direction if they have to become global knowledge economy leaders. While doing this we ensure that universities cater to the entrepreneurial role as well as the traditional role without limiting their purpose. This is in this context the paper discusses the scope and coverage of corporate education as a social responsibility of universities in developing countries. We discuss this under three broad heads - how universities need to broaden their horizon, how key competencies and corporate education are related for creating well rounded society and the need for the universities to take up the responsibility of developing and adopting different strategies and approaches for implementing a corporate education concept that is holistic and broad based.

Broadening the purpose of Universities and Corporate Education

The need for broader involvement with society

We can identify various explosive developments that had taken place which changed the course of the socio economic development of the society and that of human civilization. The population explosion is much discussed in the literature in relation to its effects on sustainable development and throwing new challenges to human capital formation (Lutz et al. 2004). The Knowledge explosion (see Linowes, 1990) resulted in our living through a period of profound change and transformation of the shape of society and its underlying economic base. The exponential developments in science and technology resulted in cross fertilisation between scientific research, technological innovations and the transformations of productive and service activities with old distinctions between basic and applied science, between science and technology disappearing (Kranzberg et al., 1989). As stated by Abdus Salam (1988), what distinguishes the South from the North is the ability of a nation to create, master and utilise the modern science. In broader terms we can replace the 'modern science' term in Abdus Salam's statement with 'knowledge'. Drucker (1994) considers that the changes that are happening in the present day knowledge society is far more than social change and says it is a change in the human condition. These convergent impacts of population explosion, knowledge explosion, revolutionary developments in ICT, science and technology explosion, globalization and commercialization, massification of education etc puts unprecedented pressure on universities for their broader involvement with society.

Driving forces for greater closeness between university and society

The Kellogg commission on future of Universities in America identified seven guiding characteristics for achieving broader involvement of universities with society. They are - responsiveness, respect for partners, academic neutrality, accessibility, integrating engagement into the institutional mission, coordination and resource adequacy. Topal (2009) arguing the Corporate Social Responsibility (CSR) in Universities around the world discusses Economic capital, Intellectual capital, Social capital and Cultural capital and how they are related to each other. All this points out that university while becoming more responsive to the social and economic needs of the emerging knowledge societies and economies should also be able to take care of their traditional role¹. We can say that the role of universities has been evolving over the last 20 years, from a focus on teaching and research towards an enabling, partnership role with industry, government and communities in their proximate geographical spaces. In other words, universities are increasingly linked to place (Gunasekara, 2004). The five forces which Wright (1999) identified as the driving forces for greater closeness between university and industry can also be considered as driving forces for universities to be linked to place or society at large². In developing countries this still has to take place in a big way as they struggle with many perils of the higher education system they follow and find it difficult to expand their boundaries.

Defining new boundaries to scholarship in developing countries

In developing countries, universities may need to define new boundaries³ to scholarship so that the old paradigm of internally driven taxonomy of disciplines give place to a new paradigm of knowledge production that was socially distributed, application-oriented, trans-disciplinary, and subject to multiple accountabilities. This is not going to be easy as Guzzetta (1982) points out though we in higher education sincerely think that we have been responding to the perceived public needs, we have interpreted all needs in our own image: more courses, credit hours, campus classes and classical curricula. This can be observed in many course/programme design committees even after involving industry partners. The academics on one hand propose to

cover basic to most modern areas of the subject (dealing the subject in traditional way) and industry partners on the other hand fear to deviate much from established subject areas as it may hinder the marketing of the course (authors personal observation). We may analyze this further in the following view points – universities creating courses which are popular without necessary regard for academic rigor or societal needs; academics developing their own research specialism as a mechanism for career progression (Topal and Crowther, 2005); within the paradigm of modernity each discipline continuing to distance itself from other disciplines, continuing to fragment into sub-disciplines (which eventually become new disciplines in their own right), and continuing to legitimate each as a discrete discipline without regard to the legitimation of other parts of the business environment (Crowther & Carter, 2002); the socially responsible ethos of higher education has been subordinated to the forces of marketisation and both society and the participants in such education are the poorer for it (Topal, 2009); unquestioning acceptance within the discourse that the subject matters being taught are appropriate for the needs of students (Davies & Crowther 1995). Levine (1980) explains how organizations possess unique personalities that are shaped by a distinctive set of norms, values, and goals. He proposed a model of boundary expansion or contraction based on the profitability of innovations to the mission, norms, values, goals etc. of the individual or organization. He proposes that boundary establishment is one of the tools through which organizations guard against external forces that may violate these commonly held norms, values, and goals. It is obvious that in developing countries context these are to be expanded so that new initiatives are accepted.

Expanding values, norms and goals in developing countries

A high level education committee to advise Ministry of Human Resource Development (MHRD), Government of India on Renovation and Rejuvenation of Higher Education (Yashpal, 2009) gave several measures to reform the education system in India which also includes the expansion of values and norms of the system. In his preface to the report its chairman Yashpal states:

“We were struck by the fact that over the years we have followed policies of fragmenting our educational enterprise into cubicles. We have overlooked that new knowledge and new insights have often originated at the boundaries of disciplines. We have tended to imprison disciplinary studies in opaque walls. This has restricted flights of imagination and limited our creativity. This character of our education has restrained and restricted our young right from the school age and continues that way into college and university stages. Most instrumentalities of our education harm the potential of human mind for constructing and creating new knowledge. We have emphasized delivery of information and rewarded capability of storing information. This does not help in creating a knowledge society. This is particularly vile at the university level because one of the requirements of a good university should be to engage in knowledge creation – not just for the learner but also for society as a whole.”

