THE COMMUNICATIONS

Journal of Applied Research in Open and Distance Education

The Communications—an applied journal of research in open and distance education, is an official publication of the Directorate of Distance Education, University of Kashmir, Srinagar. The Journal seeks to bridge and integrate the intellectual, methodological and substantive diversity of educational scholarship and to encourage a vigorous dialogue between educational scholars and practitioners. The journal seeks to foster multidisciplinary research and collaboration among policy makers, professionals, teacher educators, research scholars and teachers. The journal also intends to exert its efforts in capacity building for the future of learning and teaching among the new researchers across the broadest range of research activities internationally. The directorate seeks to offer spaces for more critical thinking and reflection grounded in rigorous scholarship as to ways in which higher education might go on being further reshaped in the future.

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MESSAGE FROM THE EDITOR

With one of the largest higher education systems in the world, India’s education system has witnessed exponential growth in the last decade. However, the system itself is grappling with a number of challenges related to expansion, excellence and equity. Distance learning holds immense prospects to the 1.59 crore of the Indian populace, who fall under the student category. Offering readily accessibility, flexibility in learning and affordability compared to regular colleges, distance education institutions are the channel for the mass to earn a working status and the better financial status. Distance education has proved to be a blessing for many aspirants seeking to upgrade their educational qualification for achieving higher education, career enhancement or just for the sake of updation of knowledge. While distance education has by and large benefitted working professionals but now students and even house wives are not far behind. Has the concept of distance education not come into existence, lakhs of students who wished to pursue higher education would have been rendered educationless. This would have shattered their dreams of achieving education despite facing constraints like full time job, family life, financial limitations and many more. Distance learning has provided an excellent platform to students for learning at their own convenience and at their own pace. In this rapidly changing system of learning, if you are working and need a good degree as well as specialized knowledge to enhance your career then distance education can surely be your cup of tea. It is in this backdrop that the University of Kashmir established the Directorate of Distance Education in 1976 with a vision to reach the unreached and to impart education in different disciplines through Open and Distance Learning (ODL) mode. The directorate aspire to attain the status of an internationally reputed institution of excellence in teaching, research and extension.

The Communications—an official publication of the Directorate of Distance Education, is a well recognized journal of research and scholarship in the field of education. Established with the mission of disseminating information about research and scholarship in India, the Journal seeks to bridge and integrate the intellectual, methodological and substantive diversity of educational scholarship and to encourage a vigorous dialogue between educational scholars and practitioners. Although the Journal has a specific academic position, it also seeks to foster multidisciplinary research and collaboration among educationists, academicians, philosophers, psychologists and administrators. The main aim of the Journal is to disseminate scholarly works and information useful to researchers and practitioners in the field of education. Due to huge response from the contributors, I am pleased to introduce two issues for Vol. 21, with a view to reach to a worldwide audience.

I appreciate and congratulate the editorial board, the contributors of articles and all others involved directly or indirectly in this excellent intellectual exercise and wish that the journal becomes the best medium for scholarly work in the field of education and research.

Habibullah Shah
Editor
WHERE IS THE SPACE?

Sandeep Kumar*

ABSTRACT

This is a small study done by the author in a school to understand the space provided to the learner by the teachers in teaching learning processes. Though I also strongly believe that when I am saying above line space provided to learner by teacher itself carry a super impose authority of teacher on learners, where we have accepted the unquestioned authority of teachers. This article will try to elaborate how much and what kind of space is available for learners in class room teaching learning processes like, is the teacher plays an authoritative role in class or not? Is there any contradiction the way learner and teacher perceive the classroom processes? How much a child comfortable in the class to say his or her views? Etc. So the basic objective of the work is to explore the space and say of a learner in his or her own learning processes and how this processes is being influence by the teachers’ authority. To achieve this objective data has been collected by observation of twenty classes of social science in a school. Paper starts with a theoretical framework, which talks about the importance of authority of learners in teaching learning processes, which also include the rationale along with the objective of the work done. Then after collected data has been analyzed on the themes emerged from the collected data itself. After analysis some suggestions has been given to teachers to appreciate the learners’ authority in the class.

Key words: Teaching- Learning- Process, Authority of Learners, Teachers Authority, Socio-Cultural Context.

Introduction

When we talk about democracy we talk about such a system and mechanism in which all components work individually, but with sprit of collectivism. Two things work here very effectively individualism and collectivism. Each component has its own defined work different from others, but they all collectively work for a system. If you see democracy form structuralist functionalist perspective, we come to know that democracy work like a body, in which all parts work individually but with relation to another one, to make a body function properly. According to Michel Apple (2007) democracy is not only a term used in political science, moreover it is a skill for life living. It is not only related to administration and system but also with all aspects of life. Democracy is a way of looking at things which is related to all parts of life, whether it is state, society, family, school or any other system or even an individual. When we talk about democratic school various thinkers come in mind like Ganghi, Tegore, Krishanmurti, Geejubhai Badheka, Dewy, Montessori etc. According to Apple and Been democratic school are the actual school based on democratic way of living. And if we want to make this spirit alive, we have to provide opportunities to our learner to make them understand the importance of this democratic sprit.

With students, community participation is also essential in education system to make a democratic school. Gandhi said school has a great role to play outside the school premises. He said students ultimately will have to deal with the community, than why not they get chance to learn about it from school itself, so that they can understand it in a more comprehensive manner. When a child enters in school, he/she is not a blank slate nor a clay to whom you can make anything. Dewy (1938) said a child has a legacy of his/her past experiences those can be good or bad. Child has strong innate abilities to learn from the birth. Without

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any teacher they learn many things from their surroundings. With little guidance they learn how to speak, they also learn their culture and customs. This learning process is self-directed and self-oriented. Above discussion point out that children do learn from his or her own past experiences. Michal Apple (2009) said that we have to consider these experiences to help learners to learn naturally. Rabindra Nath Tagore said nature is the actual teacher. He also said there should not be any restriction on curriculum, it needs to be free. This way learners can do his or her over all development. He has full faith in learners’ abilities and capabilities, that is why, he said child construct his knowledge in natural settings. He perceived very strong, positive and constructive role of education in which desired role is to play by learner which is forced.

Geeju Bhai Badheka has written many books on his own school experiences. Dewaswapan is one of them, he said in this book that it is important to make a pedagogy contextual. He also mentioned that examination decides everything in school education and the objective of education get defeated. He accepted the space of learner in learning processes and to understand this he does some experiments based on humanistic perspective. He said learning is not mere collection of knowledge, it is a process of dialogue. So it is essential to make learning dialogue based, not teacher authority based. Dialogue means, where dignify respect can be given to learner and his or her experiences and viewpoints. Krishan Murti accept the space of learner in learning process. He said learning is a lifelong process and there is no time when we learn nothing. So in this way actual experiences of life teach us many things. Dewy said a person is an active organism and part of his community. His nature is to express himself and this expression is built and constructed in social settings and social experiences. So if we ignore this expression of learner in class, we are doing injustice to them and in such a situation learning cannot take place. Frère also criticized education system for not giving appropriate space to learner in learning process. He argue that education system believe---teacher teaches and learners are taught---teacher knows and leaners are tabula rasa---complete authority is with teachers and learners are who obey, etc. Frère said actually banking system of knowledge consist Burdon of knowledge which suppress the development of the personality of a child. He said the function of education is to break the culture of silence and also to create the space for dialogue.

With reference to above discussion this is also need to be consider that all individuals are unique, there are difference between two individual and we should respect that difference.---- all student should be given full respect and acceptance, it is inhumane to show some one down---- to develop faith in each other, it is mandatory that we should be honest towards each other---- there is a need to listen each other patiently---- teaching should be meaningful---- it is to be acknowledge that everyone have their unique way of learning etc. But is this the reality in schools? It is a question subject to inquiry. Do students have any role in their own learning process? Are classes always teacher dominated? Does this domination of teacher influence learning of a learner? Is there any conflict in authority between learner and teacher in classroom? What is the role of a learner in a democratic school? Does examination determine everything in school? How much space a learner has in his/her own learning. These and many other questions will be answered in next part of the paper after methodology.

Methodology

The nature of entire work is qualitative and analytical. Observations and interviews were being used as tools for data collection. To collect the data 20 classes of social sciences were being observed and 20 students and 5 teachers were being interviewed. Some theme emerged from the data and on the basis of those themes analysis was done. Themes are also supported by theoretical framework of the work.
Findings

This analysis is done on the bases of data collected by observations and interviews of students and teachers to understand the space of learners in teaching learning processes

Disdain of Students Say in Class

It was being observed in the classes that students’ authority is disdain. Authority means, the equal opportunities and participation in class. Students curiosity was not addressed satisfactory. Question asked by students were not being answer properly. Nothing was being asked by the students, that how they want to do the work, everything was decided by teacher. In a class student said “aj hum political science padengy.” Teacher refused immediately and said “aj history ka turn hai so no political science” It was a clear disdain of student space in learning process. In some of the observed classes teacher even reject the idea of participating the entire class. They always ask question to the bright student to show and prove their teaching quality. In whole some, it came out from the analysis of observed classes that student has no say in class.

Decline of Child’s Identity in from of Student

Observation show that there are huge crises regarding the identity of a child in school or in a class. We need to consider that all students are children first and then students. Generally children feel proud to be part of any class, but observation and interviews done with students it clearly came out that they are in school forcefully without any objective. They shared that they come to school and go back, parents send them to school and school does not accept them as a child of a particular age. So the childhood had lost somewhere between school and home. Resultant they are not doing well at school nor at home. They are losing the childhood and identity as a child.

Ignorance of Learner Natural Tendencies

Students are curious by nature and this curiosity is different learner to learner, but this natural and innate tendencies are being suppressed in class. Students want to ask question (but stopped by saying that your question is wrong), they want to enjoy (they stopped by saying it is not a cinema hall), some time they do not want to study (they are being forced by saying that it is a class not a picnic spot). In all most all classes naturality of a learner is being rejected and disdain. They are not allowed to do anything which does not have acceptance of teacher.

Inadequate Development of Self of Student

It was being observed in the classes the student has not developed their self adequately, reason being they are not being accepted the way they are. Teachers do not have faith in their abilities. All the time words being used by teacher “nonsense”, “you cannot study”, “cannot even you do this much” etc. such behavior of teacher is not appropriate, it creates hinders in the process of self-development of learners. It became more problematic when teachers is this teacher even do not think about such issue. While interviewing a teacher it came out that they (students) have become already what they want to be, we cannot change them. With this understanding they do not do any effort to help learners in their personality development.

Lack of Co-relation between Democratic Class and Learners’ Space:

Observations show that classes are not democratic and there is no space for learners to participate in classroom processes. Democratic class rooms provide space for learn to engage him/herself in learning with due respect. But observations showed that student even do not have space to ask questions without any
hesitation. They answer only what teacher asked to them. In democratic class teacher should provide opportunities to raise questions but nothing like this was being observed. Only straight forward statement is the pedagogy of the classes, no space for dialogue between teacher and students. Everything is prescribed to learner no scope for negotiation.

**Negligence Role of Learners to Decide What and When to Study**

Analysis showed that right to decision is with teacher only. Student has no such right in classes. In observed classes it has never been asked students that what would you like to study or discuss today. This prerogative is with teacher only. Students only obey. So we should forget about the authority of learners in the class room process. Interaction with teacher revealed that they have to do this way only because, they have deadlines for entire course and so there is no time for all such work.

**Forced Disciplined and Forced Value Education**

Responsibility and accountability is inherent within the discipline but only when, if discipline is not forced. Discipline need to be volunteer not forced. But observation showed that classroom discipline is forced by teachers and because of this students are failed to develop feeling of accountability. Interviews with students showed that they feel if everything is done by teacher than why they should bother, even keeping chalk in classroom. They bring chalk when teacher ask them to do. So what so ever discipline exists in school and class does not carry the feeling of responsibility.

**Sitting Arrangement in Classroom**

Sitting arrangement in classroom is also not appropriate. Some students seats are fixed in class, like the bosses (influential students) of the class have their fixed seats and some learners those who are less influential has also fixed seats at back. So such division is very problematic and it is more surprising to know that teacher knows this and does not intervene in this. Teachers’ view is that let them decide, how much we can intervene. So it was observed that there are two classes within one class. Active students and passive students. Interviews with student revealed that they have understanding that intelligent students should sit in front and others at back. It is more surprising to know that teachers also indorse this process. So the sitting arrangement also need to be reconsider on egalitarian basis.

**Contextless Teaching and Ignorance of Individual Experiences**

Analysis showed that teaching in classes are some way or other was context less. Researches proves that subject like social sciences can be best deal in context, but unfortunately observed classes were not using learners context. Discussion with teachers also revealed that they are not bothering about this. They just complete the syllabus on time. Even some of them were very confused that how to incorporate learners context (like their social background) in teaching. Most of them just read books in class or ask some students to read the book and then question answers. Observed classes also revealed that teachers are not sensitive about the students previous experiences they have constructed from their cultural legacy and if used is problematic, like Diwali is a festival when cleaning is done but cannot it be said that cleaning is done on all festivals. So situating learning in context was completely absent.

**No Space for Critical, Analytical and Reflective Thinking**

Everything is given to the learner such as content, questions etc. Hardly there is space of thinking. And in absence of thinking there is no criticality and analysis in absent of these there is no space of reflection . Content is given to learners just to memories and to write in exams. The activities given in text books are also not being used. Teachers skip those activity by saying that put more focus on content
because that will be asked in exams. In such a situation, it can be assumed that nothing is happening for the development of critical, analytical and reflective thinking.

**No Collaborative Work**

Collaboration is a very good strategy to deal with the classes like social science. Student get more chance to understand others perspective and then also learn how to work in group individually with collective responsibility. But nothing like this has been observed in classes. No collaboration exists in classroom teaching. Only teacher fronted classes are existing in schools, where teacher is in the front and students are just listener. While talking with teachers it came out that they believe, that ultimately our teaching helps students to write in exams. In group work they just enjoy and do not study. So collaborative work was not seen in the present study.

**No Understanding of the Nature of the Subject (Social Science)**

It is very sad but true that teachers did not show good understanding of the nature of the subject social science, neither in observation nor through interviews. Most of teacher said social science is the combination of four subjects which is a very wrong phenomenon about the social science; they said history, geography, political science and economics make this subject. But when I asked them, why you teach them separately they could not reply much on this question. They do not understand that social science has its own nature and scope except history, geography etc.

**Conflict between Learner and Teacher Interests**

Analysis of observations shows that there is conflict between learner interest and teachers interest. If it is supposed to be said learner want to learn and teacher want to teach. But teacher want to teach without bothering how learners want to learn. And leaner want to learn but not being given due respect to their ways. So, they fail to achieve what they want. So this conflict is very crucial to deal to resolve it in a proper way. So that teaching process actually become teaching-learning-process.

**Others**

Except above issues there are more issues were being observed in the classes. Like Lack of child centered pedagogy, information oriented knowledge, teaching dominated teaching-learning-process, unavailability of co-curricular activities in class, ignorance of individual difference, Homework pattern, School as government tuition center and teachers are agent.

**Conclusion**

As a conclusion it can be said that till date students do not have any space in their own teaching-learning-processes. They do not have space for debate, dialogue, criticize etc. they have no space for asking questions, reflection, analysis, collaboration. The entire process is teacher oriented and classes are teacher fronted. School is working like a government tuition centers and learner as their agent or customer. School is losing its identity as a school and so the welfare agenda of state. So the question still exists “where is the space.”
References
THE 21st CENTURY CLASSROOMS: TECHNOLOGY OR THE TEACHERS

Rajeev Rattan Sharma*

ABSTRACT
The place and the space of the Classrooms right throughout the world are changing with the massive use of Information technology tools and devices ion our day to day thus proliferating the use of it in the classrooms. In the Indian settings although because of many handicaps of the socioeconomic domains are not that forthcoming to change and to be as per the new western society, yet the beginning is made. In all this scene a demand is emerging is the technology or the teachers are to be in the classrooms of the 21st century and the development of the Social networking is playing a major role in the development of this trend. A time is now not only ripe for the class rooms to be changed but also for the both social actors –teachers as well as the Students are to be reciprocal to this trend happening because of the social media. This paper deals how the development of the social media and the social networking are to be instrumental in the knowledge society being shaped in the classrooms.

Key words: Information Technology, Knowledge Economy and Society, Social Media and Net Working, Teacher Education.

The 21st Century – A Change from the Past
As we move further into the new millennium, it becomes clear that the 21st Century needs are very different from the 20th Century needs. It has happened because of the needs which the new society could create because of the interaction between the evolution of technology and the development of economy and society and is an important dimension of human history. The transition from the agricultural society towards the industrial society provides the most pertinent illustration of the profound implications, which the full diffusion of new technologies can have on family structures, work relations, settlement patterns, economic and political power configurations, and also on behaviour patterns and value systems. Looking ahead towards the next ten years or so, the main driving force for economic and social change will be information technology. After a quarter of a century of gradual development and diffusion, many believe that information technology is on the verge of a new take-off. This is partly due to genuine technology evolution; however, it is also partly the result of changing economic and social structures. These are increasingly adapting to the new organizational and institutional patterns required for the full and most effective use of the new technology, thereby contributing now to the push for further technological progress. In the sociology text it says, “Technology is changing our society and our everyday lives” including our classrooms. In the 21st Century classroom, teachers are to be facilitators of student learning and creators of productive classroom environments in which students can develop the skills they will need in the workplace.

Globally, we live in a society which is continually evolving and yet, somehow, it has become generally accepted that schooling should not change. Many still hold expectations that what “used to work” remains appropriate. But we are not the same, we are different because of the needs and the situations which sets are apart from the past. Likewise the world is different too. Does one refuse to wear a pair of new shoes when one pair is worn out or outgrown? It doesn’t mean the old shoes are bad, they just don’t serve their purpose any longer. Similarly, the schools are same but the 21st century has turned them into a

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centres of divergent and collaborative learning. So, the classrooms of the 21st century are different from the classrooms of the 20th century, which was only teacher centric and lectures on a single subject at a time were the norm. The focus of the 21st Century classroom is on students experiencing the environment they will enter as 21st Century workers. The collaborative project-based curriculum used in this classroom develops the higher order thinking skills, effective communication skills, and knowledge of technology that students will need in the 21st Century workplace. The interdisciplinary nature of the 21st Century classroom sets it apart from the 20th Century classroom.

The 21st century is widely acclaimed as ‘knowledge century era’ as the knowledge is becoming a buzzword in every activity. Every nation, rich or poor, developed or developing is finding itself pitched in a competitive and globalised environment wherein the information and its access, the research and the innovations taking in the labs and the classroom transforms the society and whereby the education not only for a specific period of time but a lifelong and a recurrent education are not only important but emphasized and practiced. Etymologically, the word education means just a process of leading or bringing up . . . we speak of education as a shaping, forming, molding activity - that is, a shaping into the standard form of social activity . . . The required beliefs cannot be hammered in; the needed attitudes cannot be plastered on. But the particular medium in which an individual exists leads him to see and feel one thing rather than another; . . . Thus it gradually produces in him a certain system of behavior, a certain disposi
tion of action."Raymond Williams states, “Schools … not only process people, they process ‘knowledge’ as well.” As Michael Apple explains, they act as agents of cultural and ideological hegemony, as agents of selective tradition and cultural incorporation. . . . They help create people (with the appropriate meanings and values) who see no other serious possibility to the economic and cultural assemblage now extant.

A Change – A Need or a Desire?

The education system which we are continuing in most of the context of teaching-learning in the developing and the under developing nations is based on 20th century factory based model of education (UNESCO, ICT in Teacher Education, 2002), whereby the large number of individuals are trained in the skills needed for low skilled positions in industry and agriculture. It is a teacher centric, less information and more memorization based model. It was precisely a model to prepare a class of individuals having ‘mediocrity of intellectualism; teacher’s information and book processing. In this process of Learning, the application of the information for the self realization of economic, social and moral goal is too limited and the learners hardly find anything to work upon. It is way to produce degree and jobs seekers rather than job providers and self initiators having inquisitiveness for innovation or experimentations. India, like many other countries is also following this model of learning which is basically meant to create ‘Middle Level Cadre’ job fills of the erstwhile British Raj type and this sort of education is still looming large on Indian teaching – learning process on a large basis including the state in reference.

Of course, it is not that students or teachers who are to be blamed only for it but to the total system of education which has failed to board the bus of the day for the onward successful journey of 21st century . Why failure happened? The reasons for this can be the apathy of teachers because of the non responsive policy on account of teacher education at the national level. This was also supplemented by the lack of necessary infrastructural facilities such as labs, equipments, library facilities etc and it encouraged the students to do things in a stereotyped fashion, with complete attention for producing best results by obtaining good marks in examinations. They have information but not the necessary skills to apply them for making society to find and achieve the desired goals of education. But recently with the Introduction to the Examinations Reforms by MHRD and replacing of the marks with the Grades will not only help the
teachers to come up with a changed role and strategy for teaching where in the aim would be the cultivation of the Knowledge rather than the information. As per the examination reform NCF(2005), “a system of education and the examination that teaches members of the disadvantaged groups the requisite problem solving and the analytical skills needed by the job market is vital. Memorising and regurgitating textbooks is not the skill needed by the job market. An exam system that encourages this type of learning snuffs out creativity. To teach skills and create excellence is the way –perhaps the only sustainable way toward equity.” So, the Indian system very slowly but tempted to adopt the new need of change for bracing for the 21st century class rooms.