For expanding the values, goals and norms the universities in developing countries should be able to –

1. evolve new innovation systems⁴ which will involve all stakeholders of higher education system,
2. evolve new agenda for higher education to capture the world wide opportunities, and avoid the dangers unleashed by markets and globalization.
3. use 'whole' university by cross fertilization and boundary crossing between different disciplines covering science, astronomy, management, languages, comparative literature, philosophy, psychology, information technology, law, political science, economics, agriculture and many other emerging disciplines and putting value into each other.

4. combine good science with the complexities of business, intellectual property protection, social sciences and a regulatory environment in order to adopt different strategies for making the university education to suit the local communities and industries.

One of the effective strategies for influencing this to happen in developing countries is integration of corporate education into the traditional universities. For instance, Gunasekhara (2004) reports on a case study of a peri-urban Australian university that has chosen to link its identity with the development of its proximate communities. In doing so, a number of levers of change have been employed, amidst 'push' and 'pull' factors that have challenged the institutionalization of change. The strategies employed by university managers have included: industry, government and community participation in university governance; a cooperative education programme; and changes to systems for promotion, performance and recognition. Similarly, Narasimharao (2010a) discussed the social responsibility of universities in dealing the issues faced by a multidisciplinary and industrially oriented field like biotechnology and emphasized the need to adopt different strategies for making the biotechnology education to suit the local communities and industries. Auplat (2006) provides a conceptual framework on the role of non-governmental organisations (NGOs) in the field of entrepreneurship, and identifies a pattern of interaction which accounts for the influence of NGOs on entrepreneurship for the development of biotechnologies and nanotechnologies. Narasimharao (2009a) proposes NGOs as linker units for universities to interact with communities. We need to develop a corporate education concept which can take care of all the above aspects while catering to the needs of knowledge society. Obviously this cannot be the same as that of the management education system developed around 50 years back to cater to the needs of corporate/organizations of that era. It has to broaden its scope and coverage. This point can be clearer from what Toope (2009), Vice Chancellor of University of British Columbia talk of his own field Law. He states that law doesn't operate in isolation from other fields. It is deeply related to political science, sociology, and anthropology. Since law students cannot be expected to be experts in all these fields, they should be introduced to key ideas from those fields so that their way of analyzing is effective, broadened and opened up (www.educationtimes.com, 8th June 2009). Dongre and Narasimharao (2010) while working on designing a course on management for NGOs pointed out how the relevance based treatment against subject based treatment would help in integrating various disciplines for the aimed objective.

Key Competencies⁵ and Corporate Education

Identifying key competencies for organizations

As OECD (1999) (Organization for Economic Cooperation and Development) education ministers state sustainable development and social cohesion depend critically on the competencies of all of our population – with competencies understood to cover knowledge, skills, attitudes and values. When we talk of competencies in the context of organization or society we can identify three broad requirements – Individual competencies, institutional competencies and application of individual competencies to contribute to collective goals. OECD identifies key competencies for personal, social and economic well being (Rychen and Salganik, 2003). Three categories of competencies are identified – interacting in socially heterogeneous groups, acting autonomously and using tools interactively (table 1). These categories, each with a specific focus, are interrelated, and collectively form a basis for identifying and mapping key competencies. Central to this is the need for individuals to think and act reflectively⁶. The institutes of higher learning need to cover domain specific knowledge, new and transferable skills (problem solving, creative thinking etc), managerial and soft skills (interpersonal, communication etc.), social skills etc. While discussing higher education for sustainable development eight key competencies

are identified by de Haan (2006) for shaping competence – competence in foresighted thinking; competency in interdisciplinary work; competency in cosmopolitan perception, trans-cultural understanding and co-operation; participatory skills; competency in planning and implementation; capacity for empathy, compassion and solidarity; competency in self-motivation and motivating others; and competency in distanced reflection on individual and cultural models. In order to meet the challenge of knowledge economy which has seen a proliferation of information and communication technologies, coupled with greater organizational complexity, the growth of virtual and global organizations and rapid change, the traditional human resource management which functioned under narrow operational boundaries need to expand looking both within and outside the organization. The traditional focus on managing people needs to be broadened to managing organizational capabilities, managing relationships and managing learning and knowledge (Choi, 2000). Ley et al. (2008) introduced a three dimensional work place learning context model for conceptualizing a knowledge worker's context, which consists of individual (competency), procedural (work) and declarative (knowledge) spaces, each of which is taken care of in its own dedicated package. When we take corporate education it is often described as executive education or management education focusing more on imparting competencies required for leadership (Russel, 2007) and making it more as management education. Even when certain corporate education efforts by universities are directed towards preparing people for their work lives, they may be little more than an expansive vocational training without focusing on key competencies required for a well functioning organization. Corporate education should cover different competencies required while addressing other challenges faced by industries and individuals.

Some Challenges for corporate education in developing key competencies

One of the major challenges faced by industries and corporate is convergence of various technologies and multidisciplinary and interdisciplinary trends. Firms need to develop expertise in a broader array of technologies and scientific disciplines, as evidenced by the need for the food processing and pharmaceutical industries to develop competence in biotechnology, molecular biology and advanced electronic instrumentation (Mowery and Rosemberg, 1989). Okuwada (2006) working on converging technologies mapped the relation among the 153 rapidly developing research areas covering various disciplines like economics, ecology, medicine, biology, business, clinical medicine, psychiatry, agriculture, social sciences, biotechnology, material sciences, geosciences etc. Their study shows that currently growing fields of research have been born in inter-and multi-disciplinary areas. Universities have great responsibility to cater to these demands by utilizing their academic expertise in this direction. Another major challenge concerning developing countries is creation of endogenous or local capacity. Many countries do not have the capabilities to generate knowledge, or to effectively select, absorb, adapt and use imported knowledge. Thus they are ill equipped to deal with the challenges of economic advance, social progress and environmental sustainability (Abdus Salam, 1988). The need for adequate scientific and technical literacy in a nation's workforce is now perceived as a fundamental factor that it can be said that "... scientific literacy, understood as an everyday working knowledge of science, is as necessary as reading and writing (literacy in the commonly understood sense) for a satisfactory way of life in the modern world" (Ayala, 1996). Corporate education, thus should fulfill these requirements through various university education and training programmes. They can plan both at macro and micro levels. For instance, Narasimharao (1992) identified wide array of target groups which need biotechnology education. This may vary from a lay man to highly scientific personnel, floor level worker to industrialists, technicians to highly professionals, teachers to managers, specialists in various subjects to social workers. Similarly, Dahms & Leff (2002) identified the job functions and tasks of a bioscience technical specialist besides listing the general work skills, industry related skills,

industry related knowledge and attributes. There is also much discussion on the generic skills a graduate should have besides the technical and subject knowledge (Johnson et al. 2002). One more challenge corporate education efforts may face is - Industries grow in complexity as they evolve requiring knowledge and skills (competencies) in various fields and at various levels⁷. For example, Dahms and Bourque (2001) describe the change in human resource needs that a medical therapeutics company experiences as it moves from research and development and finally manufacturing. In the same way personnel working in different departments of a company irrespective of its stage of evolution may need different inputs of training and orientation. Universities need to assess the domain knowledge and personal competencies needed by different groups of people working in these science based industries and identify the technical and other skills needed for different fields besides the basic core knowledge.

University corporate education for developing key competencies

Though there are various mechanisms for university industry interaction⁸, the growing importance of corporate education can be gauged from the fact that many corporate establish their own universities. Wagner (2000) reported the existence of 2400 corporate universities with 80 percent of Fortune 500 companies either already having a corporate university or planning one. However, universities with strong corporate education unit will have an advantage over these directed universities. This is evident from the fact that more than 50 percent of corporate universities plan to use existing or future partnerships with accredited universities to grant degrees in the fields of business/management, engineering/technical, computer science and finance and accounting (Bedar, 1999). Narasimharao (2010b) argued that establishing a centre for corporate education in universities not only help in acting as a coordination unit between industry and university but also help in integrating the activities and studies of various disciplines. The research of Ryan (2006) highlights the need for universities and corporate to take time to learn and understand the requirements and expectations of each other and, as in any good relationship, provide flexibility to accommodate these requirements and expectations. While discussing industries and university outreach programmes, Narasimharao (2009a) points out that the impact of university industry interaction has been minimal in developing countries because of several factors. One important barrier he identifies is the different priorities of universities and industries. Table 2 presents some of the expectations from university – corporate education partnerships (Ryan, 2009). The aims and objectives of such partnerships may vary including credibility and accreditation to the in house programmes of the corporations, systematize training functions, develop the employability of the workforce and remain competitive, customization through new technologies and alternative sources of educational products, consistently train or update large numbers of employees simultaneously, web based or internet based learning for more control, convenience and focus, imparting new set of skills for the workplace, speed and flexibility to train employees in proprietary educational skills as companies implement new strategies and move into new markets or introduce new products, comprehensive training and coverage, providing tools to develop careers as well as to assess current and future learning needs, access to expertise in specialized or advanced areas etc. It is necessary that the university take the responsibility of not only fulfilling the objectives of corporations but also incorporate holistic education and training to prepare the employees for learning to think and act in a more integrated way taking into account various interconnections, interrelations between positions or ideas, changing situations, different perspectives etc. The corporate education efforts of universities should evolve in this direction for utilizing the diverse expertise available at their disposal. We need to ask what individuals need in order to function well in the organization or society, what competencies do they need to find and to hold down a job, and what kind of adaptive qualities are required to cope with changing technology.

Another important aspect which industries and corporate education has to take care is integration of liberal arts into the competency models. Schster (2008) argues the importance of integration of liberal arts with science. He argues that as the "applied" segment of the Life Sciences, Biotechnology has a special relationship to public opinion about the impact of science and technology on society. As Defila and Di Giulio, (1996) pointed out opportunities would have to be created which aim to reflect in education the disciplines with regard to their relation to the world, to life worldly goods and to other disciplines. This would help in working out solutions for complex problems in heterogeneous teams to include and understand various perspectives in order to combine them profitably. Barth et al. (2007a) found that the development of key competencies is based both on cognitive and non-cognitive dispositions and asks for multiple contexts. They also observed that both formal and informal learning contribute for enhancing the key competencies⁹.