The Defects in the Indian Classrooms

An old adage state, “Tell me and I forget, show me and I remember, involve me and I understand”. The last part of this statement is to be understood in the changed role of the classroom contexts for teaching. Now, the emphasis, is not only to narrate the textual based facts and figures but how these facts and figures can really be useful and are applied in the day-to-day context of students’ life is more useful and emphasised. Lave (1988) showed that learning is viewed as a function of the activity, context and culture in which it occurs and developing meta cognitive skills (Haiso, 1999) and to increase the meaningfulness of students’ classroom learning (Schoenfeld, 1987). In Indian classrooms, another very glaring problem that is encountered is availability of good textbooks and other resource materials. The books available are “by and large run-of-the-mill products with age old facts (Pande, 1997). But these need to be replaced, as there is a shift in the paradigm from teaching to learning particularly in subjects like of math and science, as the methodology of teaching these subjects is faulty. Gupta (1996) carried out as a part of a large-scale study under DPEP (District Primary Education programme) and found that the ‘knowledge’ level of his sample of primary school teachers on a test of reading and mathematics was much lower than expected. In fact, the teachers did not themselves have these minimum levels of learning competencies, which they were striving to develop among their students.

The teachers in the present day should also have to work upon the information of the students in this way, and that is what we know is the philosophy and the theory of ‘Constructivism’. In order to have this kind of the learning which may not only be based on the situations and the self initiatives as the teachers need to devise out these situations (Samashaya) and very important a good amount of the home work at their own ends how to get on with this kind of the system. It will not encourage the learners but also the teachers to face the challenges of the society because of the knowledge generations and the information processing and as these require the professional competence and commitment for this system, Delors Commission (1996) emphasized, “there is need to update and improve the teachers’ knowledge”. UNESCO World Education Report (1998) notes that there are indications that new technologies could have radical implications for conventional teaching – learning process. It notes that, in reconfiguring how teachers and learners gain access to knowledge and information, the new technologies challenge the conventional conception of both teaching – learning methods and approaches.

21st Century Class Rooms- A Place of New Learning

21st century class rooms are going to be the most interesting place of learning where not only the teachers are going to be very forthcoming but the students are also never to be feeling ever bore and monotonous. So “the 21st-century classroom,” which is a reality today can make a remarkable difference in how teachers teach and learners learn. Children have the opportunity to take much more responsibility for their own learning as teachers move from being the sage on the stage to the guide on the side. This concept
is not about learning to use technology. It’s about using technology to learn. In these environments, information and communication technology (ICT) becomes integral to the teaching and learning experience in the sense that it helps to define the very nature of the experience, which could not happen without it. So there are tangible and positive effects on teaching and learning.

Let’s consider the elements of a 21st-century classroom.

- **The Hardware Technologies**
- **The Software technologies**
- **The Hardware Technologies**
- **Interactive Whiteboard**

The heart of a 21st-century classroom is the interactive whiteboard. It’s the largest piece of technology and the focal point for whole-class teaching and learning. A world of information is available at the touch of a finger, whether it’s on the Internet or through other media.

**Projector**

For best effect the projector should be permanently mounted in the ceiling or on the wall. This ensures that the interactive whiteboard and projector are oriented and ready to go every day.

**Teacher Computer**

The interactive whiteboard and projector connect to the teacher computer.

**Student Devices**

Whether it’s one-to-one computing or several computers or devices available for sharing, the classroom isn’t complete without devices for students to use.

**Audio System**

For excellent quality sound, having an sound enhancement system is a must. Having an audio system for the teacher can save not only her voice from strain, but it can eliminate some of the issues hard-of-hearing students may have that might otherwise be chalked up to learning difficulties.

**Interactive Response System**

Putting an interactive response system into each child’s hands can accomplish a couple of things. First, a teacher can gain immediate feedback regarding student learning each and every day, rather than waiting for periodic test results. If students are not grasping a concept, then the teacher can address the topic again from a different perspective. Second, it can ensure that each child is participating and actively engaged.

**The Software Technologies**

**Web 2.0**

The new Web, or Web 2.0, is a two-way medium, based on contribution, creation, and collaboration—often requiring only access to the Web and a browser. Blogs, wikis, podcasting, video/photo-sharing, social networking, and any of the hundreds (thousands?) of software services preceded by the words “social” or “collaborative” are changing how and why content is created. The Web 2.0 Landscape is varied. There are Web applications, social networking, content sharing, and more.

**Open Source Content and Applications**

- Allows users to add content to the Web
- Relies on a community that encourages reusing materials
- Tools for commentary/free expression—text, audio, video
- Tools for management
- Supports social networking

**The Internet**

The internet is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies. The Internet carries a vast range of information resources and services, such as the inter-linked hypertext documents of the World Wide Web (WWW) and the infrastructure to support electronic mail and other social media.

**Social media**

Social media is best understood as a group of new kinds of online media which share most or all of the following characteristics:

**Participation**

Social media encourages contributions and feedback from everyone who is interested. It blurs the line between the concept of media and audience.

**Openness**

Most social media services are open to feedback and participation. They encourage voting, feedback, comments and sharing of information. There are rarely any barriers to accessing and making use of content – password protected content is frowned on.

**Conversation**

Whereas traditional media is about “broadcast”, content transmitted or distributed to an audience, social media is better seen as conversational, two-way.

**Community**

Social media allows communities to form quickly and communicate effectively around common interests – be that a love of photography, a political issue or a favourite TV show.

**Connectedness**

Most kinds of social media thrive on their connectedness, via links and combining different kinds of media in one place.

**Social Networks**

Social networks the websites allow people to build personal websites and then connect with friends to share content and communication. The best known example of a social network is Facebook, MySpace, are made up of peers seeking and giving advice to make better decisions. The social Media is “how” and social networking is “what” technology. The social networks are going to be the major sources of new class room teaching learning situations in 21st century.

**Blogs**

Perhaps the best known form of social media, blogs are online journals, with entries appearing with the most recent first. The blogs are Personal reflection seeking feedback and Entries posted in consecutive order, newest on top, comments from readers extend classroom learning and it acts as Personal learning journal

**Content communities**

Communities which organise and share particular kinds of content. The most popular kinds of content communities tend to be around photos (Flickr), bookmarked links (del.icio.us) and videos (YouTube).

**Wikis**
These websites allow people to add content to or edit the information on them, acting as a communal document or database. The best-known wiki is the online encyclopaedia which has over 1.5 million articles published in English alone. Super easy collaborative and always is a knowledge building with Trackable page edits. Easy collaboration which is extended beyond classroom

Podcasts
Audio and video files that are available by subscription through services like Apple i-tunes.

Forums
Areas for online discussion, often around specific topics and interests. Forums predate the advent of the term ‘social media’ and are a powerful and popular element of online communities.

The Technology or the Teacher –The Choice
Technology has changed the way people get information, and the Internet allows learners to get information instantaneously. Access to all kinds of information is at their fingertips. Every day we see technology used as a tool outside of formal schooling for communication, collaboration, understanding, and accessing knowledge. New technologies are embedded into every aspect of our lives. But if you look at the classroom today, it really doesn’t appear much different than it did fifty years ago. The traditional classroom is being challenged and must compete with the outside world to be a place of learning. Many teachers have overlooked the importance of technology in preparing their students for the future. If education can be seen as the passport to the future, then certainly technology must be included in education.

Technology is a tool that can help and enhance learning. By developing an integrated curriculum, we can ensure that the way students learn with technology agrees with the way they live with technology. Marc Prensky has given them (the students) the title of “Digital Natives.” They are visual learners, multi-taskers, with short attention spans, who use technology to express themselves. They are information analysts, content producers, and real-time learners who prefer instant and text messages. Technology is very important in their lives. Technology is in a constant state of evolution and change. Access speeds, hardware, software, and computer capabilities all evolve and improve on a monthly basis. This change occurs at a rate at which it is impossible for schools to keep up and adapt. As we prepare our students, we need to look at what is really important. There’s no need to teach skills. The skills are only as valuable as the application. If the application is updated, then the skills are outdated. What we want to do is teach our students how to think, how to problem solve, and how to approach new situations with strategies that will prove successful for them. Instead of asking the question “What technology skills must a students have to face the 21st century?” should we not be asking “What thinking and literacy skills must a students have to face the 21st century?” These skills are not tied to any particular software or technology-type, but rather aim to provide students with the thinking skill and thus the opportunity to succeed no matter what their futures hold. The Partnership for 21st Century Skills is the leading advocacy organization focused on infusing 21st century skills into education i.e., the media literacy. Educators must get over the idea that technology will replace them. Any teacher that can be replaced by a computer absolutely deserves to be because they just do not get it. I wish to quote Ian Jukes “For years, there was a belief going around that teachers would eventually be replaced by computers. The role of the teacher is going to change but they will still remain the most critical part of the education process. The issue is not so much replacing teachers with technology, but encouraging them to embrace it”.

Jukes says:
1. It is time for education and educators to catch up, to learn the new digital world.
2. In the information age, students need to be both producers and consumers of content. We have to move beyond 20th century literacy to 21st century fluency—being able to use technological tools without thinking about it.
3. Educators need to shift their instructional approach from director to facilitator.
4. If we want understanding and comprehension, we must teach in a new way.
5. We need to let students access information natively. Just as calculators were scoffed in the 1960s, social networking is similarly cast aside in schools today—where it needs to be an integral part of learning.

Prepare them for their future, not our past. So, the technology is to be in the classrooms of the 21st century whether in the rural or urban settings as pivotal to the students to use it and asking the role of the teachers as the facilitators of the knowledge.

References
EMERGING TRENDS IN PRESERVATION AND DISSEMINATION OF E-BOOKS FOR DISTANCE LEARNERS

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ABSTRACT

If ever a promising technology existed for education- and distance learning in particular- It would be e-books. Compared to the print documents, the use of e-books leaped high in the recent times. Academic and scholarly libraries are at the fore front of these changes and many are preparing for a significant shift from physical to electronic material presentation within a short period. This paper will examine why e-books should matter to the distance learners, and it also tries to debunk some myths about the e-books in the process. In addressing these issues, the paper tries to provide an assessment of e-book technology in view of its potential as well as its current limitations while also calling attention to future developments that holds genuine promise for learners.

Key words: E-books, Digital Preservation, Dissemination, Distance Learners.

Introduction

For several years, it has been anticipated that electronic books will gain widespread use as an educational tool, but this has not yet actually come to fruition. It seems that, for the first time, all of the necessary elements are in place: inexpensive but highly functional portable reading devices, an increasing number of available book titles, and a technologically literate student population hungry for new media. The stage thus appears to be set for the single most widely used tool in the history of education, the printed textbook, to follow the slide rule and mimeograph machine down into the pit of obsolescence. The students are obvious targets for e-book utilization because college students are typically prove to embrace new technologies and also purchase a high volume of expensive, cumbersome and rapidly discarded books.

1. Humble Origins

E-books have had a long journey to gain acceptability, starting in the early ’70s as a digital library of public domain books known as Project Gutenberg. These were mostly restricted to specialty domains and closed interest groups in their earliest avatars. It is really the 1990s and the explosion of the Internet that made the humble e-books, along with their poster child format PDF, enters the mainstream. Today we see them in one form or the other, be it a product manual or the latest best-seller and, in our context, in some of the nation’s top institutions’ digital libraries.

2. Shift from Print to Electronic

Narrow shelves full of books, some new and sparkling, some old and musty, have long been the retreat of undergraduates frantically finishing papers, graduate students searching for the perfect argument in support of their theses, and faculty performing literature reviews. eBooks, however, are starting to make inroads in the purchasing patterns of libraries and individuals. By December 2010, eBooks made up to 10 percent of trade-book sales, and in the last week of December about 3 million to 5 million e-readers were

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activated. By May 2011, Amazon was selling more e-books for the Kindle than print books by a ratio of 105 Kindle books to 100 print books.

As with mass market, eBook growth, and scholarly eBook publications have seen a measurable increase in sales in 2011, with the percentage of sales from eBooks at one university press going from 1.6 percent in 2010 to 11.3 percent in February 2011 (perhaps attributable to the number of eBook readers given as gifts in the 2010 holiday season). Public libraries are also witnessing a dramatic increase in eBook lending: according to the New York Public Library, which has the highest circulating eBook library in the U.S., eBook loans are up 36 percent compared to the same time last year. The academic community has been licensing and becoming dependent on eBooks for years, since before the debut of the first e reader - the Sony LIBRie in 2004.

Those narrow shelves of print books are preserved for the long-term due to the conservatorship of a few dedicated libraries and the general ownership of many libraries. Librarians and archivist know much about both the challenges of and solutions for preserving traditional books for centuries, if need be. What is not so clear is if we even understand the problems involved; much less have any solutions for, preserving eBooks for the long haul.

Many individuals, publishers, and libraries have copies of eBooks today, but simply knowing that many copies of electronic content exist does not protect digital content. Long term protection arises from constant care and attention to the preserved content. Today’s eBooks are often tied to a specific piece of software or hardware just to read them or they reside only on the publisher’s servers. Even if an individual or library owns the bytes that compose the eBook, it is impossible to move those bytes from one platform to another (and, most libraries and individuals are likely to have licensed eBooks and do not actually own them). To preserve access to eBooks, the intellectual content of the book must be unpacked from its reliance on particular hardware and software and then that content must be securely stowed away and maintained by one or more preservation agencies (such as third party organizations dedicated to preserving digital content, national libraries, or cooperative digital preservation efforts among libraries).

3. Digital Preservation

Within the scholarly community, an early expression of the need for robust preservation solutions for digital content was Urgent Action Needed to Preserve Scholarly Electronic Journals, a statement endorsed by the Association of Research Libraries, the Association of College and Research Libraries, and others in 2005. At that time, the consensus of the academic community was that e-journal content was the genre of electronic scholarly publication most in need of preservation. Following this call to action, a variety of reliable long-term preservation arrangements for e-journals emerged, including the e-journal preservation service offered by Portico. Since 2005, however, more and more scholarly content has been published in electronic form, including digitized collections, grey materials, research output, government documents, and, of course, eBooks addressing eBook preservation is a logical next step for the academic community. Library reliance on this material is increasing as the number of published eBooks is growing exponentially.

3.1. Goals of Digital Preservation

Digital preservation (whether of e-journals, eBooks, or anything else) is the series of management policies and activities necessary to ensure the enduring usability, authenticity, discoverability, and accessibility of content over the very long term.
The key goals of digital preservation include:

- **Usability** — the intellectual content of the item must remain usable via the delivery mechanism of current technology;
- **Authenticity** — the provenance of the content must be proven along with its authenticity as a replica of the original;
- **Discoverability** — the content must have logical bibliographic metadata so that the content can be found by end users through time; and
- **Accessibility** — the content must be available for use by the appropriate community.

At a base level, one published digital object looks like any other. Every object consists of some metadata and some files:

| Some metadata + Some files = Digital Song |
| Some metadata + Some files = Digital Slide |
| Some metadata + Some files = Digital Journal Article |
| Some metadata + Some files = Digital Book |

### 4. E-Book Preservation Challenges

While eBooks are built from the same building blocks as all digital content, they do present some unique preservation challenges. Three particularly thorny challenges are highlighted below: versions, digital rights management, and metadata.

#### 4.1. Versions

Books have a history of publication complexity. They have different editions, translations, publishers, publishing runs, sizes, and even different covers. As an exemplar, consider *Anna Karenina*. There are hundreds, maybe thousands, of manifestations of this work: the original manuscripts, the original serial publications in The Russian Messenger, the first version published in book form, many subsequent print editions, many language translations, the 15+ Kindle eBook versions, the 15+ Nook eBook versions, the two Project Gutenberg eBook versions, and more. In the electronic world, these existing issues are complicated by the ease with which it is possible to make updates or issue retractions on digital content, such that there may be multiple versions of each manifestation. Managing this complexity will be one of the unique challenges of eBook preservation.

#### 4.2. Digital Rights Management (DRM)

Digital Rights Management (DRM) is another challenge for eBook preservation. DRM is technology, often embedded in a file or device, which enforces the rules of use defined by the provider of the content. DRM is particularly prevalent with eBooks, where it is common for books purchased by individuals to be tightly tied to that individual (e.g., it is often difficult to share or lend one’s eBook with a friend) or to a particular device (e.g., books purchased for one appliance or application can only be read on that appliance or application). eBooks sold or licensed to public and academic libraries are also wrapped in DRM which limits the number of times the book can be borrowed, the number of users who may borrow it at one time, or even the locations at which it can be read. The purpose of DRM (which is to limit access and replication) increases the complexity of preserving access for the long-term.
4.3. Proliferation of Bibliographic Metadata

Another challenge of eBook preservation is the proliferation of bibliographic metadata at many different levels of the publication. Metadata is neither simple nor straightforward — a publication does not have only an author but an editor, a translator, and so on. eBooks have all the traditional challenges of bibliographic metadata, plus a number of unique considerations. For example, many eBooks within the academic community are delivered a chapter at a time and thus there is chapter-level metadata to be preserved (and perhaps a representation of the book as a whole and as individual chapters must be preserved). In addition, many books, especially within the scholarly community, are part of a series and thus must include metadata placing them within the context of the series or they are one volume in a multi-volume set, where the entire set is the “book.” Managing this hierarchy of metadata in such a way that preserved eBooks and accurately delivered in the future is a challenge that differentiates eBooks from e-journals.

5. Portico’s e-Book Preservation Solution

Portico is a not-for-profit digital preservation service providing a permanent archive of electronic journals, books, and other scholarly content. Portico launched in 2005 with an e-journal preservation service. In 2009, Portico ingested the first eBooks into the Portico archive as part of an aggregated e-journal and eBook preservation service and fulfilled its first eBook post-cancellation access request in 2010. In 2011, Portico began to offer a separate eBook preservation service in order to allow libraries and publishers to select the preservation services best suited to their particular needs. The Portico eBook preservation service is modeled after the Portico e-journal preservation service; libraries and publishers both contribute to defray the costs of preservation. Publishers commit their current and future eBook holdings to Portico for preservation. eBook content is made accessible to all institutions participating in the eBook service in the case of a trigger event: cessation of a publisher’s operations, discontinuation of a title by a publisher, removal of back issues or a portion of a title by a publisher, or catastrophic and sustained failure of a publisher’s delivery platform. In addition, publishers have the option to designate Portico as one of their post cancellation access (also known as perpetual access) methods to eBooks. The preservation actions Portico takes with eBooks match those of both the Portico e-journal and d-collection preservation services. To meet our rigorous definition of preservation — the series of management policies and activities necessary to ensure the enduring usability, authenticity, discoverability, and accessibility of content over the very long term — Portico is guided by the following principles:

- Preservation metadata describing the technical and bibliographic natures of the content preserved is gathered as the content is being processed into the archive.
- Preservation must be practical (for example, migration of files to new formats is only done when it is necessary and is not preemptively performed without valid archive management reasons.)
- The Portico archive is self-describing and contains sufficient information and documentation to make it possible for a third-party to understand and manage the archive.
- The Portico archive is a dark archive, but transparency to participants is required. To that end, Portico provides audit privileges to participants and regularly reports on content in the archive.
- The preserved content is replicated to multiple on-line and off-line locations on multiple continents.
- The preserved content is regularly checked for bit rot and corruption and any problems are immediately corrected.
- The hardware on which and machine rooms in which the preserved content is located must be maintained to industry standards.
- Portico receives accreditation - Portico was certified as a trusted, reliable digital preservation solution by the Center for Research Libraries (CRL) in 2010. As of June 2011, Portico has over 5,000 eBooks preserved from four publishers and over 100,000 eBooks committed to the archive from twelve publishers.

6. The Nature of Distance Learning

Distance learning refers to situations in which learners are physically separated from the educational provider, communicating in writing (by postal mail, e-mail, fax, or computer conferencing), verbally (by telephone, audio conferencing, or videoconferencing), or in – periodic tutorial sessions. Distance learning courses are not like traditional face-to-face courses. They require different media, delivery methods, course design, evaluation methods, and learner-support structures.

Adaptation is the process of modifying learning materials from their original form to a form usable for distance learning. If materials are designed specifically for a particular learner population in a particular context, they may be totally unsuitable for use with a different learner population or in a different environment. The process of learning material adaptation involves facilitating the material’s effective use in a different context with different learners.

7.1. Why E-Books Should Matter to Distance Learners

The introduction of online learning, lectures, course materials, and journals has opened up a whole new perspective into the possibilities of distance learning for students across countries and continents. Distance learning may one day replace the actual teaching occupation. E-books have global reach and accessibility. It can reach to the most remote of places for distance-learning students. It was reported in Peterson that the enrolment of distance learning classes in the academic year 1997-1998 was five million students. This implied that distance-learning students depended upon full-text electronic resources.

There are several distinct advantages offered by e-books over the traditionally printed counterpart. These advantages are inherent in the format of the electronic devices, and the features and flexibility of the digital instrument’s offer that could not be realised and will never be possible through the printed book. Some of the advantages are enumerated here:

7.1.1. Instant Accessibility and up-to-date Content

One of the fundamental strengths of the book is the instant mode of publication. The e-book has enabled instant worldwide distribution of content over the Internet. Educational institutions can offer instant access of online lecture materials such as the latest updated reading lists to students. Students can download the contents direct from the Internet at their own convenience. The course materials can be updated easily, and the most current editions will take less time to publish. Students searching for library references do not have to loan the physical print book from the library or worry about damaging the printed copy. Similarly, the virtual e-book library is open for access to users ‘anytime, anywhere’, much like a 24-hour convenience store. For example, the full listing of e-books can be integrated onto the library’s online public access catalogue (OPAC) database, offering a complete substitute or optional alternative for library users.
7.1.2. Compactness and Portability
Another advantage of e-book is its compact nature. This portability feature makes it ideal for users who are always on the move. The reader appliance can store many titles into its hardware memory and can hold an entire library collection, thus offering convenience for users. From the perspective of library management, it eliminates the need for physical shelf space. Costs for rental and bookshelf procurement will be drastically reduced.

7.1.3. Searchability and Multimedia Possibilities
The contents of each digital document can be value-added. The contents can be customised, expanded or updated according to what the users desire. As for the traditional print book, majority of users usually scribble notes in the white space of the print pages, but as for e-books, the complete text can be searched for definitions of highlighted words and results can be derived from its in-built interactive dictionary. Customised notes can be annotated or removed by users electronically. E-books have advantageous functions like text search and retrieval, variable font type and size adjustment, and multimedia display possibilities. Book authors and writers will benefit when they integrate such interactive capabilities into their e-books content.