Corporate Education as Universities Responsibility

We can be broadly categorize the developments on university's role to society into generative and developmental approaches. Gunasekara (2006) relates these two approaches to triple helix model and university engagement. The triple helix model taking generative orientation focuses mainly on universities as key drivers of economic development through a range of boundary-spanning, knowledge capitalization mechanisms. On the other hand, the university engagement literature while acknowledging the academic entrepreneurial activities takes a developmental view of the role that universities perform in human capital formation through adapting their traditional roles to support regional knowledge needs. At the broadest level both the triple helix model and the university engagement literature are concerned with the role that universities perform in supporting regional economic and social development. As pointed out by Narasimharao (2009a) universities in developing countries have to come out of their traditional and 'within the frame thinking' and establish strong relationships with the knowledge needs of the post-industrial society. As these countries lack appropriate economic structures that could organically generate linkages between state, industry and the academy unlike in the developed world (Krishna et al. 2000), the responsibility of the universities in these countries for developing appropriate mechanism doubles. Further, we in higher education may be sincerely thinking that we have been responding to the perceived public needs but in reality it may be only happening in our interpretation and image in terms of more courses, credit hours, classical curricula (Guzzetta, 1982). Narasimharao (2008) discusses how administration dominates the outlook while introducing innovations or changes in Indian universities. How universities in developing countries can address the issue of reaching out to society is interesting as there are several factors involved. Development of corporate education with broad purpose at universities may help in this direction (Narasimharao, 2010b). Corporate education as a responsibility of universities for integrating entrepreneurial university into traditional university through various strategies is discussed.

Avoiding Compartmentalization of Knowledge

There is concern among many leading educationists about the universal malady of knowledge being broken up into narrower and narrower cubicles and not integrating different disciplines or failure to look beyond the boundaries created by the disciplines (Yashpal, 2009, Cech, 1999, Ruthnaswamy, 1955, Ghose, 2006, Schster, 2008). Under corporate education we need to develop hybrid disciplines for the benefit of society including industries¹⁰. This may be akin to many universities in developed countries setting up separate departments or schools on policy sciences or civil society studies. While policy science covers most of the social sciences in one holistic stream, civil society studies normally looks at the third sector and the space outside

state and corporate with many social sciences and even natural science disciplines joining hands. There is growing concern regarding lack of integration of knowledge from various disciplines even at undergraduate courses. The university of Melbourne, Australia recently phased out 96 old undergraduate courses in favour of six new broad first degree programmes (which is now referred as Melbourne model). Another strategy for developing integration of disciplines is to establish separate departments in hybrid disciplines. For instance, Indira Gandhi National Open University (IGNOU), India has established various schools of studies and centres which are more multidisciplinary in nature¹¹. Universities also can develop courses which integrate the knowledge from different disciplines. Table 3 gives some examples of universities offering offbeat courses crossing disciplinary boundaries. For covering the various key competencies discussed above under corporate education this offbeat courses approach crossing disciplinary boundaries may prove useful.

Reaching out to Society

In the transition towards a knowledge economy and knowledge society, universities need to produce more knowledge, relevant knowledge, and also become responsible for the transfer of that knowledge to those parties who need it. Magrath (2006) says that the 21st Century University which has great educational and intellectual talents within its faculty and staff is an educational enterprise and must use the educational talents available to serve society by providing a variety of learning opportunities for students; by discovering new knowledge and applying it for the good of the country (America); and by partnering with social and economic interests in its state and region in ways that meet, not university needs, but community needs. The corporate education concept at universities should include preparing and continuously developing or modifying the curriculum of different courses by collaborating with corporate bodies/business organizations/colleges/NGOs etc. Narasimharao (2009a) gives some examples of collaborations between universities and other organizations. Recently IGNOU has entered into a number of collaborations with other organizations. Some of them are - Cochin International Aviation services ltd for offering various programmes in airport related matter; Core projects & technologies ltd. for vocational courses; Angala Parameswari Educational Trust for developing programmes in areas of engineering & technology; Maya academy of advance cinematics for programmes in digital film making, computer imaging technology, 3d animation etc; Bharati learning systems Ltd for joint MBA programme in telecommunications; FT Knowledge company Ltd for programs in financial sector; WLC college (India) Ltd for fashion design courses; Royal college of applied science & technology (UAE) for science & technology programmes; Bhasha Research & Publication centre for courses in tribal studies & Himalayan studies; Kerala university for programmes in Bioinformatics; Madhya Pradesh Council of Science & Technology for short term courses in Geospatial tech, Biotechnology, Computational Tech & Rural Technology; HCL infosystems Ltd to offer training & capacity building programmes; Future Learning & Development Ltd (Panataloon group) for retail management; IILM institute for professional legal education; IBM India Pvt. Ltd for training on IBM's Open technologies; Institute of Rail transport to offer courses in Rail transport; Nestle India Ltd for man power in dairy sector; Society for participatory research in Asia to offer MA in participatory development; Apparel export promotion council for offering programmes related to apparel industry; Centre for Environmental Law, WWF India to offer courses in Environmental law; National human right commission for sensitization programmes in Human rights for Police (IGNOU, 2010).

As Narasimharao (2009a) points out with the concepts of outreach, clustering, innovation systems, open learning, lifelong learning, corporate universities and so on it can be said that universities cannot be seen as the only place where knowledge production takes place. The collaborations with other organizations will be more fruitful if core strengths of each collaborating agency are utilized while taking the holistic view of the collaboration. The

corporate education concept at university level would not only help in integrating various fields of study for which the university has the expert faculty but also help in collaborating with relevant sections of the society having more practical and real life exposure in that particular field. We need to involve various sections or stake holders who matter for the programme/course. For example Moorpark College and local Biotechnology companies developed a strong collaboration that focused on providing a comprehensive education in Biotechnology at the community college level. Eight department heads from a local industry (Baxter Healthcare Corporation), numerous scientists and managers from Amgen company, administrators from Moorpark college, and faculty from Mathematics, Chemistry and Biology participated while designing a training program curriculum for industry purpose. Similarly, for people in professions like footwear, pottery, agriculture, and business etc. the local university/corporate education centre can give inputs through research relevant to local needs and based on the local resources. NGOs, community colleges and other agencies which are closer to the different social groups can become linker units for developing local corporate/business institutions.