7.1.4. Longevity and Linkages
The old titles of printed books can go out-of-print but not the eBook as it is easily replaced and duplicated. It is good way to preserve rare, limited edition books in the virtual library.

8. Born Digital - Interactive Textbook
When a university college textbook, Principles of Biology, comes out from the Nature Publishing Group in January ’11, it won't be on the shelves of school bookstores. That's because the book was designed to be digital-only. Students will pay not for a printed edition at a bookstore, but for permanent access on the Internet. And when they open the book on their desktops, laptops, tablets and smart phones, they will find other following differences, too.

8.1. Integrated Learning: Each module integrates text, high quality figures, interactive exercises, simulations, video, and assessments into a single, rich flow of learning for the student.

8.2. Customization: Instructors can easily customize Principles of Biology by rearranging or deleting any of the 200 modules, adding their own material, and turning on and off particular sections within the modules.

8.3. Anytime, Everywhere Access: All content in Principles of Biology is fully accessible on desktop and laptop computers, mobile phones, and tablet computers, ensuring that you and your students can take advantage of the material wherever we are.

8.4. Real-time Grade book: Each of the 200 modules in Principles of Biology concludes with a multiple-choice online test of key concepts covered. The results from this test feed automatically into a grade book, allowing instructors to track how their class as a whole is grasping the material down the level of individual questions and learning objectives.

Furthermore, Digital book technology also allows for the possibility that future readers can go directly to the cited paragraphs in referenced books rather than seeing mere footnotes, and e-books will soon be able to accommodate interactive features such as reader annotations, discussion forums, blogs, and electronic tests to support sustained analysis and measure reader understanding at designated points throughout the text. For distance educators as well as traditional classroom educators, such components
would not only enhance student access to information but would also help revolutionize the processes of reading, analyzing, and researching in their courses.

Aside from the obvious benefits of portability, there are some very redoubtable reasons why the e-book is a force to reckon with. To start with, they’re quicker to procure, and you could have the digital copy of the book in question as soon as you place the order. We spare a thought for the differently-able students as well. E-books can cater to them with most software supporting text-to-voice capabilities.

That said the dead-wood variant of the book does score on some key criteria. For starters, it doesn’t need a manual to operate a paper book. The devices—PCs, laptops, dedicated e-book readers and many mobile phones—needed to read e-books require an additional outlay, which for many may prove to be the biggest deterrent. Compatibility issues are rife in the e-book space and that proper network connectivity to digital libraries is play a key role to effective usage, not to mention power requirements to run these devices.

Above all, the well-rooted cultural mindsets around reading from a screen rather than a book affect uptake and usage in India. If our students and faculty are only using the e-book for printing out a paper version, they’re defeating the purpose.

9. Practical Concerns of Libraries in dealing with e-Books

Libraries are the largest consumers of books, there is need to look into various concerns which have been a bother to libraries in their quest to include e-books into their collection. Here are some instances:

i) A recent survey done by Unisphere Research, a division of Information Today, Inc., found that of 1,201 libraries polled in North America, an average of 41% of libraries report an increase in patron requests for e-books over the past year. Individual libraries see this in increased demand for Over Drive downloadable books service and NetLibrary digital titles. Amidst all the demand is the rapidly changing e-book market. Publishers and libraries are working through the challenges of compatibility, digital rights management (DRM), and format types, among other issues, and are seeking creative ways to develop a model that provides the service to library patrons. In February 2011, HarperCollins declared its books could only be downloaded 26 times before the library would be required to re-purchase the title. The following represents other models that could be considered instead of limiting the number of checkouts per title.

ii) Iris Jastram and Steve Lawson present an option which would allow libraries to buy, lend, and preserve e-books in much the same way libraries purchase print books. Libraries will purchase, not license, e-books from publishers or other sources. The entire process would be based on current copyright law and libraries would have right of first purchase. If the copyright is not respected, publishers would still retain the right to sue for copyright infringement and damages.

iii) Libraries could retain a third party vendor to manage both access to and preservation of the e-books or some libraries may prefer to self-manage access and storage. In either case, it is essential that the files are preserved, loan policies and copyright are respected, and that patron information remains private.

iv) Chad Mairn, an Information Services Librarian at St. Petersburg (FL) College offers another model for e-book service. He suggests that library users should have unlimited access to e-books which should include a piece of code that automatically pays the publishers “per
There would be no waiting lines and more people would be reading the same popular book at the same time (one title many readers). E-books that aren’t read would disappear because, quite frankly, no one wants them anyway.

v) Patron authentication will continue to be key to legal sharing of e-books. Authentication is similar to the model for Freegle music downloads. This model of e-book service is probably cost-prohibitive for most public libraries, but may be a model of e-book service to explore in the future. More options are being explored by the library community and the conversations continue. Organizations like Library Renewal have been created to do research and form strategic relationships in order to ensure that communities can always reap the benefits of a library, even as technology evolves and content migrates to digital formats.

Another great facility in using e-books is the abundant free resources that are available today to get e-books. Many websites currently offer free e-books that have great share among all the eBooks. Free resources range from the original site for free text online, Project Gutenberg, to search engines that search e-book sources. Librarians will have to constantly monitor this evolving market as surely as library users continue to purchase e-readers and then look for reading material. For libraries to succeed and survive, e-books must be part of the library’s menu of services and resources.

Conclusion

Given the dramatic increase in publication and sales of eBooks and the growing reliance of the academic community on eBooks, the moment has arrived to address the preservation needs of eBooks. The preservation of eBooks may be met in numerous ways, including preservation through community supported independent archives such as Portico, national preservation efforts, or cooperative efforts among like-minded institutions. While eBooks offer many unique challenges, if the community begins to preserve the entirety of eBooks right now, those challenges can be addressed over time. The proliferation of distance learning in the contemporary societies, will witness a paradigmatic shift by the effective utilization of the opportunities opened by the advent of e-books.
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EFFECT OF MILITANCY ON THE EDUCATIONAL STANDARDS IN JAMMU AND KASHMIR STATE

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ABSTRACT
Social and political disturbances have changed in complexity and nature in the recent past and have magnifying human challenges especially for children. Every aspect of human life has suffered and the overall progress of the States has got a pause, the same is true of our state Jammu and Kashmir. Though some fields like economy and tourism have made some progress in the post militancy years but same cannot be said for education in the state. There was a time when people from all over the world flock to Jammu and Kashmir to seek knowledge and enrich themselves from the spiritual guidance of philosophers and world renowned thinkers of Kashmir. Jammu and Kashmir had once been the centre of learning for the Persian and Sanskrit languages during the start of the Indo-Aryan civilization. The state of Jammu and Kashmir had been in socio-cultural unrest due to political disturbance not only during pre-independence but even during the sixty five years of independence. The political unrest in the state has led to armed conflict which had been at the top during the Militancy period in the State. The education sector has experienced the worst damage that is why the literacy rate of the state is still 68.74% which is second lowest in the country and marginally less than the national literacy rate, which stands at 74.04%. The wastage and stagnation at primary, elementary and secondary levels does not show any remarkable change during last two decades despite implementation of SSA and other centrally sponsored educational schemes in the state. In this paper, I will try to find out the immediate effect on various aspects of Education viz, Educational infrastructure, enrollment, achievement, quality, Literacy, human resource and education for all due to the present turmoil in the State. We must always remember that It is education which can help us to change the mindset of the people and can make us to realize the dream of peace and prosperity. We must understand that education is a crucial tool for mitigating the effects of conflict on children and means of rebuilding their lives shattered by the conflict and advocate for compassion; commitment and tenacity need to make education for children affected by armed conflict a priority.

Key words: E-books, Digital Preservation, Dissemination, Distance Learners.

Introduction
Civil wars are common in less developed countries and their detrimental effects are widely recognized. Most research on civil wars has been focused on the onset, development and end of armed conflicts. The existing research primarily focuses on African Countries that experienced violent turmoil after their decolonization in the last World War II period (Collier-et al. 2003) however very few researchers have addressed the impact of civil wars on welfare of households and individuals. One possible reason is that large scale high quality house hold level data for developing countries affected by civil wars are generally not available. Second, even when such data are available it is difficult to identify whether the household coping behaviour is induced by war or by economic conditions. Third, detailed measures of conflict and associated with it destructions are often not available. Such information may be difficult to collect in countries that are emerging from an armed conflict. Cotemporary armed conflicts are frequently complex with protracted duration and fought by irregular combatants. Armed conflicts involves the intentional use of illegitimate force with arms or explosives against a person, community or State (Geneva Deceleration 2008) and is generally characterized by at least 1000 conflict related deaths per year. Armed

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conflict is the fourth leading cause of death for people between the ages of 15 - 44 worldwide (Geneva Deceleration 2008). In the recent conflicts worldwide a remarkable increase has occurred in violence against civilians. In 1980’s and 1990’s the majority of causalities (80%) were civilians. (Bhuta Yousuf Zia et al 2010) children are especially vulnerable during times of conflict, they are impacted in different ways. Millions of children are caught up in conflicts in which they are not merely bystanders but targets. Some fall victim to a general onslaught against civilians, others die as part of calculated genocide. Still other children suffer the effects of sexual violence or the multiple deprivation of the armed conflict that expose them to hunger or disease. (The attack on Children UNO)

The conflicts and disturbances have changed in complexity and nature in the recent past and have magnified human challenges. Almost every aspect of human life has suffered and the progress and development has got a pause, the same is true of our state Jammu and Kashmir. The residents of Kashmir have often been called the prisoners in heaven (Ganie 2008) they the prisoners of one of the world’s longest interstate conflicts, juxtaposed to an exquisite environmental setting. Wars and military conflict impair the functioning of education systems and often lead to extensive damage to the original educational infrastructure. Millions of children are prevented from attending school as a consequence of violent conflicts. The objective of ensuring basic education for the all by the year 2015 is threatened with failure unless it is possible to stamp such destructive societal conflicts. The armed conflicts which started with insurgency in 1989 has costed not only over 70,000 lives but has played a major role in underdevelopment of Kashmir (Schofield, 1997).

Though the economy and tourism has made some progress in the post peak militancy years but same cannot be said about the education in the state. There was a time when people from all over the world flock to Jammu and Kashmir to seek knowledge and enrich themselves from the spiritual guidance of philosophers and world renowned thinkers of Kashmir. Jammu and Kashmir had once been the centre of learning for the Persian and Sanskrit languages during the start of the Indo-Aryan civilization. The state of Jammu and Kashmir had been in socio-cultural unrest due to political disturbance not only during pre-independence but even during the sixty five years of independence. The purpose of this paper is to discuss the micro economic impacts of civil conflicts and in particular to understand the link between armed conflict and various aspects of education. The paper will focus on the Kashmir insurgency, assessment of the long run impact of the insurgency on the educational outcomes of the children.

Literature Review

Many studies have been done on conflict and education both by the Governmental agencies as well as by the individuals, the findings of some important studies are mentioned here:

Mandatory Schooling for girls is affected by 12.3% in the girls who were of school age during conflict in Tajkistan. (Shmyakina Nov. 2006). Wars and military conflicts impair the functioning of education systems and often lead to extensive damage to the original educational infrastructure; Millions of children are prevented from attending schools as a consequence of violent conflict in the world. (Dr Klaus Seitz Dec. 2007).

Children living in municipality in Colombia with high conflict have a gap in enrollment and education accumulation. The enrollment and education accumulation gaps for children of internally displaced persons widen to over a half a year in secondary school. (KateWharten and Ruth UwaifaOyelere August 2011). Girls in urban Kashmir affected by militancy during 1990-96insurgencies have up to 3.5 years less schooling compared to girls less affected regions of Jammu and Kashmir, Boys and girls more
affected by violence are less likely to complete their primary schooling as well as enroll less in primary schooling compared to boys and girls less affected by the insurgency. (Parlow Anton 31 December 2011).

Schooling outcomes are less for women and men in Germany who lived in high intensity bombing areas during World War II. (AkbulutYuksel 2009). Conflict changes local labour markets from two sides, less male workers are available which affects the economy and this increases demand for female workers due to loss of male bread winners in households women labour supply increases. Research, besides various NGO reports on the effects of Kashmir insurgency on individuals is limited. Doctor without borders (Jong et al 2008). Depression and fear leaving the home is a common finding among the women and men around Srinagar city revealed by the interview taken to people to assess their physical and psychological health after experiencing different forms of violence during the insurgency. (Peterson and Vedal 1994). Kumar (2009) describes the situation of displaced Kashmiris in camps around Jammu. Those Camps lack in educational opportunities for children, health services and employment opportunities for adults. The growing frustration of the unemployed educated youth, the absence of visible economic development due to the conflict prevailing in Jammu and Kashmir State is the overall hindrance to the true educational development (Hibba Arshad, Kashmir corps 2008).

A Preview of Education in J&K

In the year 1947 there were 2,158 educational institutes in the state of Jammu and Kashmir. After the partition the educational institutes in JK dwindled down to 1,835, a numerical display of the conflict’s detrimental effect on the education system (Raza, 1984). However, by the deep interest of people in the region towards education the minimum educational standards were maintained despite the political uncertainty that plagued the region at that time (Ganai, 2008). Just a year after partition, in 1948, a Textbook Advisory Board was established as well as the University of Kashmir (Ganai, 2008). By 1960, State education from pre-primary to higher education was completely free, and there were 5,133 primary schools, 1,354 middle schools, 559 secondary schools, 19 technical institutes, and 9 colleges (Mujoo, 1990). The 1965 Indo-Pak war uprooted many students from their homes, and negatively affected their school routine (Ganai, 2008). Quickly after the end of the 1965 Indo-Pak war, the State moved to revamp their education system. The State government of JK established its own education board, the Board of School Education in the 1970s (J&K Board of School Education, 2008). A subsequent restructure of the education system in JK occurred, which included a revision of curriculum, a new calendar school year, and a survey of the region to determine locations of education institutes (Ganai, 2008). A more youthful, highly educated and politically cognizant generation emerged in Kashmir in the 1980s as a result of an improved education system (Zutshi, 1986). However, economic development and employment opportunities did not expand correspondingly, which lead to a rise in unemployment among the educated (Wirsing, 1998). Frustrated and jobless, many unemployed yet educated youth fell into the ‘gun culture’ of the late 1980s, which eventually lead to the insurgency and consequential military uprising during the 1990s (Habibullah, 2008) JK officials stated that the several hundred damaged or burnt down school buildings in the 1990s had negative implications to the overall education system, all of which were related to the ongoing conflict in Kashmir (The Tribune, 2008).

In early 2008, the first army school in Kashmir was inaugurated by the Indian Army Chief General Deepak Kapoor and in his inaugural address he stated that the education system in Kashmir was totally demolished by two decades of militancy (India News, 2008). The education system has slowly rebuilt itself after the two decades of continuous violence and uprisings (Gupta, 2007). In the past decade, the ministry of School education in Jammu and Kashmir has opened over 3,500 primary schools and renovated
over 3,300 middle and high schools with substantial funding from India. The centrally educational welfare schemes like SSA and RUMSA were implemented in the state as a result the primary and secondary education has got a boost and the dropout rate from schools in Jammu and Kashmir decreased from 19% in 2003 to 5% in 2008 (Government of Jammu & Kashmir, 2007). Due to sincere efforts of department of education a large number of school buildings had been constructed and many vacant teacher posts in rural area have been filled, but the overall lack of educational development caused by the conflict is one of the most crucial barriers to the peace process in Kashmir. A small war broke out between India and Pakistan in the 1999 and things have remained tense since this war, called “Kargil War”, Educational development and employment opportunities are serious issues which the Government of India as well as the Government of Jammu and Kashmir are to address on priority.

The Kashmir Militancy / Insurgency

Jammu and Kashmir (J&K) is geographically and politically an important state of Indian union. It has a distinct history and political background with its own constitution and is different from other states by virtue of article 370 of Indian constitution. It has got three geographical territories: Jammu division, Kashmir division (the Kashmir valley) and Ladakh division. These three divisions are different from each other in respect of population, geography and culture. Ladakh is barely populated, and while the Jammu (43%) and Kashmir (55%) divisions are densely populated. The state is further divided into 22 districts and smaller administrative units called “tehsils”. As per census of 2011 the state has a population of 12,548,926 individuals and State ranks in most economic categories very low (Census of India 2001). Literacy and employment rates are also low, especially for women. The state of J&K has been the reason for three short wars between India and Pakistan (1947, 1965 and 1999) over the territory. Some educated unemployed youth took to arms and staged a war like situation against the state somewhere in 1989. This is known as the Kashmir insurgency.

Militancy started in the late eighties after a disappointing outcome for the ”Muslim United Front” (MUF) in the 1987 state assembly election. Due to rigging at some ballots, the JKLF committed more violent incidences following the election (Wolpert 2010). The official start of the insurgency is after the December 1989 kidnapping of Rubaiya Sayeed the daughter of the newly appointed Indian home minister for Kashmir affairs. After her release, the Indian central government sent in security forces to J&K to break down any form of rebellion. Security forces came into Srinagar City and executed brutal crackdowns where mostly civilians suffered (Schofield 2001) Human right violations committed by both sides, but especially violations committed by Indian forces against civilians were normality. Asia Watch (1993) describes it as the ”human rights crisis” besides the actual insurgency. The insurgency could be split up into three phases (Meyerle 2008, SATP 2011). The first phase was from 1990 to 1996 were militancy focused on urban areas. The most civilian damage occurred during this phase only. A large number of people migrated from Kashmir and the state got damaged on many fronts including economy. The 2nd phase which extended from 1997 to 2001/02 militancy moved to rural areas and districts of Jammu, and considerable human loss was witnessed during this period. The third phase is from 2002 to today. This phase is a low intensity insurgency without any major incidences except the summer unrest of 2008 and 2010.

Conflict and Education: The Linkage

“In every failed state there is a failed education system” (Emily Vargas- Baron based on Nicoai/Triplehorn 2003) Wars and military conflicts inevitably impair the functioning of education system and they are often associated with considerable destruction of the original infrastructure. Millions of
children are prevented from attending school as a consequence of violent conflicts. UNESCO therefore
regards conflicts and their consequences as the largest obstacle to realizing the education for all objectives.
For many of the effected countries (Cf. Bensalah, 2001, 40; UNESCO 2002). As part of the education for
assessment 2000 UNESCO prepared a special inventory for the world education forum Oakar in April 2000
including concrete recommendations for action on education, “Education in situations of emergency and
crises”, (Bensalah 2001-40) The extent to which violent conflicts may be held responsible in concrete terms
for the fact that worldwide 104 million children are excluded from attending schools. According to
UNESCO figures104 million children of primary school age could not attend school in the year 2000
(UNESCO 2003a) UNICEF puts the number of children who do not attend the school at 121million a much
higher figure (UNCEF 2004) due the different conflicts worldwide.

The Effect of Disturbance Various Aspects of Education in J & K

The disturbance of any type jeopardize the whole set up of the state but some fields are destroyed
more than the others and the governmental agencies are working with one goal in the mind that is to curb
the violence any way, this leads to negligence and poor services on all fronts and the most affected are the
essential services of health care, Public distribution system and the education. The militancy in Jammu and
Kashmir have destroyed the basic educational setup of the state and has done considerable harm to the
various aspects of it like Infrastructure, enrollment, achievement, quality, Literacy, human resource and
education for all.

1. Educational Infrastructure

“It is easier to rebuild roads and bridges than it is to reconstruct institutions and strengthen the
social fabric of a society” (Raphael 1998, 8). The insurgency in J&K has caused a great damage to the
infrastructure. The basic infrastructure in terms of regular power supply, roads, communication systems,
and drinking water remains poor in the state. The findings of the pre-budget Economic Survey 2007-08 in
the state presented a very grim picture on all major fronts (Jargal, 2008). The scant road density and the
absence of rail and air links make smooth transport and communication difficult in the mountainous region.
As per the survey findings, the road length per 100 square km area in J&K is 35.71 km as against 104.64
km in the country. The road density in this state is amongst the lowest in India with huge inter-district
variations. J&K has a road density of 13 per cent with highest density of 81.8 per cent in Budgam district
and lowest at 2.6 per cent in Leh district. The state has 2060 habitations which have no road connectivity at
all. The communication facilities too are inadequate. There is one post office for a 60 sq km area, opposed
to the national average of 20 sq km. Number of telephones per 100 people in the state is 7.76, which is well
short of the all India level of 13.57. Unlike the other states of India, the mobile phones with pre-paid
services do not have roaming facility outside the state, there is no SMS service available to pre paid mobile
phones. The state is also under acute electricity crisis and many times there are 11 to 14-hour power cuts.
Worse, as many as 25 per cent households in rural areas and 2 per cent in urban areas are without
electricity. As many as 58 per cent rural population and 13 per cent urban population have no toilet facility.
Safe drinking water is not available to 45 per cent people in rural areas and 4 per cent people in urban
areas. There is just one medical centre for 3127 persons. The state has also felt the direct impact of conflict
in terms of huge damage caused by violent incidents, taking its toll on both public as well as private
properties. From 1989 to 2002, over 1,151 government buildings, 643 educational buildings, 11 hospitals,
337 bridges, 10729 private houses and 1,953 shops have been gutted in some 5,268 attacks on
infrastructure. (Strategic Foresight Group, 2005, p. 70)
2. **Enrollments**

Generally it has been assumed that school enrolment rates decrease and progress towards a universalisation in basic education slows down considerably under conditions in which protracted conflicts are raging: “In war-affected areas, many children who should be in school are hard to find, hard to get into school, and hard to make sure they remain there until completing their primary education” comments Sommers (2002, 6). The armed conflict and any sort of disturbance usually reduces the demand for education primarily due to destruction of educational infrastructure and secondarily due to safety reasons as the parents decide to keep their children at home for safety as the dangers of travelling to school and the risk of attacks on schools; the economic situation of the family does not permit a child to attend school. A study carried by Anton Parlow in 2011 reveal that there is a negative effect on enrollment in primary education during militancy; Muslim boys enroll less in primary education compared to Hindus. Attitude has a negative impact on primary school enrollment. It is not surprising that when armed conflict breaks out the demand for secondary education goes down and for secondary education there is a negative impact on enrollment. Children are more vulnerable in armed groups as a result of conflict-driven social upheaval and magnified poverty as a result they have less chances of enrolling themselves in the schools. During the insurgency period, the dropout rate increased tremendously due to the lack of safe and proper school buildings (The Tribune, 2008).