Need for Change in approach and attitude

The focus of academics and as well as that of institution as a whole need to be shifted in changing our attitude and approach and keeping pace with the evolution of university and knowledge society. This cannot happen from outside measures alone and we need to find the ways and mechanisms for bringing this from within. Boyer (1996) describes four "interlocking functions" to the professoriate - *scholarship of discovery* (basic research), *scholarship of integration* (placing discoveries within a larger context) *scholarship of sharing knowledge* (communal nature of scholarship) and *application of knowledge* (as a reflective practice in which theory and practice inform each other). The ability of the universities to organize the traditional disciplines differently integrating these four functions to suit the needs of the society is the key to success of corporate education. The subjects should be seen in an integrative way and not in isolation. Dongre & Narasimharao (2010) showed the need for designing management courses as per the need through collaboration with the stakeholders under outreach concept in university of Mysore. Narasimharao & Sridhar (2007) while taking the example of how biology is related to society pointed out the need for moving from subject based approach to need based approach. Under the corporate education concept the direct and two way interaction with industries and other stakeholders through the development, exchange, and application of knowledge, information and expertise for mutual benefit makes it imperative for the universities to design courses in a need based approach and also combining many disciplines. Universities need to develop customized executive post graduate, degree, diploma, certificate and other programs that are already well subscribed to by industry. Short term training modules for specific topics in consultation with industry are also to be developed. Simultaneously universities can also evaluate their existing courses for making them to suit the need of the industry/society. For example, some of the IGNOU courses in Cyber Laws, patents, intellectual property rights, legal literacy, business skills, consumer protection, functional English etc can be directly taken as up skilling programmes for graduates. In one of the proposal by our centre a number of new job oriented upskilling programs in Management, Engineering, Science and Commerce were identified for development and delivery. Similarly in university of Mysore under outreach concept Dell Carnigie entered into an agreement to offer courses to prepare the graduates for job oriented skills. The development of corporate education concept at university would help in all such ventures and also help in motivating the professorate for a change from within covering both traditional and entrepreneurial roles of the university. Though many universities in India offer courses relevant to industries/communities (Narasimharao,

2009a), they need to move beyond the concept of merely offering courses and get the real benefit of collaboration in terms of change from within.

Catering to regional needs

For local economic development it is essential that we identify the local needs and develop local capacity. The capabilities to develop are to generate knowledge, or to effectively select, absorb, adapt and use modern technologies locally. This can be done more effectively by utilizing the academic capacity available at local level. United Nations Advisory Committee on Science and Technology for Development in its report of 1989 observed:

“The essence and implications of creating an endogenous or local capacity ... have continued to elude many countries and hence have not been sufficiently addressed in the mainstream of policy making, of planning or of execution of strategies for overall socio-economic development.”

Kitagawa (2009) emphasizes a new phase of knowledge based development at the regional level through the emergence of triple helix model regionally. Narasimharao (2009a) proposed a model for a systematic effort by the university and society for sharing knowledge in close association in the development of community and economy. In this model the University will have a linker unit like University centre for outreach which will coordinate and collaborate the activities. A similar approach for corporate education concept may support regional development.

The university needs to develop courses relevant to different regions or adopt a flexible approach for changing the course dynamically. For example, European Association of Distance Learning Universities (EADTU) developed a course in genetic engineering which is more than simply the delivery of education and training using learning materials. The materials can be re-packaged to respond to local needs and in identifying good practices (Leach et al., 1997). IGNOU has introduced convergence scheme and community college project both of which can promote regional development of corporate education concept through collaborations and by extending flexible approach in offering of courses. The vice chancellor of IGNOU, Rajsekharan Pillai (2009) states “community colleges are an alternative system of education which aims to empower individuals through appropriate skill development leading to gainful employment in collaboration with the local industry and the community.” He further states “these colleges offer the advantage of tailoring programmes to local needs and state based requirements by using approaches that will be most acceptable to workers in the given community”. Guenther (2001) discussed the role of community colleges in facilitating and cheerleading the corporate global economy while attenuating dissenting world views that would promote a more just and sustainable future. In developed countries most of the community colleges have a separate centre for corporate education indicating the importance of community colleges for corporate education. Similarly the convergence scheme of IGNOU can make the conventional colleges to develop corporate education for their local needs. Under the convergence scheme the IGNOU collaborates with other educational institutions for dual courses. The collaborating institutes can offer IGNOU courses in face to face mode and can plan additional courses relevant to the local needs for offer either through class room or distance mode.

Conclusions

As Drucker (1994) considers the changes that are happening in the present day knowledge society is far more than social change and is a change in the human condition, there is a need for universities to reformulate the conception of education as per the experience of the society in the present century and as per the future perspective. They need to broaden their scope and

coverage and this cannot be done very easily as there are several factors involved including the necessity for change from within and the general difficulty in deviating from the traditional path for both academics and other stake holders. Universities need to adopt appropriate strategies to achieve the mission of higher education in the present day context (see AUCC, 2001) and there are different concepts and models proposed and practiced in the world for establishing connection between community and education¹². In the developing countries context it is argued that the change should come from within for its effectiveness and sustainability. There is absolute necessity for the two major systems of the society – knowledge generating and knowledge utilizing systems - to work in close association not only for manpower requirements but also for knowledge integration through collaboration. Universities particularly in developing countries are increasingly viewed as places where degrees are churned out without any relevance to the needs of the society. For instance in India as per the National Council of Applied Economic Research (NCEAR) there are more than 12 million science and engineering graduates of which only 10 per cent are employable. In this context developing corporate education concept at university level may prove effective. The corporate education concept can help in –