3. **Educational Achievement**

Insofar as it is at all possible to maintain a semblance of regular school operations in times of war and crisis, it has to be assumed that the quality of teaching, and also the performance of students, suffers considerably, as does the standard of the school-leavers’ qualifications, not least of all as a result of a higher number of drop-outs. During the insurgency in Kashmir there were less number of working days per year due to frequent Hartals (Bandhs) which influenced the achievement levels of the children. The secondary and higher education was more affected in this respect as compared to the primary education. The number of years required to complete a degree also increases as it took me nearly five years (1092-95) to complete three years degree course and three years (1996-1098) to complete the one year B Ed course as the examinations and results were delayed due to frequent Hartals. According to statistics of the state's Home Department there were a total of 2,096 processions and demonstrations sponsored by separatists in the Kashmir Valley in the past two decades and 1,671 such hartals recorded since January 1990. The highest number of 416 demonstrations and processions were recorded in Jammu and Kashmir in 1992 and the highest numbers of 207 hartals were recorded in 1991, the report said. The summer unrest of 2008 and 2010 has added to miseries of the people and the educational achievement which had started to come on the track has again got a fresh setback.

4. **Educational Quality**

Although the extent to which conflicts and crises affect the realization of the goal of quality education may only be roughly estimated, it is obvious that all strategic endeavours towards Education for All inevitably integrate the issue of pedagogical intervention in conflict- and crisis-ridden regions and have to be taken more seriously as a task than has been the case to date: “It is essential that education in situations of emergency and crisis become part and parcel of all national and regional EFA Plans” (Bensalah 2002, 38). The political disturbance and any sort of conflict situation leads to poor utilization of funds and non-implementation of welfare schemes which is true of our state as well. According to the Annual Status of Education Report (ASER) 2011, J and K’s rural schools are far behind in meeting the
RTE indicators. The data reveals that 47.2 percent schools in rural J and K do not have drinking water facilities while 33.4 percent schools are without a toilet facility. The data reveals that 61 percent schools have no separate provision for girl toilets. The ASER says that close to 50 percent schools have no library and about 48 percent schools are without a playground. Only 28 percent schools are with a boundary wall. As per the RTE there has to be a library in each school providing newspapers, magazines and books on all subjects including story books, while safe and drinking water facilities are a pre-requisite. The funds which have already been credited to the state government usually remain un-utilized at the end of the year, as per a report published in a daily news paper Greater Kashmir about 379 Crore rupees already allocated to the Education at the end of 2011 had remained unutilized in the state, which directly impairs the quality of education in our state. The quality of education has also been seriously affected by other aspects of the conflict, such as indefinite strikes, intermittent closures and other disturbances, including several educational institutions being set on fire.

5. **Literacy Rate**

The 2001 literacy rate for the State was 55%, with rural literacy of 48% and urban 72% (Jammu & Kashmir Development Report, 2003). This sharp contrast in comparing rural versus urban literacy rates illustrates the severe lack of development in rural Kashmir, especially the lack of education in villages closer to the Line of Control (J&K Board of School Education). The historical implications of not prioritizing the education of women and Muslims can be seen through these current statistics. In 2001, male literacy was estimated at 66% and female at 42% (Jammu & Kashmir Development Report, 2003). Also according to the 2003 Report, among the rural areas Hindu-majority Jammu tops the rural literacy rate charts with 72%, and Muslim-majority Kashmir is at the bottom. According to the Report, “this is due to the impact of the militancy; all of the districts affected by militancy have a low literacy rate,” (Jammu & Kashmir Development Report, 2003). According to conservative estimates, the militants have razed about 650 schools to the ground and security personnel have occupied several more in rural areas (Mahapatra, 2007). One of the consequences of such activities is a low literacy rate in the state, which stands at 64.97per cent as compared to the all India literacy rate of 74.04per cent.

6. **Human Resource**

Human resources too have suffered enormously in J&K due to large-scale displacement of Kashmir Pandits, Sikhs and Muslims from the Kashmir valley, as also of those from the upper areas of the Jammu region. During the first phase of insurgency violence in the valley was at its peak and in the urban areas of Kashmir especially in the Srinagar city and upto 100,000 Hindus left the Valley in the first two years of militancy (Asian Watch). Most of these people, living on relief provided by the government, in the campus around Jammu and New Delhi are too far from engagement in any productive activity. The fear of violence has forced people to think only about survival and not progress. The progressive bent of mind that plays a crucial role in the progress of a society has diminished in the state. The lack of opportunities and overall dismal scenario has also led to significant migration from the valley. Many educated youth from Kashmir have started migrating to other parts of India in search of greener pastures, thereby further depriving the state of the human resource. The migration of Kashmiri Pandits from Kashmir has caused irreversible and unlimited damage to the education Sector as most of the trained and efficient teachers were from the same community.
7. Education for All

The dream of education for all could not be realized due to the prolonged disturbance in the valley. According to the data of School education department, about 43,153 children who include 19,426 boys and 23,727 girls are out of school (drop outs plus who never enrolled) in J K 2012. About 22,041 children have dropped out from schools. Among them, 9,296 are boys and remaining 12,745 girls. What is more worrying for State, which has most illiterate population among northern states, about 10,982 girls within the age group of 6-14 years have never gone to school. (Greater Kashmir 25/08/12, p01)

Conclusion

The armed conflicts and political disturbances are of different nature and have different consequences in different situations. The Kashmir insurgency is of unique nature in the world as the people of this beautiful landscape are the victims of an ironic backdrop on one of the longest running, unresolved, interstate armed conflicts in the world. Usually the conflicts and armed disturbances do not remain for longer durations and die up with time. The conflict in Peru ended up with the killing of the leader of the movement. The Sri Lankan armed conflict also ended with the human loss of the LTTE but the Kashmir insurgency though now with very low intensity is going on and does not seem to end up soon. This disturbance has got long lasting consequences in every field of life and the education sector is the worst hit aspects of human life. The ongoing conflict is the overall hindrance to true educational development that promotes equality and opportunities for all of the residents of Jammu and Kashmir in India. In the words of India’s Ex. President, Pratibha Patil, “Education is key to Kashmir’s peace and prosperity.” (AOL India News, 2008). We must understand that education is a crucial tool for mitigating the effects of conflict on children and means of rebuilding their lives shattered by the conflict and advocate for compassion; commitment and tenacity need to make education for children affected by armed conflict a priority.

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EMPOWERMENT OF RURAL WOMEN THROUGH ODL TECHNOLOGIES IN J&K

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ABSTRACT

Learning is a lifetime process, beginning with the universal experience of socialization within the family, “from the cradle to the tomb”. The importance of women’s education was first realized in the 18th century. More than 40 years ago, the Universal declaration of Human Rights asserted that “everyone has a right to education. In 2001 in Dakar, participants in the World Education Forum committed themselves to “achieving a 50 percent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.”. Now much later, UNESCO has underlined the importance of access by girls and women to technical and vocational education for economic and social development, and they organised a conference on this issue in 1962. In particular, some Millennium Development Goals (MDGs) were set at the Millennium Summit of world heads of state in New York in 2000 that included MDG-3 to ‘Promote gender equality and empower women - Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015’. This paper aims at explaining the scope of using ODL technologies for women empowerment in the rural areas through enhancing literacy, business skill and social awareness. The paper also identifies possible barriers in using ODL tools to enhance women literacy and business skill in relation to the complex and multidimensional concept of empowerment of rural women, specifically with respect to the state of J&K.

Key words: Rural Women, Women Empowerment, ODL Technologies, Jammu and Kashmir.

Introduction

Education has been the main instrument of human development and its importance has been emphasized through fundamental rights, principles, statutes in a number of countries. According to Article 26 of the Universal Declaration of Human Rights (United Nations 1948): Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Similarly, at World Education Forum Dakar, Senegal, April 2000, the framework for action was developed according to which goals for international communities were defined. Millennium Development Goals (MDGs) passed by the UN General Assembly in a special session in the fall of 2000, further strengthening international commitments towards Education for All (EFA). MDG 3: Promote gender equality and empower women. Target: Eliminate gender disparity in primary and secondary education, preferably by 2005, and to all levels of education no later than 2015. Today, education in India stands at the crossroads. Even though a large number of policies have been adopted to make Education For All goals at the primary, elementary and secondary level come true in the Indian context, there is still a large percentage which gets left out...very large percentage of them being women who cannot make the transition to higher education due to various constraints.

According to the most recent 2001 census data, women account for 48.26% of the 1028.6 million population of India. About 27% of these are 15-29 years old. The literacy rate among women has improved from 7.83% in 1951, to 54.16% in 2001. However, there remain still 228 million women considered to be illiterate (http://www.censusindia.net). Only 6% of women who completed secondary education (35% of

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the total population who enrolled in Class 1) entered higher education. It is clear therefore that a large number of women are still outside the existing higher education system in India. Data show that women in India represent about 50% of the adult population, but only 33% of the labour force. They perform nearly 66% of all working hours, receive only 10% of the world average income, and own less than 1% of property.

“To awaken the people, it is women who must be awaken; once she is on the move, the family moves, the village moves and the nation moves”

Jawaharlal Nehru

Today, the right to education can no longer be understood as the right to access the school system (and eventually complete a certain number of years of schooling). The right to education implies essentially the right to learn and to learn throughout life. The state has an obligation to ensure equal learning opportunities for all, within and beyond the school system, at all ages. This is where Open and Distance learning is bringing about a silent revolution in the equitable access to educational opportunities irrespective of gender, age or time or place. Open and distance learning is defined by the Commonwealth of Learning as a way of providing learning opportunities that is characterized by the separation of teacher and learner in time or place, or both time and place; learning that is certified in some way by an institution or agency; the use of a variety of media, including print and electronic; two-way communication that allows learners and tutors to interact; the possibility of occasional face-to-face meetings; and a specialized division of labour in the production and delivery of courses. Open and Distance education is a branch of education where teachers and students are separated in terms of place and time. They communicate at times of their own choosing by exchanging printed or electronic media, or through technology that allows them to communicate in real time and through other online ways. With the recent trend of technological advance, distance learning is becoming more recognized for its potential in providing individualized attention and communication with students internationally. Initially, developed countries were practicing distance education but off late developing countries have also gone for distance education in a big way.
Open Education is considered as very effective for societies like India, where literacy and education levels are low. More over the system and its features are inclusive in nature. India has emerged as one of the biggest centre of distance education in the world. Since open learning system in India adopts multi-media approach learner can study the course material, watch audio visual programmes related to their courses in his own pace and place. Thus the flexibility in terms of study, greater access compared to conventional education systems and the multi media teaching learning package and the cost effectiveness attracted millions of people. At the school level , NIOS or national institute of Open schooling is providing ODL solution to lakhs of students while at the higher education level , IGNOU (Indhira Gandhi National Open University , BRAOU , YCMOU)just to name a few are providing lifelong learning options to people. 

Empowerment of Women through Open and Distance Learning (ODL) Technologies 

Empowerment of women, also called gender empowerment, has become a significant topic of discussion in regards to development and economics. Entire nations, businesses, communities, and groups can benefit from the implementation of programs and policies that adopt the notion of women empowerment. Empowerment is one of the main procedural concerns when addressing human rights and development. The Human Development and Capabilities Approach, The Millennium Development Goals, and other credible approaches/goals point to empowerment and participation as a necessary step if a country is to overcome the obstacles associated with poverty and development.\(^3\) ODL is a source of progress and development for women. Marriage has and will always be a a terminal point for women education after secondary level especially in rural areas. It was believed among educated men that little education was sufficient for women just to make them literate. It was believed that educated women would not be submissive to their husbands, and hence women education met with resistance in terms of financial and moral support from their husbands. Today, ODL has brought succour to the women education and subsequent empowerment. Women can aspire to reach any level in their education through ODL programmes. It is worthy of note that despite the ample opportunities through ODL, there are still millions of women who are still illiterates due to ignorance, cultural hindrances and poverty in urban, rural and remote areas of the country.

ODL has played significant roles in accelerating women education and subsequently women empowerment. ODL has created opportunities for women to squeeze time out to learn and further their education. It also created opportunities for women to up-grade their qualifications and skills at reasonable intervals. ODL is a veritable instrument in bringing social and economic transformation of women. Distance Education can surely fill up the vacuum created by on campus studies especially for women. Distance education is being considered as a favorite option by majority of women folk because it is accessible. Women can study what they want and also from where they want. It is their own prerogative. Moreover ODL is advantageous because it is flexible. Women can study when they want, completing course work on their schedule, rather than that of college. ODL is being considered as a good option for those women who want to meet their personal and professional goals simultaneously. ODL has the potential to alleviate or remove some of the barriers or constraints that prevents women and girls from accessing educational opportunities such as illiteracy, poverty, time scarcity, socio cultural factors, mobility and relevancy, leading to women empowerment and gender equality. If used in the right manner, ODL can become the tool for women’s active participation in improving their situations. Simple access to information and improved communications can end the isolation of women and promote improved health, access to reproductive services, economic growth as well as alleviate poverty. Women need to be
encouraged to enable them to make use of ODL in improving their educational status. ODL provides various types and levels of education to be acquired by the women. Flexibility of access and study times and the potential to reach women in rural areas or women facing social barriers that limit their access to schools, make distance learning via ICT a promising educational approach for women. ODL may open economic opportunities especially for Muslim women, since in their culture, Muslim women are expected to stay at home and are not permitted to have face to face contact with men other than close family, or to travel. In such cases, telephones, computers and the internet allow women to telecommute and hence work and interact with men without face to face contact and even without being in the same place. Innovative open, distance and technology-mediated learning offer a more realistic alternative as it allows for open access to quality education and increases the capacity of the university to respond to growing demands for quality undergraduate and graduate education. ICT provides the means to support personalization, where learners are also considered to be knowledge builders and creators and not just the recipients of transmitted knowledge (Commission of European Communities 2008). Following these dictums, the need of the hour is that we will focus about possibilities of using key ODL technologies - Print medium, Radio, Television, Mobile Telephony, and Internet and Computer networks for promoting women empowerment especially in rural areas. For carrying out this task the following ODL technologies can be used.

- **Print Medium** - Print media is one of the well established educational medium in India and papers in local languages can go a long way to promote literacy in rural women.

- **Radio** - Radio broadcast, both for information and education, is fairly old in India. Expansion of radio transmission has been rapid, and today there are over 197 radio stations, including 184 full-fledged stations, 10 relay stations and three exclusive commercial radio stations reaching 97.3% of the population and 90% of the geographical area (GOI 2002; 2003). The radio has immense reach in India and radio listening still remains an important source of information for a large number of listeners particularly in rural India.

- **Television** - As per the TAM Annual Universe Update (2010), India now has over 134 million households (out of 223 million) with television sets, of which over 103 million have access to Cable TV or Satellite TV, including 20 million households are DTH subscribers. It is also estimated that India now has over 500 million TV channels covering all the main languages spoken in the nation.

- **Mobile Telephony** - Talking about role of mobile phones in the non-formal and informal context among rural women from resource poor communities, The Indian Mobile subscriber base has increased in size by a factor of more than one-hundred since 2001 when the number of subscribers in the country was approximately 5 million to 635.51 Million in June 2010 (TRAI 2010). Agarwal (2005) observes that phone networks, including cellular phones, leading to “silent” communication revolution enabling millions to overcome the literacy barrier in communication.

- **Internet and Computer Networks** - The researches world over shows that internet has immense potential and is one of the best medium to spread lifelong learning. Jullien & Branchet (2010) noted that the Internet is a significant source of an increasingly diverse body of knowledge, a sort of "one-stop shopping paradise" for those seeking to learn: theoretical knowledge like foreign language or music theory or practical, hands-on skills. A few examples might include someone seeking guidance concerning a cooking recipe, an individual attempting to solve a technical problem related to his personal computer or someone needing to repair his washing machine.
Overall, 71 million users accessed Internet in India in year 2009, with 52 Million “active” users who accessed it at least once in a month.

Review of Literature

A large number of studies have been done to explore the role of ODL systems to promote women empowerment and gender equality. A general finding from a brief review of these studies indicates that more women have recently achieved getting their first job - mostly in education as teaching faculty - and most of them were married (McIntosh, 1973). Kanwar (1995) stressed the need for increasing the upward mobility of women in distance education institutions. Meanwhile women students continue to face problems while studying through the ODL system. Rathore et al (1996) revealed that lack of student support system creates problems for women learners in ODL system. Bhalalusesa (2001) found that there are factors like the faraway locations of the study centres that make studying more difficult for women than men. Taplin (2000) found that the female students reported severe bottlenecks in pursuing their studies due to their social commitments, and a similar finding was visible through their academic results. Sharma (1996) argues for empowerment of women - and not concessions to women - through increased effective use of the distance education system.

Studies by Woodley (1995) and by Gaba (1999) have found that the career paths of graduates have been markedly changed after completion of their respective programmes. Taplin & Jegede (2001) found that most students studied through the ODL system for self-satisfaction and for this improved employment status. Learning may be seen as an approach that is at least complementary and under certain circumstances an appropriate substitute for the face-to-face methods that still dominate most educational systems. While its benefits can be evaluated by technical, social and economic criteria, distance learning methods also have their own pedagogical merit, leading to different ways of conceiving knowledge generation and acquisition (Moore & Tait 2002, p.20).

In empowering women through literacy, Asaolu (2010) is of the view that vocational education must be an integral part of the education to be planned for them for it is this that will set them on the part of self-reliance; a stage whereby they will be able to add voice to their faces. In the same light, Iogwu (2010) believes that educated adults empower their families to develop socially, economically and politically. Women, important members of families of the world, must be made literate and not given away to rottenness with their endowed potentials. This fact is supported by Bhola (1983) that without literacy, development only limps on one leg. Talking about her experiences to use ODL for lifelong learning for women, Jakkamal (2009) explains, “I watch television to learn something about agriculture and goat rearing. Whenever I come across any experts, I discuss with them about the various aspects of agriculture and animal husbandry. I use my mobile phones mostly for talking to experts, SHG members and listening to the audio messages. I can explain the differences between conventional learning and ODL. This type of lifelong learning has helped me to improve my goat rearing abilities particularly in buying good breed, better feed and health management etc.” A Report by Commission of European Communities (2008) observes, “ICT can extend the scope of education and training and be instrumental in providing new educational services at all stages in life.

Findings

The State of Jammu and Kashmir has a peculiar topography which is a hindrance in achieving the desired goal of complete literacy. The network of schools is spread sparsely/thinly and the majority of populace lives in far flung and inaccessible areas, countenance many problems like easy access to
institutions, lack of infrastructure, weather vagaries etc. To add to that has been the problem of militancy which has taken its toll on the accessibility to education in certain pockets of the state. Women constitute about 47% of the total population in J&K. The literacy rate of J&K is 55.52% with male literacy of 67% and female literacy of 43% (census 2001) and as per BPL survey 2008 the literacy rate of J&K is 64.18 with male literacy of 72.32% and female literacy of 55.35%. Gross Enrolment Ratio (GER) in classes (1 to VIII) is 74.45% in J&K as against 93.54% at all India Level. On an average one lakh population is catered to by 153 Elementary Level Schools as against 97 such schools at National Level. In Secondary/Higher Secondary Education there are 13 schools per lakh population as against 14 schools at National Level. On an average, one University in the State caters to the educational needs of 11.80 lakh of population as against 27.4 lakh at National level. Similarly, one college caters to the educational requirements of 2.12 lakh of population as against 1.04 lakh at National level. J&K has a lower literacy rate than the all-India level of 68.64 per cent; the difference in the male-female literacy rates here is also a whopping 20.25, higher than even Bihar, where the literacy indicators are the lowest at a rate of 63.82 per cent, so is the gender gap at 20.03 per cent points.

Gender disparity in literacy in J&K is a historical phenomenon. The female literacy in the State is only 43%. The gender gap in literacy is 23%. The harsh terrain of the State in majority of the areas, socio-religious bottlenecks, lack of access to schools, parents feeling insecure about sending girl children to schools, their engagement in agricultural and other domestic activities etc, early marriage of girls, unwillingness of parents and inlaws to allow the women to continue education after secondary level, lack of awareness and lack of motivation incentives being provided by the government agencies and civil society to promote continuation of education by girls and women through distance mode have been some of the factors which have resulted in a high gender gap especially after higher secondary stage. Some of the salient observations regarding the Rural Woman are:

- **Role-playing in family:** Usually, the head of the family is man. Females are just housewives. Their main responsibilities are bearing and raising children, preparing foods for the family members, working in the family farms, etc.

- **Resource endowment:** Most of the rural poor families do not have any fixed asset. Even if some families have some fixed assets (land, for example), females do not have much authority on the family assets.

- **Income earning activities:** Most of the females are not involved in marketable production activities. Their production activities are not counted in monetary terms in family income accounting. They have to depend on the males’ income.

- **Literacy:** Most of the adult rural women cannot even write their names, though government’s recent initiatives such as ‘free education for females’, ‘food for education programme’, etc. have enhanced the literacy rate among the young females.

- **Access to capital:** Since the rural women do not have free access to the family assets, before they couldn’t source liquid or physical capital because the financial institutions asked collateral.

- **Entrepreneurial skill:** The major deficiency of the rural poor women is the lack of entrepreneurial skill.