- defining new boundaries to scholarship at university to engage in knowledge creation – not just for the learner but also for society as a whole,
- use 'whole' university by cross fertilization and boundary crossing between different disciplines
- combine good science with the complexities of business, intellectual property protection, social sciences and a regulatory environment in order to adopt different strategies for making the university education to suit the local communities and industries.
- University becoming more responsive to the social and economic needs of the emerging knowledge societies while taking care of their traditional role
- Developing competencies covering knowledge, skills, attitudes and values

One of the strategies proposed for broadening the purpose of universities while simultaneously taking care of market forces is integration of corporate education needs into the traditional universities. This also helps in corporate education being treated in the wholesome context of higher education. The competencies required to be imparted through corporate education concept should not be treated in a compartmentalized mode but in an integrative way to use 'whole' university to cover personal, social and economic well being of the individual or organization. Corporate education at University level may face several challenges like - convergence of various technologies and multidisciplinary and interdisciplinary trends; integrating social responsibility with economic responsibility of organizations and individuals; implementing a corporate education concept that is holistic and broad based; moving to a new paradigm of knowledge production that was socially distributed, application-oriented, trans-disciplinary, and subject to multiple accountabilities; shifting traditional focus from managing people to building competencies for managing organizational capabilities, managing relationships and managing learning and knowledge; understanding the requirements and expectations of corporate and integrating them within university understanding and requirements; responsibility of not only fulfilling the objectives of corporations but also prepare the employees for learning to think and act in a more integrated way taking into account various interconnections, interrelations between positions or ideas, changing situations, different perspectives etc.; dealing with the growing complexity as industries/corporations evolve requiring knowledge and skills (competencies) in various fields and at various levels; developing capabilities to generate knowledge, or to effectively select, absorb, adapt and use imported knowledge and creation of endogenous or local capacity; imparting subject domain skills, general work skills, industry related skills, industry related knowledge and attributes besides generic skills; integration of liberal arts into the competency models; working out solutions for

complex problems in heterogeneous teams to include and understand various perspectives in order to combine them profitably etc. For imparting various competencies the universities can use both cognitive and non-cognitive inputs in multiple contexts and also can use formal and informal learning methodologies. Narasimharao (2009b) gave detailed account on biotechnology education being imparted using various new trends in tertiary education systems.

Universities in developing countries need to take the responsibility of developing and evolving corporate education models covering all aspects of social and economic concerns. As there are no established economic structures to establish connection between the university and different sections of society in these countries (Krishna, 2000), the universities need to develop their own model to fulfill this responsibility. The modern trends in tertiary education can be integrated into this model. The linker unit concept can be achieved by establishing separate centres for corporate education (Narasimharao, 2010b) and also involving NGOs, community units etc. The outreach and engagement concept when applied for corporate education there will be benefit for all the players – university, industry, faculty, students and subject disciplines (see Sandmann, 2006, Narasimharao, 2009a). By including concepts like clustering, National and Regional innovation systems corporate education will make knowledge to be created at different places as per the core competencies of each player. Through triple helix model universities and corporate education can become key drivers of economic development through a range of boundary-spanning, knowledge capitalization mechanisms. Distance education, Open learning and online learning methodologies would help corporate education to follow a flexible approach besides providing lifelong learning provisions. Through convergence model adopted by IGNOU the corporate education can make use of vast expertise available at local universities and colleges for the development of local level capacity. One more strategy is to establish various departments in multidisciplinary fields at the university and linking them also to corporate education concept for taking care of hybrid disciplines as per the requirement of the society. The community college concept when used for corporate education it will offer the advantage of developing tailor made programmes to local needs and state based requirements by using approaches that will be most acceptable to workers in the given community. Thus the corporate education concept is to be developed by universities integrating the recent trends in higher education to make the universities to link to their place and also integrate entrepreneurial and traditional functions needed for the well being of the society. It may be concluded that this is the 21st century social responsibility of universities in developing countries for broader involvement of universities with society.

Notes

1. However there is wide range of apprehension about this. For instance Wrestling (1997) points out that the traditional university has many problems and is beset from within and without. He adds that to preserve it and reform it will take much hard work and all the good will, imagination and intelligence we can muster.
2. The five forces are: 1. Rapid advance of technological knowledge and the related growth of the sophistication and complexity of the productive process. 2. The movement from elite to mass higher education (massification). 3. The general and somewhat populist tendency to challenge the ascendancy of professions (and their claims to be guardians of the public interest) resulting in pressure on academy to address the needs of its consumers and to consider the process of higher education as an enterprise shared with many others. 4. Just as Humboldt's or Newman's visions of the university were born of the experience of the nineteenth century, the present day universities have to reformulate the conception of education covering the concepts like competence, capability or enterprise that would be in tune with the special circumstances of the age that is now coming into being. 5. The force of internationalism and growing integration of world economy is another factor.
3. We need to define what scholarship is. As per Oregon State University (1999) scholarship is original intellectual work which is communicated and the significance is validated by peers. Scholarship may emerge from teaching, research or other responsibilities. Scholarship may take the many forms including, but not limited to: research