- **Access to technologies:** The rural poor women do not have access to modern technologies due to the lack of affordability and accessibility. However, they have little access to radio broadcasts.
Suggestions

Keeping in view the difficult terrain of the various regions of the state of J&K be it Kashmir, Ladakh or some regions of Jammu division, the heterogenous religious and cultural environment in which the women live and other constraints –socio economic and religious, various strategies can be developed to make ODL systems as vehicle for lifelong learning for women in j&k thereby improving the gender equality ratio in access and delivery of some of the suggestion are as under-

1. Phone-in-programs by Radio particularly on Gyan Vani may be helpful to create awareness and provide information about lifelong learning. These programs will help learners to put up their learning needs and queries with anchors/experts.

2. Distance education bodies and agencies can collaborate and use panchayat centers and anganwadis as centers to promote community learning for women of a specific area. The local panchayat/Anganwadi can be developed a learning hub having a multimedia center where rural women enroled in ODL programmes can meet once a week for interactive Videocalls/TV programmes/radio telephony.

3. The Radio and Television can be used as a medium to impart education related to skill based courses which can help girls to improve their qualifications and generate self employment sitting at home. They may not want to increase their qualification but want to use the skills which they have been taught as girls or is part of the family craft -like horticulture , carpet weaving & shawl making , Embroidery , bakery , bee keeping , food processing at cottage level , cattle rearing , tailoring and beauty to earn a respectful living and become economically independant with these “home skills”.

4. Mobile Multimedia vans having state of the art ODL technologies can visit learners at various rural junctions to impart awareness and literacy.

5. Jammu and Kashmir having a very large percentage of female muslim population also has another group of women who have been denied access to qualitative education due to ‘purdah’. The use of ICT in ODL systems is a boon for this section of women to contribute to her own quota to self and national development.

6. Women workers engaged in handicrafts such as shawl making /carpet making/Kashmiri embroidery/basholi paintings/local products/food processing can sell their products on the internet directly to buyers using the ITC –E choupal Model

7. Horticulture being the most important sector after tourism in the state , the ODL bodies in india can join hands with the agricultural universities and Home science departments of Higher education in the state to develop distance learning packages especially for women focussing on setting up of nurseries , food processing & pickling , commercial vegetable production. Radio programmes/TV programmes giving education on setting up of small cottage units can be imparted.

8. The itinerant nomadic women – gujjars and bakarwals in our state can also benefit from this ODL revolution. Mobile telephony , radio broadcasts can help girls from these communities to study while moving along with their families. ODL systems can also help them to get formal education in their family trades or nomadic practices-such as certificate programmes in dairy farming and cattle rearing. The mobile phone would not only help in the learning process but would also support the goat-rearing enterprise in terms of animal management and marketing management

Conclusion

The concept of lifelong learning stresses that learning and education are related to life as a whole - not just to work - and that learning throughout life is a continuum that should run from cradle to grave. The
first step for the women empowerment is to enhance their literacy level and uplift their entrepreneurial skill. ODL technologies creates opportunities for women education today to learn throughout their life time. Education given to a woman is un-quantifiable, the spill over effect of women education on children, families, communities and the nation cannot be over-stressed. An educated woman is a better mother, wife, social mobilizer or citizen. ODL systems can bring about a revolution a state like J&k by focussing on areas which will allow women to utilise their human potential.

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STUDY OF BURNOUT AMONG FACE TO FACE AND DISTANCE MODE TEACHERS IN RELATION TO THEIR ORGANIZATIONAL CLIMATE

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Jaspal Singh **

ABSTRACT

The Study intends to find out the relationship between burnout and organizational climate in education sector. The sample of the study consists of 200 teachers of colleges and universities of North India. The scale developed by Maslach and Jackson (1986) to measure burnout Maslach Burnout Inventory and organizational climate (OCS) developed by Pethe, Chaudhari and Dhar (2001) was used to collect data. The results of the study showed non significant negative relationship between organizational climate and the two dimensions of burnout i.e. emotional exhaustion and depersonalization of teachers where as positive but non significant relationship exists between organizational climate and personal accomplishment (third dimension of burnout).

Key words: Burnout, Distance Mode, Face to Face, Organizational Climate, College Teachers.

Introduction

Burnout is a socio-psychological syndrome grounded in the complexities of people’s relationship with work. It progresses due to chronic interpersonal stressors on the job and leads towards dampening of enthusiasm to work and erosion of engagement with job, slackening performance and sometimes a promising human resource is nipped in the bud due to experience of burnout. Maslach (1993) stated three components of burnout that are emotional exhaustion, a sense of depression and a sense of being less productive & professionally. Teacher burnout was found to be associated to organizational factors such as imposition of measurable goal achievement standards on teachers, lack of trust in teachers’ professional adequacy, a disagreeable physical environment and inadequacy access to facilities and the intrusion of schoolwork into out of school hour’s time. The interactions taking place between teachers, teachers and principal, teachers and students knit a web of social environment, which is constituent of organizational climate. Various other aspects of organizational set up such as time demands, clerical duties, difficulties with students, large classrooms, control of students, financial constraints and lack of educational supplies have been listed as stress inducing causes.

Review of Related literature

Gupta (2005) conducted a study on 200 Secondary School Teachers of Chandigarh and the tools used were Maslach Burnout Inventory & Organizational Climate Inventory (OCI-Form B) developed by Chatopadhyay and Aggarwal measuring organizational climate in terms of eleven different dimensions. It may be further be added that ‘performance standards’, ‘motivational level’, ‘decision making process’, ‘support system’ dimensions of organizational climate emerge as prominent factors predicting burnout and ‘support system’ turned out as only significant factors showing relationship with all the three dimensions of burnout i.e. emotional exhaustion, depersonalization and personal accomplishment. Bandhu (2006) studied burnout among college teachers of Punjab in relation to organizational role stress and institutional climate. Researcher found that college teachers perceiving institutional climate as better have significantly lower level of emotional exhaustion than those perceiving institutional climate as poor. Bettinardi, Montangner,
Maini, Vidotto (2008) conducted a study on Organizational climate, trust and burnout in a rehabilitation center. The sample consisted of 131 employees, subdivided into 6 professional categories. Three questionnaires were administered to the employees. The results evidenced significant differences between the various professional groups regarding the climate perceived and trust in the organization. This study confirms the importance of promoting organizational strategies aimed at mutual reinforcement and support characterized by regular and constructive feedback, wherein there is a reciprocal recognition of each employee's role through a clear, open communication.

Objectives of the Study
1. To find the relationship between organizational climate and burnout among teachers.
2. To find the relationship between organizational climate and burnout among teachers working in face to face mode.
3. To find the relationship between organizational climate and burnout among teachers working in distance mode.

Hypotheses
1. There will be significant relationship between organizational climate and burnout among teachers.
2. There will be significant relationship between organizational climate and burnout among teachers working in face to face mode.
3. There will be significant relationship between organizational climate and burnout among teachers working in distance mode.

Sample
Multi-stage random sampling technique (three-stage) was used in the present study. At the first stage 8 states (Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Delhi, Rajasthan, Uttar Pradesh & Uttra Anchal) were selected from North India In the next stage universities and regional centers of IGNOU were selected. In the third stage 200 Teachers were selected giving equal representation was give to teachers teaching in face to face mode and regular mode.

Method
For the proposed study, the descriptive survey method was used.

Tools
1. Maslach Burnout Inventory (Form Ed) by Christina Maslach and Susan E. Jackson (1986).
2. Organizational Climate Scale by Sanjyot Pethe, Sashama Chaudhari and Upinder Dhar (2001).

Results
Karl Pearson’s coefficient of correlation techniques was employed to find out the relationship between Burnout and Organizational Climate for teachers (total sample) and the teachers teaching through face to face mode and the teachers teaching through distance mode. The values are given in the table given below.
Table 1: Showing values of coefficient of correlation between burnout and organizational climate among teachers N=200

<table>
<thead>
<tr>
<th>Variables (Burnout and Organizational climate)</th>
<th>Values of r for Teachers N=200</th>
<th>Values of r for Teachers (face to face) N=100</th>
<th>Values of r for Teachers (distance mode) N=100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions of Burnout</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Exhaustion</td>
<td>-0.056 (NS)</td>
<td>-0.149NS</td>
<td>-0.068NS</td>
</tr>
<tr>
<td>Depersonalization</td>
<td>-0.013 (NS)</td>
<td>-0.045NS</td>
<td>-0.069NS</td>
</tr>
<tr>
<td>Personal Accomplishment</td>
<td>0.059 (NS)</td>
<td>0.050NS</td>
<td>0.039NS</td>
</tr>
</tbody>
</table>

NS means not significant

Table shows that the values of Pearson’s coefficient of correlation between Organizational Climate and dimensions of Burnout - Emotional Exhaustion, Depersonalization and Personal Accomplishment of Teachers are reported to be -0.056, -0.013 and 0.059 respectively. The values of coefficient of correlation between Organizational Climate and two dimensions of burnout i.e. Emotional Exhaustion and Depersonalization are negative and non significant. Where as the values of coefficient of correlation between Organizational Climate and Personal Accomplishment dimension of Burnout is positive but non significant. Thus hypothesis 1 which states that, “There will be significant relationship between Organizational Climate and Burnout among Teachers” is thus not accepted. This finding is well supported by the studies early conducted by Singh (1990), Gupta (2005), Bandhu (2006) and Bettinardi, Montangner, Maini, Vidotto (2008).

Table also shows that the values of Pearson’s coefficient of correlation between Organizational Climate and dimensions of Burnout - Emotional Exhaustion, Depersonalization and Personal Accomplishment of male Teachers working in face to face mode are reported to be -0.149, -0.045 and 0.050 respectively. The values of coefficient of correlation between Organizational Climate and dimensions of burnout i.e. Emotional Exhaustion and Depersonalization are negative and non significant. Where as the values of coefficient of correlation between Organizational Climate and Personal Accomplishment dimension of Burnout is positive but non significant. Thus hypothesis 2 which states that, “There will be significant relationship between Organizational Climate and Burnout among Teachers working in face to face mode” is thus not accepted. This finding is well supported by the studies early conducted by Singh (1990), Gupta (2005), Bandhu (2006) and Bettinardi, Montangner, Maini, Vidotto (2008).

Table further shows that the values of Pearson’s coefficient of correlation between Organizational Climate and dimensions of Burnout - Emotional Exhaustion, Depersonalization and Personal Accomplishment of Teachers working in distance mode are reported to be -0.068, -0.069 and 0.039 respectively. The values of coefficient of correlation between Organizational Climate and two dimensions of burnout i.e. Emotional Exhaustion and Depersonalization are negative and non significant. Where as the values of coefficient of correlation between Organizational Climate and Personal Accomplishment dimension of Burnout is positive but non significant. Thus hypothesis 3 which states that, “There will be significant relationship between Organizational Climate and Burnout among Teachers working in distance mode” is thus not accepted. This finding is well supported by the studies early conducted by Singh (1990), Gupta (2005), Bandhu (2006) and Bettinardi, Montangner, Maini, Vidotto (2008).
Implications
The results of the study show that there is negative correlation between Emotional Exhaustion and Depersonalization dimension of burnout with Organizational Climate, but positive correlation Personal Accomplishment dimension of Burnout. The control and prevention of burnout is essential in order to tame its occurrence in becoming an epidemic. Before taking preventative measures, there is also a need to assess the prevailing extent of burnout among teachers. Cases of burnout may be identified on the basis of testing and non testing methods. It is suggested for the managing bodies that conducive environment must be provided to the teachers working through different modes. For the solution of the problem of burnout among teachers organizational climate needs to be improved. Periodic meetings of the teachers with HOD’s/Principal should be organized to discuss various problems of the teachers and find solutions. The recognition and approval of best work done and healthy practices initiated by teachers may help protecting their well-being and saving them from being burned out. There should be organizational mechanism to develop appropriate, rational, logical and plausible strategies for human resource management and development. Opportunities should be provided for career progression, professional improvement and to widen the academic horizons. Training programmes should be organized to practice meditation, relaxation therapies, yoga etc. to minimize burnout. It has been proved conducted by Arora (1978), Mutha (1980), Shah (1999), Bedwell and Charles (1999) and Singh (2003). Thus reduction in burnout among teacher will lead to improvement in the effectiveness of the teachers.

References
NEW PARADIGMS IN DISTANCE LEARNING

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ABSTRACT
This paper examines the affordances and potential of emerging technologies to support and enhance each generation to see that the ubiquitous capacity of the Internet is creating very profound opportunities for enhancing the effectiveness and efficiency pedagogical models. The new generations of technology enhanced teaching are cognitive/behaviourist, social constructivist and connectivist. It also further looks at recent developments in emerging educational technology and discusses the ways in which these tools can be used and optimized to enhance the different types of learning that are the focus of distance education theory and practice.

Key words: Paradigm Shift, Distance Learning, Educational Technology.

Introduction
The emergence of modern multi-media distance education in the last decades of the 20th century had several causes. Governments wanted to expand access to higher education. They assumed this would require the use of new technologies and methods, because an essential aim was for students to learn wherever they were, without having to assemble in classrooms. Teaching and learning would occur at distance Technology enhanced education, like all other technical-social developments, is historically constituted in the thinking and behavioural patterns of those who developed, tested and implemented what once were novel systems. The designs thus encapsulate a world view (Aerts et al., 1994) that defines its epistemological roots, development models and utilized technologies – even as the application of this world view evolves in new eras. The past century witnessed the fastest and greatest evolution of technical capacity known in human history with profound consequence to all human activity. Though hardly an original observation, it is interesting to note that distance education evolved from a Gutenberg-era print and mail system to one that supports low-cost, highly interactive learning activities that span both time and distance with equal facility. Significantly, the constraints of the correspondence model simply did not allow educators to employ highly interactive educational models and processes. No doubt, noting the futility of trying to predict the impact of technologies on teaching, modern educational pundits are more likely to disguise deep animosity to technology by putting technology in a more subservient role to that of pedagogy. Thus we hear the familiar line that “technology is just a tool”. Such a cavalier attitude denies the professional responsibility to use available tools both effectively and efficiently. The technology is the music setting the tempo, the beat, the timbre and the compelling melodies. The pedagogy defines the choreography, directing the dancers sweeping motions, graceful extensions and enduring embraces. Together, technology and pedagogy reveal and develop our human creativity and responsiveness and allow us to learn effectively and enjoyably. It is possible to think of pedagogies (considered as the processes and methods used in an attempt to bring about learning) as technologies, integral parts of a technological assembly that must work together with all of the other technologies to bring about a successful outcome (Dron, 2012).

Distance education, as practiced today, does not follow a single paradigm worldview, rather, as Dills and Romiszowski (1997, p. 18) described the field of educational technology, distance education is “a loose confederation of fields that are quite independent of each other and yet that are not merely different

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aspects of the same field”. These paradigm discussions often ignite into controversy especially when standards organizations attempt to define quality in distance education. Different generations of pedagogy describe, define and defend divergent notions of quality (for example the need for peer-to-peer interaction) while sharing many common descriptions (such as opportunities for some type of student-student, student-content or student-teacher interaction). This paper focused on typical learning activities associated with each pedagogy and examine the affordances (Conole & Dyke, 2004, Gibson, 1977) (and potential of emerging technologies to support and enhance each generation. We will see that the ubiquitous capacity of the Internet is creating very profound opportunities for enhancing the effectiveness and efficiency of all three pedagogical models.

Cognitivist/Behaviourist Pedagogy

Cognitive and behaviourist (CB) pedagogies focus on the way in which education was predominantly defined, practiced and researched during most of the 20th century. Behavioural learning theory is based on the notion that learning occurs when learners adopt new behaviours or demonstrate a change in behaviour as the result of an individual’s response to stimuli. Note that in this definition the focus is on the individual and the necessity for measuring actual behaviours and not attitudes, intentions or capacities. This first generation of distance education pedagogy gave rise to a new profession – that of the instructional designer – a professional who designed learning activities that would be enacted by students alone, or with an instructor, at a time, and/or place apart from the designer. Instructional systems theories developed to guide creation of often directed and tightly orchestrated “events” and the learning results were rigorously assessed generally using positivist research paradigms and methodologies. Behaviourist notions are especially attractive in training (as opposed to educational) contexts as the learning outcomes associated with training are usually clearly measured and demonstrated behaviourally.

From behaviourist pedagogy emerged the cognitive learning theories that focus on how processing within the individual brain effects comprehension, understanding, storage and retrieval of information. Cognitive pedagogies arose partially in response to a growing need to account for motivation, attitudes and mental barriers that may only be partially associated or demonstrated through observable behaviours – yet they are directly linked to learning effectiveness and efficiency. Cognitive models are based on a growing understanding of the functions and operations of the brain and especially of the ways in which computer models are used to describe and test learning and thinking. Much research using this model proceeds from empirical testing of multi-media effects, cognitive overload, redundancy, chunking, short- and long-term memory, and other mental or cognitive processes related to learning (Mayer, 2001). Although learning was still conceived of as an individual process, its study expanded from an exclusive focus on behaviour to changes in knowledge or capacity that are stored and recalled in individual memory. The tradition continues with the successful application of experimentally verified methods like spaced learning (Fields, 2005) and applications of brain science, as well as more dubious, scientifically unsound and unverifiable learning style theories (Coffield, Moseley, Hall & Ecclestone, 2004) that achieved popularity towards the end of the twentieth century and that still hold sway in many quarters today. The locus of control in a CB model is very much the teacher or instructional designer. Such theories provide models of learning that are directly generative of models of teaching.

It is notable that CB models gained a foothold in distance education at a time when there were only very limited technologies available that allowed many-to-many communication. Audio teleconferencing was perhaps the most successful means available but came with associated costs and complexity that limited its usefulness and scalability. The postal service and publication or redistribution of
messages was very slow, expensive, and limited in scope for interactivity. Methods that relied on one-to-
many and one-to-one communication were really the only sensible options because of the constraints of the
surrounding technologies. CB-based distance education is often developed in the suggested order and all
but the evaluation phases are done before interaction with students and perhaps with teachers. The model
begins with designers selecting instructional goals. Instructional designers identify goals in discussion with
subject matter experts with an eye to finding deficiencies in learners’ behaviour that can be rectified by new
learning. CB based learning models and learning activities that are net-based dramatically increase the
transparency of these activities – opening them to analysis, visualization and remediation by both
instructors and the learners themselves. This openness becomes a key component of all net-based pedagogy
but has a larger impact when applied to the activities of individual learners, which when delivered with
earlier technologies (notably printed correspondence) left almost no means to observe, much less
understand actual learner behaviour. This is particularly salient when applied to a new generation of large
scale MOOCs (Massive Open Online Courses) where the application of analytics tools can provide a great
deal of significant data about how learners are interacting with and using content.

CB pedagogy relies on the use of high quality text and usually multi-media learning content. The
effort and cost of “developing and selecting instructional materials” continues to plummet in response to
lower cost tools for recording audio and visual (pod, video and screen casts), creating graphics (chart,
graphing and visualization tools) and producing animations. Although debate still rages over the necessary
degree of professional adherence to high “production standards” in educational media, it is clear that
materials produced by designers, teachers and even students are being used to supplement if not totally
replace commercial-quality media production.

The Internet greatly expands the capacity and affordability of most of these instructional design
and production activities through its capacity to document and create artifact of discussion, observations
and agreements amongst members of the development team. Wedman (1989) in developing strategies to
overcome subject matter and teacher resistance to CB models of design argues for the creation of “tangible
products” that mark movement through phases and serve as objects for reflection, evaluation and ongoing
guidance of the process. For example, Wedman recommends the creation of brainstorming lists of possible
goals, documentation of subject matter priorities, flow charts, gathering of lists of instances and non-
instances of appropriate behaviours and more. If we consider the logistics of this collaborative teamwork,
taking place at a distance in pre-Internet days, we can envision only a largely underused and mostly
inaccessible, file of papers – not an effective tool set.

Today each of the instructional design activities is enhanced by a host of Web 2.0 tools. Of
primary use are distributed text tools such as Google Docs, DropBox and wikis. Prior to the Internet,
collaborative work consisted of annotating and re-working the efforts of others with long delays between
edits. Modern systems allow multiple authors to edit text and owners to manage multiple versions, turning
back to previously overwritten work if required. These edits may be made in real time or asynchronously.
As importantly, collaborative work and negotiation is not confined to text. Collaborative graphic tools,
concept and mind mapping tools allow graphic representations of ideas and processes. Voice tools
operating synchronously (Skype) or asynchronously (Voice Thread) allow for richer forms of interaction,
enhancing social presence among collaborators. Finally, the coordination of distributed content producers
requires considerable skill of at least one project manager. Low cost distributed project management tools
allow teams to design, create, produce and distribute content at costs much lower than in pre internet days.
Since high quality content defines CB models of distance education, its effective management and control is extremely important. The costs to construct and maintain currency of high quality content creates a need for distance education student numbers/courses to be much larger than for comparable campus courses (Bates, 2005; Rumble, 2004). Thus, explaining the generally lower costs per student of the world’s mega universities – almost all of which make extensive use of CB distance education pedagogy. Large student numbers preclude economic sustainability in countries with smaller populations and those with large numbers of well-established campus universities. In these contexts, the capacity to re-use content created by others is compelling – if not without its challenges. The Internet provides the infrastructure for multiple ways of sharing content that is the key to quality CB pedagogy. There are a variety of types of distribution models that have evolved to allow for publication, search and retrieval of content. The first were learning object repositories (that stored digital learning objects and the metadata allowing them to be discovered and legally shared). Learning object “referatories” store and evaluate just links to objects. Open courseware repositories store learning objects that are aggregated and supplemented with detailed objectives and, often, assessment activities, thereby creating full courses. Finally, both institutions and disciplinary bodies are establishing repositories of scholarly content (often papers, monographs and data sets) that can be used as content in educational contexts. The importance of Creative Commons licensing with its capacity for allowing the sharing, while retaining copyright, cannot be underestimated as an enabler of effective distribution and sharing. Unfortunately, repositories and mass material re-use has not yet met its potential. In a detailed quantitative study of most of the major repositories (Ochoa Duval, 2009) identify the “contributor problem”: How can contributors be motivated to upload and share their content? This problem remains unresolved, as the technical barriers fall. However, though the repository-oriented approach has not been a huge success, there is more high quality and reliable learning material than ever available across the Internet, not necessarily in purpose-built repositories but authored and hosted everywhere from blogs to Facebook to YouTube and content management systems. Perhaps of deeper concern is the reluctance of distance educators to consume and customize content already created by others. Many content developers define and pride themselves on the production of quality content – not by the consumption and customization of works that they did not produce.

The final affordance of the net – with tremendous, if as yet little demonstrated capacity to improve CB distance education pedagogy – is learning analytics. Building on its forbears, adaptive hypermedia and intelligent tutoring systems (Brusilovsky, 2001) and drawing heavily from related fields such as data mining and web analytics, learning analytics seeks to identify patterns affecting learning in a wide range of online sources. Unlike traditional adaptive hypermedia and intelligent tutoring systems that (in most instances) work on a known closed corpus of material, learning analytics is intended to be employed across multiple, known and unknown activities and interactions internally within an educational system and across the net, mining information about patterns of behaviour in order to extract useful information about learning which can then be applied to improve the experience. In this model, CB pedagogy may be adapted to service the unique learning needs, style, capacity, motivation and goals of the individual learner. Thus adaptive CB based distance education systems strive to create instructional designs that change and morph in response to individual learner’s needs and behaviours. Building from earlier work on user modelling and adaptive systems, these individual attributes are stored in a user model that drives algorithms controlling the presentation style, speed, content, difficulty and other aspects of the learning content. Sophisticated user models are not static, but respond to changes in the learning context (a host of personal, content and situational variables). Finally, there is increasing attention paid to providing access and editing capabilities
to the learners themselves to the learning model that is driving learning sequences presented to them. These Open Learning Models (Bull & Kay, 2010; Kay & Kummerfield, 2006) increase learner control and understanding of the system. Open models can also be used by teachers and other support staff to better understand and respond to individual learner needs, although there are potential and as yet unresolved issues with making such models intuitive to understand and control effectively. An important source of data to constructing the model is the user’s current and past activities with content in the learning context. Harvesting, analyzing, and directing appropriate responses to learner activity and goals is known as learning analytics or the older term of educational data mining. In a review of data mining over the past ten years (Baker & Yacef, 2009) identify ways in which analytics can also be used to study the effect of educational interventions including automated or human tutorial support, student services, and use of resources such as libraries; thereby removing the blindness that has to date prevented educators from viewing and learning directly from distance student behaviours.

From the brief examples above we can see how technologies and especially the Net afford multiple ways in which CB pedagogies and related instructional designs are enabled, enhanced and made cost effective. As MOOCs and other large-scale variants of the CB-model become more prevalent, we look forward to dramatic increases in the availability of high quality, affordable content, coupled with enhanced capacity for designers, teachers and even learners to customize that content for maximum learning.

Social-Constructivist Pedagogy of Distance Education

CB models are inherently focused on the individual learner. While there is a tradition of cognitive-constructivist thinking that hinges on personal construction of knowledge, largely developed by Piaget and his followers (Piaget, 1970), the roots of the constructivist model most commonly applied today spring from the work of Vygotsky (1978) and Dewey (1897), generally lumped together in the broad category of social constructivism. Social constructivist pedagogies are focused on groups of learners, learning together with and from one another. Social-constructivist distance education pedagogies, not coincidently, developed in distance education in conjunction with the development of affordable many-to-many communication technologies. Beginning primarily in the 1980s and flowering in the 1990s, rather than transmitting information, technology became widely used to create opportunities for both synchronous and asynchronous interactions between and among students and teachers.

Social-constructivism does not provide the detailed and prescriptive instructional design models and methodologies of CB driven distance education. Nonetheless, there is a need for coherency among underlying psychological and philosophical assumptions, and the goals and design criteria for learning activities, if pedagogy is to evolve beyond the philosopher’s chair and into the real world of distance education. Wilson (1996) defines social constructivist learning contexts as places “where learners may work together and support each other as they use a variety of tools and information resources in their guided pursuit of learning goals and problem-solving activities (p. 5). Social-constructivist pedagogy acknowledges the social nature of knowledge—its creation in the minds of individual learners but its instantiation in the practice and culture of groups. Teachers do not merely transmit knowledge to be passively consumed by learners; rather, each learner constructs the means by which new knowledge is both created and integrated with existing knowledge. Although there are many types of social constructivism (Kanuka & Anderson, 1999), all of the models have, more or less, common themes, including the importance of:

- New knowledge as building upon the foundation of previous learning
NEW PARADIGMS IN DISTANCE LEARNING

- Context in shaping learners’ knowledge development
- Learning as an active rather than passive process,
- Language and other social tools in constructing knowledge
- Meta-cognition and evaluation as a means to develop learners’ capacity to assess their own learning
- A learning environment that is learner-centred and recognises the importance of multiple perspectives
- Knowledge needing to be subject to social discussion, validation, and application in real world contexts

The need for social construction and representation of multiple perspectives necessitates the development of cohorts and social activities and increased “learner centeredness” within distance education, as opposed to individual studies that follow organizational or disciplinary models of instruction. As Greenhow, Robelia, and Hughes (2009) and others have argued, learning is located in contexts and relationships rather than merely in the minds of individuals. Beyond these defined needs for social interaction in learning, social-constructivist theories of learning are less prescriptive and not as easily translated into theories of teaching as their CB forebears. They do, however, leave more room for negotiation about learning goals and activities among teachers and students.

Emerging Technologies and Constructivist Models

Social-constructivist models only began to gain a foothold in distance education when the technologies of many-to-many communication became widely available, enabled first by email and bulletin boards, and later through synchronous technologies, the World Wide Web and mobile technologies. While such models had been waiting in the wings for distance education since Dewey or earlier, their widespread use and adoption was dependent on the widespread availability of robust supporting technologies. These technologies were first used to create distance education that mimicked campus classrooms. Audio conferencing, from the early 1970s, allowed students and teachers to engage in real time conversations distributed across geographic distance. These remote classrooms were later enhanced by video images (video conferencing), shared writing and display spaces (smartboards), and feedback mechanisms including polling and text chat (web conferencing). However, each of these synchronous advantages came at an obvious cost to distance learners and teachers – that being the loss of freedom associated with a commitment to meeting at a common time. Time constraint issues are especially important to distance students, most of whom are juggling employment and family concerns in addition to their formal course work. Equally challenging are issues of time synchronization across large geographic regions. In our graduate education courses at Athabasca University we rarely have a synchronous web conferencing session that doesn’t involve someone participating in the middle of the night from their geographic home base. The challenges of synchronous interaction in constructivist-based models generated the need to create rich opportunities for dialogue and collaboration in asynchronous contexts. Since the 1970s and especially since the massive expansion of net-based tools in the 80s and 90s, the threaded discussion has become the staple means of learning dialogue in constructivist distance learning models. Recently asynchronous voice has become available as used in threaded list discussions especially for language learning (Stonbrink, 2008) and more recently for collaborative annotation of media in tools such as VoiceThread (Goa & Sun, 2010).
Data mining and learning analytics are not only used to support independent study based on CB models but are being utilized to support and enhance group work. Constructivist distance education pedagogies moved distance learning beyond the narrow type of knowledge transmission that could easily be encapsulated in media through the use of synchronous and asynchronous, human communications-based learning. Thus, Garrison (1997) and others could argue that constructivist-based learning, with rich student-student and student-teacher interaction, constituted a new, “post-industrial era” of distance education. However, this focus on human interactions placed limits on accessibility and produced more costly models of distance education (Annand, 1999). Ironically, constructivist models of distance education began sharing (and even celebrating) many of the affordances and liabilities of campus-based education, with potential for teacher domination, passive lecture delivery, and restrictions on geographic and temporal access. Naturally, technological affordances of most relevance to constructivist pedagogies focus on tools to support effective establishment, operation and trust building within groups. The technologies that support rich social presence, including full range of audio, video and gestures, are associated with enhanced trust development and increasing sense of group commitment (Cyr, Hassanein, Head Ivanov, 2007; Finkelstein, 2006; Rourke & Anderson, 2002).

**Connectivist Pedagogy of Distance Education**

The third generation of distance education pedagogy emerged recently and is known as connectivism. Canadians George Siemens (2005, 2007) and Stephen Downes (2007) have written defining connectivist papers, arguing that learning is the process of building networks of information, contacts, and resources that are applied to real problems. However, like behaviourist/cognitivist and social constructivist models, there are several variations and flavours of the general model that might include those relating to networks of practice (Wasko & Faraj, 2005), networked learning (De Laat, 2006), and emergent Learning (Kay & Sims, 2006), and it draws heavily from fields such as distributed cognition (Pea, 1993), constructionism (Papert & Harel, 1991) and communities of practice (Wenger, 1998). Connectivism was developed in the information age of a networked era (Castells, 1996) and assumes ubiquitous access to networked technologies. Connectivist learning focuses on building and maintaining networked connections that are current and flexible enough to be applied to existing and emergent problems. Connectivism also assumes that information is plentiful and that the learner’s role is not to memorize or even understand everything, but to have the capacity to find, filter and apply knowledge when and where it is needed. Connectivism assumes that much mental processing and problem solving can and should be off-loaded to machines, leading to Siemens’ (2005) contentious claim that “learning may reside in non-human appliance”. Thus, connectivism places itself within the context of actor-network theory, with its identification of the indiscriminate and overlapping boundaries between physical objects, social conventions, and hybrid instantiations of both, as defined by their initial and evolved application in real life (Latour, 1993).

While a great many speculative and theoretical papers have been written on the potential of connectivism (see for example special issue on Connectivism in IRRODL, 2011, edited by Siemens and Conole), most reports of experience so far are equivocal and cater to a wide and often ill-defined diversity of learner needs. There is a clear need for a richer means of establishing both networked and personal learning environments that offer appropriate levels of freedom, control and constraint (Dron, 2007) when needed in both pedagogical and organizational terms. The crowd can be a source of wisdom (Surowiecki, 2005) but can equally be a source of stupidity (Carr, 2010), with processes like preferential attachment that are as capable of leading to the Matthew Principle (where the rich get richer and the poor...
get poorer) and rampant bandwagon effects as to enabling effective, connected learning. We also note the criticism of connectivism as being merely an extension constructivist pedagogy and those who argue that it is not really a complete theory of learning nor of instruction (Wade, 2010). However, taken as a family of theories rather than one particular flavour, there are some general principles that help to distinguish this from previous pedagogical generations of distance learning: distributed cognition; collective intelligence distributed across a network; a multiplicity of tools, methods and goals; an emphasis on an individual and the individual’s connections; an assumption of ubiquitous social connection; a decentralization of teaching roles; a focus on creation in a social context as an active constituent of learning.

Instructional designs for connectivist learning, are as yet only loosely described and still evolving. Two essential characteristics though define connectivist pedagogies. The first is the need to gain high levels of skill using personal learning networks that provide ubiquitous and on demand access to resources, individuals and groups of potential information and knowledge servers. The second is the focus on creation, as opposed to consumption, of information and knowledge resources. As we shall see, the revised listings of Bloom’s (1956) cognitive taxonomy place creation at the highest level of cognitive processing assuming understanding, application, and evaluation as component pieces of the creative process. There are also strong parallels with constructionist approaches that emphasize creation as playing a central role in the construction of knowledge (Papert & Harel, 1991).

Conclusion

It is clear that we are in stage of rapid technological development and profound new discoveries of life and learning in connected contexts. The emergence of collective understanding formed by the selective use and analysis of the networks, sets, behaviours and activities within which we engage promises much deeper understanding of our knowledge construction and application. It seems at least possible that the next generation of distance education pedagogy will be enabled by technologies that make effective use of these collective entities. It is concluded that all three current and future generations of distance education pedagogy have an important place in a well-rounded educational experience. Connectivism is built to some degree on an assumption of a constructivist model of learning, with the learner at the centre, connecting and constructing knowledge in a context that includes not only external networks and groups but also their own histories and predilections. At a finer granularity, both constructivist and connectivist approaches almost always rely to a greater or lesser degree on the availability of the stuff of learning, much of which (at least, that which is successful in helping people to learn) is designed and organized on CB models. The web sites, books, tutorial materials, videos, and so on, from which a learner may learn, all work more or less effectively according to how well they are designed and implemented. Even when learning relies on entirely social interactions, the various parties involved may communicate knowledge more or less effectively. It is clear that, whether the learner is alone, part of a learning community or a learning network, learning effectiveness can be greatly enhanced by applying, at a detailed level, an understanding of how people can learn more effectively: Cognitivist, behaviourist, constructivist, and connectivist theories each play an important role.

References


INFORMATION AND COMMUNICATION TECHNOLOGY BRIDGING THE DIVIDE IN EDUCATION: ICT AS A DIGITAL BRIDGE

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ABSTRACT

Information and communication technologies (ICTs) have long been seen as important potential tools to enable educational reform processes improving both access to education, and the quality of that education. Information and Communication Technologies (ICTs) have been touted as playing a major role in bridging the educational inequalities, with the potential of overcoming obstacles like geographical barriers, teaching learning difficulties, individual differences, problems of people with disability, communication difficulties and information inaccessibility. Motivated by this potential of ICT to bring about transformational changes in education and in response to the information needs of the modern information times. ICT improving the overall standard of education by reducing the gap in education. ICTs can be important drivers for educational reform, utilized as a lever for bridging the divides, as a vehicle to introduce new practices and/or as an enabler of restructuring of the educational system. The increased diffusion of ICTs will offer potentially relevant ‘solutions’ to challenges not only at the core of the teaching and learning process itself but also its application can accelerates and improves education system on a number of fronts. This paper looks at the contribution that ICT can make in different educational arrangement to bridge the gapes and provides opportunities.

Key words: Information and Communication Technology, Educational Inequalities, Digital Bridge

Introduction

Different technologies are nowadays converging; so that the information networks satellite, cable, fibre optics, telephone will be used in complementary ways to deliver content in diverse formats to distinct educational audiences. The important thing is for the knowledge distribution between the different unequal groups to be more even. Educational opportunities made available through ICT might thus be a powerful means of overcoming social and world inequalities. Universal access to ICT and the Internet is seen as necessary to avoid social divisions and to open up opportunities for all by ensuring that future ‘knowledge economies’. ICT in education may have important domestic and international repercussions in the context of existing inequalities. ICT brings to education the capacity to reach massive audiences with consistent quality of content, and to target groups with specialised needs. The use of the new technologies in developing countries could contribute to solving traditional learning gaps, reducing the educational lag of the adult population, and consolidating a national education system that offers quality services to all sectors of society.

However, for this to occur to full potential, it is necessary to identify and comply with a series of conditions and strategies, based on the specific requirements and context of each country. The impact and repercussions of ICT are two-fold. On the one hand, ICT may help significantly to increase delivery and coverage of educational services to the different segments of society, by offering more varied and flexible programmes, able to respond to an increasing and diversified demand. On the other, it may have considerable impact on the quality of education, in as much as it transforms the traditional teaching-learning process, to the point where a cognitive gap emerges between teachers and students with access to ICT and those without. It is important to underline that ICT brings beneficial side effects in addition to the

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original objectives, with impact on the overall socio-economic context. These effects are seen in the creation of a new technological culture, with increased productivity and competitiveness in the economy and stimulation of lifelong learning. Moreover, the same technological infrastructure can be used for different educational objectives servicing other audiences. All such groups are then able to organise themselves to receive and use knowledge and information in new and unexpected ways. Such beneficial side effects, almost non-existent without ICT, are of particular importance to developing countries: the social returns are likely to be higher, with more people gaining benefit in more ways. Information and communication technology (ICT) in the past decade has added an important new element to the issue of education inequality. New technologies are widely viewed as having the potential to either alleviate or exacerbate existing inequalities (Warschauer, 2000, 2003). Computers and the Internet are viewed as powerful tools to increase learning among marginalized students and provide greater access to a broader information society (Cummins & Sayers, 1995). The increasing popularity and economic utility of computers and the Internet have brought changes in the way societies and their individuals interact, the way we shop, attain college degrees, pay taxes, use the library and even find a job (Wilson, Wallin, & Reiser, 2003). The Internet contains more information than the world’s largest libraries (Emeagwali, 2000). With access to the Internet one can retrieve information from the world’s largest information database. According to Lagos (2003), the Internet is a worldwide system of linked computers networks. Computers, which are replaced with typewriters by taking their functions in the beginning, are now being commonly used in a scope ranging from interpersonal communication to e-school and e-state applications. So, they have become an inseparable part of the social life. Information technologies are not only the instruments used in learning and teaching, but they are also the tools used to find and transfer information (Akkoyunlu & Kurbanoglu, 2003). In this context, two essential skills come forward. One of them is computer technologies, as the inevitable result of using technology in education process; and the other is information literacy. Information literacy skills are among the essentials of learning for a lifetime which arises as a requirement of the 21st century. Using computer technologies is not only an element that supports education, but also a precondition for information literacy skills (Akkoyunlu & Kurbanoglu, 2003). Depriving or/and not utilizing these technologies create unfavourable situations both in social and individual aspects.

ICT can affect the pace at which the learning gap is bridged in developing countries, both domestically and in relation to other nations. The great challenge is to harness the advantages of those technologies, in order to improve the delivery and quality of educational services, as well as to accelerate the rate at which knowledge is distributed and learning chances and outcomes are equalised throughout society. The organisation (BRIDGES 2001), argues that ICT needs to be affordable; people must understand how to put it to use and not be discouraged from using it; and the local economy must be able to sustain its use. All of these factors combine to form, what is called at BRIDGES, ‘real accesses. It moves beyond ‘physical access’ and creates opportunities for people to use technology effectively to improve their lives (BRIDGES 2001). In recent times, factors have emerged which have strengthened and encouraged moves to adopt ICTs into classrooms and learning settings. These have included a growing need to explore efficiencies in terms of program delivery, the opportunities for flexible delivery provided by ICTs (Oliver & Short, 1997); the capacity of technology to provide support for customized educational programs to meet the needs of individual learners (Kennedy and McNaught, 1997) and the growing use of the Internet and World Wide Web (WWW) as tools for information access and communication (Oliver & Towers, 2000). As we move into the 21st century, these factors and many others are bringing strong forces to bear on the
adoption of ICTs in education and contemporary trends suggest we will soon see large scale changes in the way education is planned and delivered as a consequence of the opportunities of ICT.

**ICT as a Digital Revolution in Education**

The development of the information society and the widespread dissemination of Information and Communication Technology (ICT) give rise to new opportunities for learning and acquiring new digital skills and competences that are necessary for employment, education and training, self-development and participation in society. As our societies become more knowledge-based, what people need to learn and know also changes? ICT shifts and transforming the way people work, learn, train, make sense of their world and have fun in a digitalised, networked and knowledge-based society. This new technology is being incorporated into the public school curriculum and is transforming the way information is being created and distributed. Communities that wish to keep or recruit new high-paying jobs need to provide businesses with high-speed access. Individuals must learn to use this new technology to have any chance of being successful in the emerging knowledge economy (Wilson, et al, 2003). The use of information and communication technologies (ICT) are seen by many commentators as underpinning the social and economic progression of nation-states throughout the first stages of the 21st century (Livingstone & Helsper, 2007; Selwyn, 2004). The revolution in information and communication technologies (ICTs) has transformed both the economy and society (Castells 2000; Kotkin 2000). The ICT revolution has created new tools, such as personal computers (PCs) and the Internet, which have reinvented and, in many instances, improved the ways all societies communicate, learn, and earn a living today (Chakraborty and Bosman, 2005). Most of the analysts have presented convincing arguments over the past two decades as to how new computer and telecommunications technologies will transform countries into ‘knowledge economies’ and ‘network societies’. The ability to use ICT has been heralded by politicians to be ‘the indispensable grammar of modern life’ and a fundamental aspect of citizenship in the prevailing information age. Indeed, many governments in Industrialized countries have been spurred on by the apparent inevitability of the information society and have initiated ICT based programmes which aim to ensure that their citizens do not get ‘left behind’ and are able to ‘win’ in the new global era (Selwyn, 2002, 2004).

Many educators and researchers as well as parents and youths themselves, have expressed several reasons why the nation should be concerned about the gap between the ICT “haves” and “have-nots” (Hick & McNutt, 2000; Turow & Nir, 2000). These concerns fall into four main themes: educational advantages, future employment and earnings, opportunities for social and civic involvement, and equity and civil rights issues. Many educators and researchers maintain that computers, educational software, and the internet offer a number of educational advantages (Lepper & Gurtner, 1989; Ross, Smith, & Morrison, 1991; Tezci, & Dikici, 2006; Yalçınalp & Aşkar, 2003). ICT can provide students and teachers with a large body of easily accessible information; create opportunities to reinforce learning basic, new, and higher-order cognitive skills; and increase student interest and motivation, parent-school communication, and parent involvement. These advantages, in turn, are expected to produce positive educational outcomes such as increased student success and school retention (U.S. Department of Education, 1999; Wenglinsky, 1998). Research tends to support these expectations, generally finding positive relations between school, home, and community uses of ICT and a variety of academic outcomes both for socio-economically disadvantaged and other children and youth (Ross et al., 1991; Sutton, 1991). The evolution of technology has an impact on the way we live, work, teach and learn. Over the past few decades, technology has completely transformed our lives in all possible ways. Education undoubtedly is one of the most important
investments in building human capital and a medium that not only sculpts good literate citizens but also makes a nation technologically innovative, thus paving a path to economic growth. In recent years there has been a groundswell of interest in how computers and the Internet can best be harnessed to improve the efficiency and effectiveness of education at all levels and in both formal and non-formal settings. Although most commonly associated with higher education and corporate training, e-learning encompasses learning at all levels, that uses an information network—the Internet, an intranet (LAN) or extranet (WAN) whether wholly or in part, for course delivery, interaction and/or facilitation. ICT helps in providing a catalyst for rethinking teaching practice (Flecknoe, 2002; McCormick & Scrimshaw, 2001) developing the kind of graduates and citizens required in an information society (Department of Education, 2001); improving educational outcomes (especially pass rates) and enhancing and improving the quality of teaching and learning (Wagner, 2001; Garrison & Anderson, 2003). ICTs have the potential for increasing access to and improving the relevance and quality of education. It thus represents a potentially equalizing strategy. ICT may function as a facilitator of active learning and higher-order thinking (Alexander, 1999; Jonassen, 1999). The use of ICT may foster co-operative learning and reflection about the content (Susman, 1998). Furthermore, ICT may serve as a tool to curriculum differentiation, providing opportunities for adapting the learning content and tasks to the needs and capabilities of each individual pupil and by providing tailored feedback (Mooij, 1999; Smeets & Mooij, 2001).