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- contributing to a body of knowledge, development of new technology, materials, or methods; integration of knowledge or technology leading to new interpretations or applications; creation and interpretation in the arts.
4. For example, Kitagawa (2009) has examined the new and diversified roles of universities in light of the recent developments in the new governance of science and innovation in Japan, with particular focus on the recent 'regionalization' of innovation policies and policy support for new university-industry linkages. He states that in recent years, universities have been increasingly focused as one of the central players promoting 'regional innovation', as seen in the Third Science Basic Plan of Japan. Universities, along with other regional stakeholders, are trying to create regional advantages through collaboration and partnerships.
 5. The term 'competency' in general is discussed not only within the work environment or in the context of training and educational context but also in personal and societal every day life. A competency is more than just knowledge and skills. It involves the ability to meet complex demands, by drawing on and mobilizing psychosocial resources (including skills and attitudes) in a particular context (Rychen and Salganik, 2003).
 6. Reflectiveness involves not just the ability to apply routinely a formula or method for confronting a situation, but also the ability to deal with change, learn from experience and think and act with a critical stance.
 7. Some of the mechanisms and models include training centres, consulting units, science parks & business incubators, technology councils, combined research projects, mode 2, triple helix, national innovation systems, regional innovation systems, centres of excellence and relevance, university outreach, clustering, corporate universities, human resource development centres, corporate education centres, community colleges etc.
 8. As a Biotechnology company grows from a small start – up to a large manufacturing company, the human resources needs changes.
 - A small company of 1- 50 employees research & development
 - A mid-size company of 51 – 300 testing products & process clinical trials
 - A large company over 300 employeesThe biotechnology industry initially grows out of a scientific research base and relies on high-level, Ph.D. scientists. With the maturing of the industry and the movement into commercialization and production, the demand for technical workers increases.
 9. Barth et al. (2007b) identifies at least two central challenges, amongst others, as requirement for learning in formal settings – orientation towards interdisciplinarity and strengthening self-reliance and self-direction in the learning process. Schugurensky (2000) differentiate three forms of informal learning – self-directed learning (learning projects), incidental/experiential learning (unintentional but conscious learning), Socialisation (tacit learning – unintentional and unconscious).
 10. The committee on Renovation and Rejuvenation of Higher Education in India warns against cubicalisation of knowledge and suggests creation of exciting opportunities for different kinds of interfaces between the disciplines, which is unthinkable today in most of the universities and institutions of higher learning. The report further states "It is important that universities relate to the world outside and the walls of disciplines are porous enough to let other voices be heard. It would also be necessary that the university education is seen in its totality and subject areas not be designed in isolation (Yashpal, 2009). Corporate education concept also needs to be viewed from this angle to give it a holistic approach.
 11. Some of the schools which are not traditional discipline based schools/centres established by IGNOU recently are Gender and Development studies, Tourism, Hospitality service sectoral Management, Interdisciplinary & Transdisciplinary studies, Social Work, Vocational Education & Training, Extension and Development studies, Translation studies & Training, Ignou institute of Vocational Education and Training, Centre for Corporate Education, Training and Consultancy.
 12. Some important concepts and models are university-industry collaboration/cooperation, mode1 & 2 models, triple helix, National innovation systems, regional innovation systems, higher education for sustainable development, consortium & cluster concept, university outreach and engagement, open learning and distance education, corporate education, service learning, community learning, centres of excellence and relevance, etc.

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Table 1: **Competencies Required for Well functioning Organization**

Key Competencies are employed in different combinations in varying contexts

Competency Category 1 : Using Tools Interactively (Cognitive, Socio-cultural and Physical tools)

Using tools interactively opens up new possibilities in the way individuals perceive and relate to the world

- **The ability to use language, symbols and text interactively – Communication competency**
Spoken & Written language skills
Computation and mathematical skills
- **The ability to use knowledge and information interactively – Information competency**
Recognise and determine what is not known
Identify, locate and access appropriate information sources
Evaluate the quality, appropriateness and value of information
Critical reflection on the nature of information – its technical infrastructure
Critical reflection on the nature of information – its social, cultural and ideological context & impact
Organise knowledge and information
- **The ability to use technology interactively – Technological competency**
Awareness of new ways of technologies use in daily lives
Critical reflection on the nature of technology and its potential
Relate the possibilities embedded in technological tools to individuals own circumstances and goals
Incorporate technologies into their common practices

Competency Category 2 : Interacting in Heterogeneous groups (Social Capital)

One of the potential sources of inequity in the future could be differences in the competence of various groups to build and benefit from social capital (social competencies, social skills, intercultural competencies, soft skills)

- **The ability to relate well to others**
Emotional intelligence and effective management of emotions
Respect and appreciate the values, beliefs, cultures and histories of others
Empathy – taking the role of other person
- **The ability to cooperate**
Work in teams and balance between commitment to the group and his or her own priorities
The ability to present ideas and listen to those of others
The ability to construct tactical or sustainable alliances
The ability to negotiate
An understanding of the dynamics of debate and following an agenda
The capacity to make decisions that allow for different shades of opinion
- **The ability to manage and resolve conflicts**
Analyse the issues and interests at stake (e.g. power, recognitions of merit, division of work, equity)
Identify areas of agreement and disagreement
Reframe the problem
Prioritize needs and goals

Competency Category 3 : Acting Autonomously

Acting autonomously does not mean functioning in social isolation. On the contrary, it requires an awareness of one's environment, of social dynamics and of the roles one plays and wants to play.