**ICT as a Digital Bridge for Geographical Differences in Education**

The power of information technology has been significantly stronger due to its increased presence everywhere. ICT is anytime-anywhere. It has the ability to transcend time and space. Keeping this module in mind, ICT has made digital learning possible. One can now use online course study material, at any hour of the day. ICT-based educational delivery has made all learners and the instructor to be in one physical location. ICTs make possible asynchronous learning, or learning characterized by a time lag between the delivery of instruction and its reception by learners. Online course materials, may be accessed 24 hours a day and 7 days a week. In concert with geographical flexibility, technology-facilitated educational programs also remove many of the temporal constraints that face learners with special needs (Moore and Kearsley, 1996). Students are starting to appreciate the capability to undertake education anywhere, anytime and at any place. This flexibility has heightened the availability of just-in-time learning and provided learning opportunities for many more learners who previously were constrained by other commitments (Young, 2002). Through online technologies learning have become an activity that is no longer set within programmed schedules and slots. Learners are free to participate in learning activities when time permits. This freedom has greatly increased the opportunities for many students to participate in formal programs. The wide variety of technologies that support learning are able to provide asynchronous supports for learning so that the need for real-time participation can be avoided while the advantages of communication and collaboration with other learners is retained. Information and Communication Technologies (ICTs) have been touted as playing a major role in bridging the social and economic divides that exist in most developing countries, with the potential of overcoming obstacles like geographical barriers, communication difficulties and information inaccessibility, Rao, S. S. (2009). Motivated by this potential of ICT to bring about transformational changes in education and in response to the information needs of the modern information society Guomundsdottir, G. B. (2005).

The benefits of information technology have been exposed in various ways. The explosive growth of telecommunications, particularly the Internet, not only virtually eliminates physical distances, but also extensively delivers a great deal of information to individuals and societies. The Internet provides several
opportunities for the academia. It is a mechanism for information dissemination and a medium for collaborative interaction between individuals and their computers without regard for geographic limitation of space (Leiner et al., 2000; Singh, 2002). One of the most vital contributions of ICT in the field of education is Easy Access to Learning. With the help of ICT, students can now browse through e-books, sample examination papers, previous year papers etc. and can also have an easy access to resource persons, mentors, experts, researchers, professionals, and peers-all over the world. By closing the divide, people would be given equal opportunity to communicate and support their quality of life. This also includes the opportunity to participate in civic activities. In addition to access from home, public access is another major gateway to computers and the Internet. Internet access clearly provides a great deal of benefit to society, particularly, in terms of culture. In a powerful information society, communication patterns, flow of information, social norms and practices could be exchanged and transferred effectively. Moreover, the equality of opportunity has significant value in a democratic society.

**ICT as a Digital Bridge for Learning Gapes in Education**

ICTs are a potentially powerful tool for extending educational opportunities, both formal and non-formal, to previously underserved constituencies scattered and rural populations, groups traditionally excluded from education due to cultural or social reasons such as ethnic minorities, girls and women, persons with disabilities, and the elderly, as well as all others who for reasons of cost or because of time constraints are unable to enrol on campus. Improving the quality of education and training is a critical issue, particularly at the time of educational expansion. ICTs can enhance the quality of education in several ways: by increasing learner motivation and engagement, by facilitating the acquisition of basic skills, and by enhancing teacher training. ICTs are also transformational tools which, when used appropriately, can promote the shift to a learner-centered environment. If designed and implemented properly, ICT supported education can promote the acquisition of the knowledge and skills that will empower students for lifelong learning. When used appropriately, ICTs especially computers and Internet technologies enable new ways of teaching and learning rather than simply allow teachers and students to do what they have done before in a better way. These new ways of teaching and learning are underpinned by constructivist theories of learning and constitute a shift from a teacher-centered pedagogy in its worst form characterized by memorization and rote learning to one that is learner-centered. ICTs provide both students and teachers with more opportunities in adapting learning and teaching to individual needs, society is, forcing schools aptly respond to this technical innovation. (Tinio 2002), states the potentials of ICTs in increasing access and improving relevance and quality of education in developing countries.

The use of ICT in educational settings, by itself acts as a catalyst for change in this domain. ICTs by their very nature are tools that encourage and support independent learning. Students assume greater responsibility for their own learning when they use ICT, working more independently and effectively: ‘students receive more individualised tasks and greater insight into teachers’ aims, and are able to work at their own tempo with tasks appropriate for their level of study’. In addition they consider that ICT offers assignments better suited for their individual needs and makes it easier to organize their own learning, through the use of, for example, digital portfolios. Diverse learning situations equip students with a range of skills and work techniques; they develop confidence in their own capacity to learn that eventually enables them to perform better in their subjects. Students using ICTs for learning purposes become immersed in the process of learning and as more and more students use computers as information sources and cognitive tools (Reeves and Jonassen, 1996), the influence of the technology on supporting how students learn will continue to increase. More so than any other type of ICT, networked computers with
Internet connectivity can increase learner motivation as it combines the media richness and interactivity of other ICTs with the opportunity to connect with real people and to participate in real world events. ICT-enhanced learning is student-directed and diagnostic. Unlike static, text- or print-based educational technologies, ICT-enhanced learning recognizes that there are many different learning pathways and many different articulations of knowledge. ICTs allow learners to explore and discover rather than merely listen and remember. The World Wide Web (WWW) also provides a virtual international gallery for students’ work (Loveless, 2003). ICT can engage and inspire students, and this has been cited as a factor influencing ready adaptors of ICT (Long, 2001; Wood, 2004).

ICT as a Digital Bridge for Teaching Differences in Education

The utilization of ICT learning settings and tools in educational processes, evidently leads to radical changes both in the role of teachers and learners and to the emergence of new teaching and learning environments and methodologies (e-Learning, Web-based Learning, Open and Distance Learning) as well as new training modalities (on-line training, on-site training, Blended-Learning, Instructor led Learning/Training, Classroom Training -C-training--...). New virtual training settings aimed at facilitating tools and resources to favour communication and interaction and distributing teaching materials through the web will emerge in order to encourage and promote collaboration and co-operation among the participants in teaching and learning processes. On the other side, many authors such as (Salinas 2003), agree in the fact that the integration of ICT into education generates a set of transformations which modify all the elements which take part in the educational process: organization, student, curriculum and mainly, they affect the teacher’s role, function and attitude. The impact of the Internet in education in the recent years fosters the vision of a open, global and flexible learning, as authors such as (Colis 2003) leading to radical shifts in the teacher’s role and competencies. In the framework of this educational landscape the role of the teacher is that of acting as guide and Instrument to assure a comprehensive learning process via the Internet, managing the student’s learning process by creating - at the same time- new instructional models set in newly-created virtual environments. (Colis 2003) understands knowledge manager as the person who is able to manage the student’s skills, abilities and knowledge, motivating and taking benefit of the student’s both individual and collective learning possibilities.

In the past, the conventional process of teaching has revolved around teachers planning and leading students through a series of instructional sequences to achieve a desired learning outcome. Contemporary learning theory is based on the notion that learning is an active process of constructing knowledge rather than acquiring knowledge and that instruction is the process by which this knowledge construction is supported rather than a process of knowledge transmission (Duffy and Cunningham, 1996). The strengths of constructivism lie in its emphasis on learning as a process of personal understanding and the development of meaning in ways which are active and interpretative. In this domain learning is viewed as the construction of meaning rather than as the memorisation of facts (Lebow, 1993). Learning approaches using contemporary ICTs provide many opportunities for constructivist learning through their provision and support for resource-based, student centered settings and by enabling learning to be related to context and to practice (Berge, 1998). Since ICTs can open up the classroom to the outside world.

As learning shifts from the “teacher- centred model” to a “learner-centred model”, the teacher becomes less the sole voice of authority and more the facilitator, mentor and coach from “sage on stage” to “guide on the side”. The teacher’s primary task becomes to teach the students how to ask questions and pose problems, formulate hypotheses, locate information and then critically assess the information found in relation to the problems posed. Most of the teachers in the sample schools said that ICT enhanced learning
was a new experience for them. So they have in turn become co-learners and are trying to discover new things along with their students. As a whole the teachers enjoyed the ICT enhanced instructional style, which was highly motivating to the students and helped in the learning process. Teachers with their own laptop computer has increased positive attitudes and teachers’ confidence in using ‘hands-on’ experience with ICT for education. (Becta, 2003). On the other hand the feedback from students was very positive. They equally enjoyed learning more and indicated that the Internet material helped them better understand the content of the revised course. The internet materials helped them to get the latest and updated information. Teachers say that they have effective materials, which helped them to illustrate certain points to the students in an easier and faster way. They themselves confessed that internet upgraded their knowledge. My observation in the present makes me feel that with the introduction of ICTs in the classroom, the teacher’s role in the learning process becomes even more critical. What can and has changed is the kind of role that the teacher plays. The role of students, in turn, has also expanded. ICT-enhanced learning promotes a thematic, integrative approach to teaching and learning. This approach eliminates the artificial separation between the different disciplines and between theory and practice that characterizes the traditional classroom approach. Technology has the capacity to promote and encourage the transformation of education from a very teacher directed enterprise to one which supports more student-centered models.

**ICT as a Digital Bridge for Individual Differences in Education**

Introduction of ICT into schools and project-based approaches should change how students interact with the content through new types of learning activities. In the Information and Communication Technology age, the methods in which learners and teachers are engaged in the pursuit and construction of learning is very different from the past. Earlier the students were expected to copy the material dictated by the teacher in their notebooks for later learning and understanding of the content. But now we are faced with new challenges of access and of quality where we need to find new ways of organizing the teaching learning experience. ICT has an impact not only on what students should learn, but it also plays a major role on how the students should learn. Along with a shift of curricula from “content-centred” to “competence-based”, the mode of curricula delivery has now shifted from “teacher-centred” forms of delivery to “student-centred” forms of delivery. ICTs provide greater opportunity for students and teachers to adjust learning and teaching to individual needs.

Impact of ICT in educational contexts, its potential to alter the teacher-learner relationship, in particular to shift the balance from the dominant provider/recipient model to a more facilitative approach, thereby promoting greater independence of learning. Learners work more autonomously with ICT. The pupils themselves find that they do assignments more on their own way when using a computer and their parents consider that they solve assignments more at their own level. According to the teachers, pupils work more in cohesion with their own learning preferences, resulting in a favourable impact on both academically strong and weak students. In recent years however, there has been a growing interest to know how computers and internet can best utilized to improve effectiveness and efficiency of education at all levels and in both formal and nonformal settings. As there is a shift of theories explaining learning processes, ICTs become handmaiden for learning activities. (Voogt’s 2003) description on the major roles, distinguished ICTs as an object for study, an aspect of a discipline or a profession, and a medium of instruction. As a medium of instruction, ICTs fit to realize and implement the emerging pedagogy of constructivism (Davis, 1997; Office of Technology Assessment, 1995; Panel on Educational Technology, 1997; Watson, 1996). Moreover, (Voogt 2003) differentiated between traditional learning setting and constructivist approaches. The former considers learning as transmission of knowledge to students which is
the sole responsibility of the teacher. On the other hand, the constructivist approach considers learning as authentic and learner centred. ICT, the computer for example is a great help in the constructivist approach, where one can design simulated and individualized learning environments to students.

Different groups of pupils were found to be gaining in different ways from the use of ICT. ICT used in special schools often enabled communication at a basic and fundamental level. For example, some pupils could not communicate with the external world, either at all, or easily, without the use of ICT based access devices. Pupils with special needs or behavioural difficulties gain in different ways from the use of ICT. ICT supports their motivation and concentration and teachers become more aware of pupils’ needs and problems. ICT provides teachers with the opportunity to provide various learning tasks within the same classroom for the benefit of the individual pupils. The information aspects of ICT were fundamentally important to other groups, such as those who were gifted and talented.

**ICT as a Digital Bridge for the Disable People in Education**

The disability indicates human limitation of one kind or other, in performing various tasks performed by other human being in general. It may be one or more of the kind of physical, mental or sensory one including visual and hearing. Generally people with disability automatically become underprivileged, because they may not have proper access to the recourses, accessible otherwise. ICT usually improves the efficiency and effectiveness of a common individual learner, but for a disabled learner it represents more than this. ICT for them is a sort of extension of their physical body part and provides an opportunity to communicate, gain access to education services and become gainfully employed.

Today ICT is being used as a tool for improving the quality of life by improved efficiency and enhanced effectiveness. Different types of ICT tools assist the people with disabilities by providing them with learning opportunities, capabilities and also increase potential of the disabled in different walks of life. ICT makes them capable by providing the ability to access knowledge with the help of suitable digital media. ICT is playing very important role in communicating with peers, thereby promoting collaborative and social learning environment. ICT also helps disabled students in reading, writing, hearing and seeing process, (Lasa Information Systems Team 2010). ICT have the potential for reducing discrimination and providing more opportunities to engage people with disabilities in all aspects of life including teaching and learning. ICT offers a range of specialized software and hardware solutions for communicating, accessing and inputting data/information to/from web applications. For example Assistive technologies are used for helping the disable people for studying and gaining knowledge with the ICT. Assistive technologies usually refer to those products, devices or equipment’s, which are used to increase or improve the functional capacities of individuals with disabilities. Some of the tools/applications for assisting different kind of disabled learners: ICT bases specialized vocational training to perform functions within abilities, Specialized Keyboards, such as Braille, Braille Printer, Conversion of local language to Braille, Screen Readers, Touch Screens, Eye Tracking, Talking word processors, Screen Magnifiers etc.

Accessibility is the quality of a system that makes it easy to learn, easy to use, easy to remember, error tolerant, and subjectively pleasing, (Jakob Nielsen 2010). People with disabilities should be able to use and access all the information provided for the learning experience, regardless of the type or degree of disability they suffer. Web Accessibility Initiative (WAI) guidelines are the result of the negotiations that the World Wide Web Consortium (W3C) adopted for promoting the use of ICT for people with disabilities. These guidelines are published and broadly used guidelines for W3C Web Accessibility Initiative, (2010). Web Content Accessibility Guidelines (WCAG) 2.0 has given wide range of recommendations for making Web content more accessible to a wider range of people with disabilities, including blindness and
low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photosensitivity and combinations of these web applications developed using these guidelines often make Web content more usable to users in general. Web Content Accessibility Guidelines 2.0 (WCAG) explains in detail how to make a Web site accessible for people with a variety of disabilities. W3C User Agent Accessibility Guidelines (UAAG) 2.0, for software developers, explains how to make accessible browsers, multimedia players, and assistive technologies that interface with these.

**ICT as a Digital Bridge for Different Resources in Education**

Historically, information resources at libraries, schools, and universities have only been available within the walls of these institutions, in a wide variety of physical media, at certain times of the day, and in limited quantities. Because of advances in ICT, it is no longer necessary for students and teachers to be at a certain location at a specific time to acquire a physical object. The Internet represents the greatest collection of human knowledge ever assembled, and it is available to every student and teacher properly equipped with ICT. An unlimited number of digital representations of physical objects can now be made available to students at any time and from any place.

Digital library initiatives are being undertaken in countries around the world that will provide collections that are electronically accessible of the Internet including printed works (e.g. textbooks, journals, illustrations, maps, charts and graphs), photographs, films and videotapes, paintings, 3D models, graphics, animations, software, reference materials, audio files, and so forth. Specialized collections of digital information are also being created. For example, the entire works of B.F Skinner may be accessed, searched, and downloaded from a website. Web-based language dictionaries provide a means to translate words and phrases from one language to another. Museum’s website offers visitors a virtual tour and access to digitized images of major works from its collection. Thousands of websites now exist that contain collections of high quality curriculum guides, lesson plans, and instructional activities. Specialized websites designed to provide information and assistance in specific subject areas are also proliferating. ICT-supported learning encourages interaction and cooperation among students, teachers, and experts regardless of where they are. Apart from modelling real world interactions, ICT-supported learning provides opportunity to work with students from different cultures, thereby helping to enhance learners teaming and communication skills as well as their global awareness. It models learning done throughout the learner’s lifetime by expanding the learning pace to include not just peers but also mentors and experts from different fields. It is important to mention that the use of newer ICT is being integrated with use of older technologies, enabling the existing resources and services to be continuous use.

**Conclusion**

Education cannot solve the problems of inequalities, without equal access and quality learning for all, existing gaps will surely deepen. ICT come into sharp relief, and reinforce the case for assertive action towards closing the technology and learning gaps. ICT can affect the pace at which the learning gap is bridged. ICT improving coverage, quality and relevance of educational services. ICT increases the flexibility of delivery of education so that learners can access knowledge anytime and from anywhere. It can influence the way students are taught and how they learn as now the processes are learner driven and not by teachers. Wider availability of best practices and best course material in education, which can be shared by means of ICT, and can foster better teaching. ICT, brings more rich material in the classrooms and libraries for the teachers and students. It has provided opportunity for the learner to use maximum senses to get the information. It has broken the monotony and provided variety in the teaching learning
situation. ICT facilitates differentiated learning, allows students to work to their own ability, and motivates disenchanted students. It may have benefits for particular groups of students, thus providing them with an advantage over others. ICT is trust for people with disabilities for their teaching and learning. It can be a powerful tool in supporting education and inclusiveness of the people with disability. The learning resources must be developed to meet the requirements of all disabled people by overcoming the traditional barriers to mobility and geographic distance. ICT provide the necessary infrastructure facilities such as high speed network connection to access the e-resources. It allows for the creation of digital resources like digital libraries where the students, teachers and professionals can access research material and course material from any place at any time. Such facilities allow the networking of academics and researchers and hence sharing of scholarly material. ICT in education and to incorporate it into the policy on educational innovations and activities like teaching and learning. It is crucial to integrate ICTs with the curriculum of each subject so this could replace traditional teaching methods by new teaching tools and technology.

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OPEN AND DISTANCE LEARNING: ISSUES AND CHALLENGES

SumanKumari*

ABSTRACT
In this paper I discussed some of the aspects that pertain to Open and Distance Learning (ODL) in Indian context. The increasing use of technology in distance education has brought about significant socio-economic and cultural changes in India. Learning can be improved through Information Technology. There are two imperative needs in India, so far as the use of Information Technology by the distance education institutions is concerned. Firstly, the technology should be made use of to take the educational programmes to the rural masses. Secondly, sound infrastructure facilities should be developed to provide qualitative teaching to the learner, through the media of information technology. As such, the paper aims to explore fundamental aspects of popularly designated alternative paths to the traditional mode of learning. This paper explores the major terms inherent in open and distance education, its potentials, possible factors that may inhibit successful implementation of the programme, and the use of low and high technological tools for its implementation. The paper also deals with the significance of Modern Technologies in development of open Learning System using Distance Education Concept. While the paper is not intended to impose any particular policy or model, it is hoped that it will assist policy makers, in defining appropriate policies and strategies helping them make the best use of available distance learning technologies corresponding to different cultural contexts and stages of development. This paper is also a contribution to the collective efforts aimed at achieving the EFA goals, adopted at the World Education Forum (Dakar, Senegal, April 2000) by ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programmes and through harnessing new information and communication technologies to help attain those goals.

Key words: Open and Distance Learning, ICT, Non-formal, Face to Face, Higher Education.