- **The ability to act within the big picture**
Understand patterns
Understand and consider wider context of ones actions and decisions
Understand the system in which they exist and its norms, values and social and economic institutions
Identify the direct and indirect consequences of their actions
- **The ability to form and conduct life plans and personal projects**
Concept of project management to individuals
Define a project and set a goal
Identify and evaluate the resources they have access and they need (eg. Time, money)
Prioritize and refine goals
Balance the resources needed to meet multiple goals
Learn from past action, projecting future outcomes
Monitor progress, making necessary adjustments as a project unfolds.
- **The ability to assert rights, interests, limits and needs**
Understand one's own interests
Know written rules and principles on which to base a case
Construct arguments in order to have needs and rights recognized
Suggest arrangements or alternative solutions

Source : Data available from OECD's Definition and Selection of Competencies (DeSeCo) project-Executive summary, 2005 (www.oecd.org/dataoecd/47/61/35070367.pdf)

Table 2 : **Expectations of University – Corporate education partnerships**

Universities	Corporations	Remarks
Universities should be able to decide on what and how much knowledge is relevant. Integration of knowledge from different disciplines relevant to corporate education needs	Corporations to overcome the problem of looking at knowledge in a narrow commercial outlook. The need for integrating even liberal arts education.	The need for a more well-rounded individuals who can see the big picture (Joyner, 2001)
Programmes/ Courses should enhance employee skills, performance and productivity in an organization ()	Spreading a common culture and values and drive change simultaneously across the whole organization ()	Meister, 2000; Wagner, 2000
Development and customized delivery of corporate education programmes.	Corporations to recognize their limitations to provide the breadth and depth of corporate education programmes required to fully address strategic role of education	Many large corporations recognize their academic limitations (Anderson, 2002)
Provide objectivity to a corporation and challenge traditional thinking and paradigms within the organizations. ()	Assumptions and the traditional self validating thinking patterns of executives involved	Lorange 1996
Integrating university research with the content delivery of corporate education programmes.	Integrating the expertise available at universities and within the corporation for development of organizational learning processes and creating new research projects	Anderson 2003 Integrating tacit knowledge
Different university award levels designed to suit the different skill, knowledge and management levels	Commitment to a long term relationship and not seeking a quick fix to a training problem	Prince and Beaver, 2004; Henderson et al., 2006
Use industry material to make the university programs relevant. Blend the material from the university with organization material	Professional development of the organization is based on university award programmes	Blend of complementing Knowledge and skills that integrates teaching, research and professional practice (Barnes and Phillips, 2000)

Table 3: Out of the Box- Some Innovative Offbeat Courses (Dongre & Narasimharao, 2010)

S. No.	University	School/Department	Country	Course Title	Course features
1.	Harvard University www.gsa.s.harvard.edu	The Graduate School of Arts & Science (History of Science)	US	Master of Arts in History of Science Doctor of Philosophy in History of Science	Science its subject and history its method. Broad and sufficient foundation in natural & social sciences, behavioural and brain sciences, technology, mathematics, medicine, law
2.	University of Cambridge www.cam.ac.uk	Archaeology & Anthropology	UK	Undergraduate course	Enables one to combine a broad general introduction and then pursue detailed advanced study in one of the three fields
3	Australian National University http://caas.anu.edu.au	Faculty of Arts & ANU Medical School (Culture, Health & Medicine)	Australia	Masters of Culture, Health and Medicine (MCHAM)	Interdisciplinary with focus on medical anthropology and health sciences. Emphasis is placed on the problems of combining anthropological perspectives and medical practices with other forms of technical expertise in health-related research & practice
4.	University of Auckland www.auckland.ac.nz	Disability Studies	New Zealand	Undergraduate Programme	University level training for human services and disability support workers
5.	University of Strathclyde Glasgow www.strath.ac.uk	Sports Engineering	UK	Undergraduate Programme	Special Combination of subjects from the areas of engineering, design and sports science
6.	Massachusetts Institute of Technology web.mit.edu	School of Sciences (Brain & Cognitive Sciences)	US	Graduate Programme leading to Doctor of Philosophy	Students may specialize in molecular & cellular, neuro sciences, systems neuroscience, cognitive science, computation, cognitive neuroscience
7.	McGill University www.mcgill.ca	Biomedical ethics	Canada	Masters in specialized education in Bioethics	Interdisciplinary that emphasizes both the conceptual and the practical aspects of bioethics
8.	University of Tokyo www.u-tokyo.ac.jp	School of Interdisciplinary Information studies	Japan	Socio-information and communication studies	Covers media, journalism, law and policy, economy & Industry, sociology & history, social psychology and information management
9.	Guru Gobind Singh Indraprastha University	School of Basic and Applied Sciences	India	M.Tech in Engineering Physics	Generating trained manpower in techniques finding application in defense technologies, alternative energy technologies, network security, genomics and computational biology, accelerator technology, modeling in the

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	y (GGSIPIU) www.ggsipu.nic.in				areas of metrology, nano-science, neuro science, finance and disaster management
10	Indira Gandhi National Open University (IGNOU) www.ignou.ac.in	In association with Maya Academy of Advanced Cinematics (MAAC)	India	Bachelor's in 3D Animation and Visual Effects	Impart training in animation skills, soft skills, business & production management content creation etc.
11	TERI University www.teriuniversity.ac.in	Renewable energy and energy management	India	M.Tech in renewable energy engineering and management	Impart knowledge not only in renewable energy tech. and implementation but also is important synergetic sectors of energy infrastructure such as energy economics and energy conversion.
12	University of Melbourn www.unimelb.edu.au	--	Australia	Under graduate degree	The university phasing out 96 old under graduate courses in favour of six broad first degree programmes – arts, bio medicine , commerce, environment, music and science. They study 25% of their modules from outside their degree programme (called breadth subjects).