Introduction
Education in considered as foundation stone for development of mankind. This is meant to equalize opportunities for everyone including poor, disadvantaged and women living in every corner of world in general and developing nations in particular. The people living in rural and remote areas must have the opportunity to enjoy the fruit of modern education. Every nation invests in education because it can produce unquantifiable benefits for individuals and the society as a whole. Education is provided through formal and informal modes of communications. In formal settings the conventional (face-to-face instruction) and distance education (offered with separation in terms of physical location of instructors and students) have been used to provide educational opportunities to its citizens. Nipper (1989) divides distance education into three generations. The first generation was the traditional correspondence model in which print is the sole medium for student/teacher communication. Second generation distance education, also known as industrialised multimedia distance education, integrates print and other modern media such as audio/video cassettes, computers and broadcast media into the distance study package. The major objective of first and second generation distance education is the production and distribution of learning materials. In these models little or no student/student and student/teacher interaction occurs. Third generation distance education, also known as interactive, multimedia distance education, places an emphasis on communication

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and learning as a social process typically through the addition of interactive media such as computer mediated communications (CMC), audio graphics or video conferencing. National Knowledge Commission (2006-09) further highlighted that “the open and distance education system is a crucial vehicle in the sustained development of a knowledge society. Its potential for flexible education delivery, scope for self and life-long learning and cost effectiveness make it instrumental in meeting the needs of individual and communities at this juncture - in the rapid transition being made from the industrial to the information age. However, as India prepares to face the knowledge challenges of the 21st century, higher education presents a rather dismal picture. According to the Ministry of Human Resource Development, India, only about 10% of the population in the relevant age-group is enrolled in higher education, and a mere 5% graduate with degrees. With the rapid growth of the service, knowledge and associated sectors in the economy, it is imperative that the populace is equipped to contribute to and benefit from these developments. This requires a radical overhaul of the higher education system, with regard to access, enrolment and most importantly, quality. Failure to address this need and foster more inclusive growth will adversely affect India’s future economic prospects and the welfare of its citizens. We believe that this crisis in higher education gives us the necessary impetus for radical change. Existing ‘brick and mortar’ campuses alone cannot cope with the current and future demand for higher education, given the limited resources for their construction and management. Even so, it is imperative that the state provides and commits to universal access to higher education. Open and distance education (ODE), enabled and delivered through information and communication technology (ICT), holds the promise to address questions of access and provide new, alternative forms of capacity building. ICT enabled linkages - propelled by broadband and satellite networks - are of a new, unprecedented kind, with special implications in a globalised world. They give rise to the ‘A-3’ scenario, where Anyone, Anytime, Anywhere can be connected to others through networks and access devices in a virtual space. This facilitates new forms of organisations and communities, often constituted by the users themselves, and manifested in myriad ways – for example through wiki, blogs, social networks, open resource movements, virtual institutes etc. In working together, these groups and organisations create new resources and ways of empowerment in virtual and real spaces. In a global scenario powered by global markets, higher education institutions must transform to meet the multi-faceted needs of the changing context – professionals who require in-service training and upgrading, unemployed persons who want to attain job specific skills, industries and institutes that wish to collaborate to provide training, etc. At the same time, it is evident that higher education cannot be left at the mercy of ‘market forces’ alone; doing so would compromise access for those without the means to pay at the point of delivery. The biggest challenge faced in higher education, therefore, is the provision of quality higher education to the greatest number, at the lowest possible cost to the learner. And this is where ICT enabled open and distance education has significant advantages. Using ICT effectively for higher education can bridge the distance between the learner, instructor and the market by transcending barriers of space and time. Seamless access, flexible schedules, quality content and inclusive delivery mechanisms have enormous potential to increase the scale of access and, in that process, bring down the cost of higher education for the individual learner. Despite the physical absence of a ‘real’ teacher (which often causes ICT enabled education to be perceived as restricted in its social context and pedagogical rigour), ICT based modes foster the engagement of the learner with instructional content as well as work-place applications, to enable one to assess and apply strategies of personal development in meaningful and measurable ways. Most importantly, ICT has the potential to foster greater inclusiveness and overcome spatial isolation by effectively bridging geographical and social divides, especially the rural urban imbalance. While
emphasizing the importance of ICT in distance education, it must be acknowledged that the current crisis in open and distance higher education is primarily due to the lack of clarity and coordination, the gap between avowed values and the actual practice, and inefficient delivery mechanisms. The recommendations made in this report will attempt to address issues of access and quality in a systematic manner while paying attention to organizational and policy issues. In view of the changes and possibilities brought on by new markets and new technology, the most suitable educational model for the 21st century must be devised with care and with a keen eye on the processes of the information age. Under modern conditions, the development of a knowledge society rests mainly upon linking economic growth with cognitive growth. Neither can exist meaningfully without the other. Industry or modern economy is engendered by knowledge and knowledge exists primarily as an industry. However, we need to understand cognitive growth in a larger fundamental and philosophical sense and not just in the instrumental, applied and vocational sense. Complex modern and modernizing societies certainly need a literate population and a large number of managers, engineers and operators. But they also need a pool of experts seriously and collectively engaged in the task of explaining and exploring the society and making it more intelligible to the rest. Knowledge cannot and should not be reduced only to its applied and vocational aspects. Therefore, we hope that our recommendations will pave the way for the establishment of a developmental model of education that will not only provide quality education for all, but also strive towards the economic, social, cultural, environmental and ethical development of the learner and the society”.

Evidently, the last two decades have witnessed considerable growth in education. This unprecedented phenomenon can be attributed to the globalization of open and distance education through the application of ICTs. In this vein, Moore and Tait (2002), remark that open and distance learning is one of the most rapidly growing fields of education, and its potential impact on all education delivery systems has been greatly accentuated through the development of ICT-based technologies, and in particular the World Wide Web. In effect, numerous open universities have emerged to absorb large numbers of new learners, while, on the other hand, increasing numbers of traditional universities have begun to offer their programmes also through distance education (Dimevski and Kokol, 2004). A review of research literature reaches the same conclusion that with electronic tools, people can learn virtually anytime and at any place they choose without obstacles in place, time and social status (Velzeoer, 1996; Greer and Murtaza, 2003; and Keegan, 2004). Thus, the importance of information and communication technologies (ICTs) and e-learning in promoting open, distance and flexible education cannot be over-emphasized.

However, the rapid development of ICTs and the shifts from linear to hypermedia learning create new challenges particularly in developing countries. Moore and Tait (2002) point out that ICTs open up new horizons for progress and the exchange of creativity and intercultural dialogue. Nevertheless the growing digital divide is actually leading to greater inequalities in development. This is giving rise to paradoxical situations where those who were in dare need, the disadvantaged groups, the rural communities, or the physically challenged and less privileged do not have access to the tools which would enable them to become full-fledged members of the knowledge society. Considering numerous issues and problems surrounding ICT, Preece (2006) opines that it may not be seen as a final recipe to widening access to education. Similarly Mejini and Obilade (2006) maintain that poverty constraints and access affect the use of ICTs. In the light of the foregoing discussion, ICT is yet to be fully integrated into open and distance learning in most of the developing countries. Therefore, the purpose of this paper is to discuss the issues and challenges facing the application of ICTs to open and distance learning in India.
Computer in Open and Distance Learning

There has been a terminological evolution in this field beginning from ‘correspondence education’ through ‘distance education’ to ‘open learning’. The openness refers to the dimensions of prior educational qualifications, place of learning, accessibility, choice of subjects, diversity in instructional designs, flexibility in delivery mechanism and in the pace of learning allowed to the learners. In operational terms, the essence of open learning lies in its being imparted and received in a non-institutional setting; making use of multi-media packages of distance education like print material, audio and video cassettes, radio and TV programmes, etc.; and supplementing this packaged programme by contact programmes. In the case of vocational courses requiring skill development, some training-practice facilities in work place are to be made available for hands-on experience. The term 'open learning' has been used to refer to the process of making learning available to learners no matter who they are or where or when they wish to study. The term 'open' has been taken to imply open access for students regardless of their previous qualifications or age. International experience shows that distance education and open learning tend to complement each other.

Concept of Open Learning

Perraton (1997) defined ‘open learning’ as an “organized educational activity, based on the use of teaching materials, in which constraints on study are minimized either in terms of access, or of time and place, pace, methods of study or any combination of these”. Mackenzie, Postgate and Scupham (1975) defined open learning as, “Such systems are designed to offer opportunities for part-time study, for learning at a distance and for innovations in the curriculum. They are intended to allow access to wider section of adult population, to enable students to compensate for lost opportunities in the past or to acquire new skills and qualifications for the future. Open learning systems aim to redress social or educational inequality and to offer opportunities not provided by conventional colleges or universities”.

Open Learning System can be defined as a system of education that does not operate through the traditional conventions which are essentially restrictive in nature - admission restrictions, attendance restrictions, restriction on the candidature for examinations, restrictions on the period of time devoted to a course, restrictions on the number of examination given and taken in a year, restrictions on subject combinations for a particular degree, restriction on the modes of didactic communication and the didactic tasks etc. The larger the number of such restrictions left unobserved, the higher the degree of the 'openness' of the type of education under consideration. Open learning thus refers to non-conventional education, which defies constraints that characterize the traditional school/college/ university education. Also, it can be stressed that using technological advances can easily affect learning. One can say that open learning is thus an extension of (not replacement of) the traditional lecture type, of workshop and laboratory based training and education. Open learning is essentially flexible and is essentially multimedia based. It enables learners to extend and enhance their skills and knowledge working at a time, pace and places to suit them as individuals and/or teams. In a nutshell, we can find open learning as an educational system where:

- the student has a choice and the freedom to learn
- the student is supported by the multimedia based learning materials
- the tutors create an effective learning environment and infrastructure to enhance and facilitate learning.

Thus, Open Learning have sub-systems which identifies the learner, conceptualize and create multimedia learning material, distribute them at the learner's place, provide support in the form of "human element" through a network of contact centres and finally, do a sort of continuous evaluation to provide
feedback to the student for completing his learning. It is essentially unstructured and provides a lot of
dialogue so that the learner does not feel isolated. Good open learning programs offer the best use of
learning objectives; user friendly style, environment and flexibility (with respect to time, place and pace);
tutor marked assignments, and/or self-assessment and finally an education process that is designed and
delivered to satisfy the individual needs. Open learning includes those situations where the learning occurs
at a ‘distance’ as well as where learning occurs without this being the factor for the learner and teacher
(tele-presence through teleconferencing).

**OLS and Non-Formal Education**

Open Learning, in common with non-formal education, emphasizes flexibility and learner-
centredness. However, if non-formal education does not make use of distance education methods, it cannot
be termed open learning.

**OLS and Distance Education**

OLS makes use of distance education methods. However, all distance education is not necessarily
open in the sense that the courses it offers are open to all types of applicants. Thus, professional
programmes of continuing education, being limited to accredited members of a particular profession are not
categorized as open education.

**OLS and Correspondence Education**

Correspondence education, though a form of distance education, System cannot be called an open
system since it is entirely governed by rules and regulations covering institutional courses, in such matters
as curriculum, scheme of studies, admission criteria, and so on.  The Open System is distinct from the
rigidly formal Institutional system, in respect of curriculum, instructional packages and evaluation methods.

**Open Learning System (OLS)**

The Open Learning System (OLS) is a learning management system designed specially to support
an online constructivist learning environment which works as effectively for both on and off campus
students. It allows for:

- Close integration with institutional student records using LDAP technologies, and the upload of
  student information from txt files. Students can be divided into groups to facilitate group work and
discussions.
- Online learning resource files including html documents, uploaded documents and links to other
  web pages.
- Communication options including regular email, threaded discussions, chat sessions, Frequently
  Asked Questions and issue trackers.
- Automated submission of assignments as either uploaded files or emailed directly to the course
  facilitators regular email as well as an online peer review where students can submit their papers
  and have them reviewed by other students and the course facilitators.
- Student customization in the selection of different themes and icons.
- Selective release dates and easy access control
- Image display and automatic thumbnails

Other third party facilities that can be linked to OLS: Hot Potato for self-testing multiple choice
questions, Video conferencing and audio conferencing using Flash technology. The OLS system requires
no registration and is very easy to use (Use your normal LAN username and password). These include:
removing the barriers and restrictions placed on students as evident in the conventional education system, opening up learning opportunities to a wider range of people, and enabling them to learn more congenially and productively (Coffey, 1977; Rowntree, 1992). Some illustrations are given as under:

1. **Relaxation During Admission**
   a. **Age:** In the open learning system a minimum age may be required to take admission to a particular programme, but there is no maximum age limit. For example, Mr. Rakesh who passed 10+2 in June, 2000 can take admission to a bachelor degree programme either in a conventional institute or in an open learning institute in the same year. But if Mr. Rakesh can’t take admission in the bachelor degree programme in 2000 and wants to do the same after a gap of one year or more, he can’t do it through the conventional system of education. But he can take admission to the bachelor’s degree in any open learning institute subsequently as per his choice.
   b. **Qualification:** In the conventional system of education, the enrolment capacity is limited. So, there are restrictions in admissions with regard to the percentage of marks/grades obtained by the learners. For example, in some institutions only those learners who obtain an aggregate of 80% marks are allowed to apply for admission. In the open learning system, there is no such restriction for most of the programmes. Only a few professional programmes (e.g. Computer, Nursing, Engineering, etc.) may have some restrictions due to heavy hands-on work that students need to experience and for which prior knowledge is required.

2. **Relaxation with Regard to Place and Time of Study**
   a. In an open learning system the learner can select his/her own place of study. For example, Ms. Ram had taken admission in the MTA programme in an open university (IGNOU) in its Chandigarh Regional Centre. Due to some reasons he had to leave Chandigarh midway and settle in Delhi. In this situation what did Mr. Ram do? Did he give up his study? If he was a learner of a conventional university he would have given up his study as the system would not permit him to continue to study from outside of station. But, in an open learning system it is possible. In this case, Mr. Ram transferred his documents from Chandigarh region to Delhi region of the Open University and completed his programme in time. In open learning, the learner can continue his/her education from any place of his/her choice under the jurisdiction of the open university/institute.
   b. Mr. Sharma had taken admission to the Bachelor’s Degree Programme of the IGNOU. He could not clear all the courses for the term-end examination of the first year. He took admission to the second year (as the system permits to do so) and completed the left over courses along with the second year courses. In this system, the learners can take either more than one year to complete a ‘one year programme’. In other words, the learner can complete a programme at his/her own pace.

3. **Relaxation with Regard to Selection of Courses**
   In the open learning system, the learner gets relaxation in selecting his/her courses. For example, in B.A. and B.Com. programmes of the IGNOU, the learner can select courses from a list of about 100 courses. Some open universities (e.g., IGNOU) allow a B.A. graduate to take admission to even the Masters of Computer Application (MCA) programme. One of the most significant developments in the field of education during the last two decades has been the acceptance, spread and growth of distance education through open learning systems in most parts of the world. The terms distance education’ and ‘open learning’ have been used in different contexts with somewhat different meanings. Distance Education has been defined as an educational process in which a significant proportion of the teaching is conducted by someone removed in space and/or time from
the learner. Distance Education programmes have often used a combination of educational media, old and new, varying from print to broadcasts to audio and video recordings, and included opportunities for face to face study as well as learning from recorded material. The term ‘open learning’ has been used to refer to the process of making learning available to learners no matter who they are or where or when they wish to study. The term ‘open’ has been taken to imply open access for students regardless of their previous qualifications or age. International experience shows that distance education and open learning tend to complement each other.

**Computers in Open Learning System**

Computer offers major benefits in open learning. These benefits extend to learners, teachers and of course to the institution. These benefits are to the extent that people are compelled to believe that the "institutions they know will no longer exist". To make our point a little stronger, we can list out the possible technologies in open learning where computers play an important role. They are having lot of applications on Local Area Network (LAN)/Wide Area Network (WAN), Electronic Mail (E-mail), Internet, multimedia, CD-ROM, Electronic Conference and Electronic Bulletin Boards (BBS). If you see the international scene, teachers have already started using those applications like text books recorded on CD-ROM interactive media, conferences recorded on CD-ROM interactive media, case-studies and Test banks recorded on CD-ROM interactive media, tutoring through E-mail, BBS and World-Wide-Web (WWW) etc. The list is endless. The use of computer in open learning can be classified into following three categories:

1. **Virtual mode**
2. **Dual mode**
3. **Mixed mode**

1. **Virtual Mode:** Those who are using computers for the complete cycle i.e. from registration of students and educational delivery to evaluation and certification. In effect, the student never needs to interact with any entity, human or otherwise, through any other medium.

2. **Dual Mode:** Those who are using computer to complement one or more operations of their instructional model. In this mode, it is necessary for the learner to complete an instructional cycle through computer-assisted methods.

3. **Mixed Mode:** Those who are using computer to supplement the operations of their instructional model. In this mode, the learner can choose to learn through any mode. Computer assisted methods are not compulsory.

In India, Net Varsity (www.niitnetvarsity.com) is the first attempt of its kind, which fits into the first category. The Net Varsity offers short courses. It is a virtual institution of seven people operating from New Delhi, with a Web server in the US and networking around 50,000 learners and teachers together in a commercially viable manner. In the second category comes, the Virtual Campus Initiative (VCI) of IGNOU. It is possible to register for several courses ranging from short-term diploma courses to bachelor's degree courses through the web site (www.ignou.org.). Lessons can be downloaded and interaction is mainly through email. Another interesting feature of VCI is that the entire study material is given to the students on CD-ROM at the time of registration. The third category comprises of a few institutions that have put the resources on the web. However, there is very little representation from schools. Interest from school administration and teachers is not lacking but there is a great lack of where and how things should be done. Computers in Open Learning provide a student-centric approach. Let's examine it from the point of view of cost. Multimedia is inexpensive. Literally all new PCs are powerful multimedia machines with
CD-ROM, video, sound and networking capabilities. So any learner having access to computer and educational resources would not bear any additional cost. More importantly, students have a choice to pace their study according to their own will, own time and own place. In the case of computer assisted learning, learning is done in a nonlinear mode as compared to traditional linear mode. The learners have direct access and they learn by exploring rather than learn as told. Thus the entire learning process becomes more student-centred. Multimedia is easy to use and interactive. Most programs enable learners to move the cursor on the computer screen to explore new areas of information. This exploration act satisfies the learner's appetite for learning at their own pace and sequence, under their control. The most adorable part of this type of learning is that students can have as many goes at solving a problem or understanding a concept, as many times they require doing so. In the process the concept is reinforced and learning is more powerful. Mistakes can be corrected without getting ashamed. More so, multimedia tools and a variety of media are available during the learning process. The learner becomes more self-critical and participates directly in his own learning process. This kind of approach also facilitates collaborative learning needs and on the other hand permits collaboration between the peer-group. Interactive multimedia supports the concept of "tele presence", meaning that despite the fact that the learner(s) and the tutor(s) are physically apart, they are electronically linked by sharing the same material. Since failures are not exposed in open learning situations, fear is not a part of the learning and evaluation process. Multimedia supports student performance and any learning process are most successful if the learners have the opportunity for success.

**Issues and Challenges in Open and Distance Learning**

Open and Distance Learning is a way of learning that focus on releasing learners from constraints of time and place while offering flexible learning opportunities. For a lot of married and working adults, Open and Distance Learning (ODL) is a way of combining work and family responsibilities with educational opportunities. Challenges in ODL are inherent to the characteristics of this mode. Since it espouses values of flexibility and accessibility, it assumes learners to have sense of both autonomy and responsibility for learning. Before I discuss on the problems that start due to the collusion of two elements, I find it worthy to quote Rennie and Mason’s conclusion on the impediments in distance and distributed learning in India: Firstly, Internet access is improving rapidly, but is still generally too weak and inconsistent to allow any reliance on net-based learning solutions. Secondly, the academic culture is resistant to the recognition of the value of open-learning degrees, with subsequent difficulties in re-designing course materials for a more educationally flexible, student-centred learning environment.

The online distance learners have a problem in balancing the combination of work and education. Most of the Open and Distance education students are older, have jobs and families. The task of balancing all the responsibilities are truly challenging for them. Mathew Simond has listed following challenges in ODL system:

- To acquire online distance study habits is a big challenge to the distance learners. The learners’ everyday environment is very distracting. Distractions such as family, friends asking for lunch, dinner etc. and demanding to go shopping at the mall every weekend are among other distractions faced by the learners. To acquiring some time to study is quite a hard task.
- Online distance learners are independent and responsible to their own self. But most of the time no one is around them to monitor their learning progress.
- Online distance learners also face problems in recognizing and mastering strengths and skills. The students will also need to have some basic writing skills and a go online distance command of english language. Unfortunately, not all of the students possess the necessary skills.
Another challenge is in motivating themselves as well as maintaining and increasing self-esteem. In online distance education, learners are usually isolated from peers and tutors. The motivational factors are absent due to lack of contact and competition with other students.

Online distance learners also face some problems in relating and interacting with peers. Most of the time, learners will learn most effectively when they have the opportunity to interact with other students.

There might be audio/video tape material, television-aided learning, overhead projectors, computer referencing and computer-assisted instruction using the internet. Some students might feel uncomfortable with these learning strategies due to lack of skills and knowledge in using those strategies.

The most online distance learners are not able to use library facilities to access information and references. Most of the library only opens during office hour and the learners would not be able to go to the library during office hour due to demanding works at the office. This will definitely cause problems to students who want to gain access to the reference material. Library database program such as the OPAC will also require the students to have proper training and skills in order to maximize the usage.

The Open and Distance Learning courses are very different from a traditional classroom setting. Due to a number of challenges and obstacles, it often requires a high degree of commitment on the part of the learner. In order to overcome these online distance challenges, learners must first plan and manage themselves effectively in order to balancing work, family and study. They have to manage their time smartly. They need to motivate their own self by setting achievable goals and have a positive attitude. Due to lack of meeting time with peers, they have to make an effort to interact with peers and tutors frequently.

Conclusion

We are at the very beginning of the changes in education. Technology will change again and again; resources and tools will improve constantly. The aim of education is not to be permanently technologically up-to-date, but to meet the needs of the learners in a changing society. The more technology improves, the more it is clear that central issues are human: the learner, individually and collectively, the teacher and the human relationship between the teacher and the learner. The new challenges mainly deal with society: how to make the information society a knowledge society, how to give access to knowledge to everyone, how to develop a worldwide digital solidarity in order to reduce the “knowledge divide”. Learning for professional development is based on purposes linked to a broader vision of growth in the profession. ODL in an online learning environment has the potential to promote empowered learners who are able to meet the demands of ever-changing knowledge in society. It offers them an opportunity to interact with the instructor and fellow learners as they apply new knowledge in authentic contexts. Such collaborative and transformative learning has the potential to contribute to better learning outcomes, including the development of critical thinking and competencies. It is true that ICT is playing a vital role in open distance learning but at same time there are many issues and challenges that are to be addressed for smooth functioning of various online services that are to be implemented for its learners and other public. In this paper, the required ICT infrastructure and various issues and challenges in usage and setting up of ICT infrastructure in open distance learning are addressed. The institution that is providing education in ODL mode should look at all the addressed issues and challenges and take necessary precautions with a proper action plan along with timeframe.
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TRIGGERS OF CONSUMER COMPLAINING BEHAVIOUR- A SERVICE PERSPECTIVE

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ABSTRACT

We are living in a highly competitive world with the ever shrinking barriers across the world economies. The telecommunication sector has witnessed a boom in the developing countries and the customer base is bulging with every passing day. New entrants are giving a tough time to the market leaders with lucrative offers and nose diving call rates. However a growing concern among the consumers is the substandard service provided by some companies. This opens up the opportunities for the companies to gain competitive advantage by providing superior service to the customers as price wars among various service providers have already set in. From an academic view point it assumes importance to study the complaining behaviour of consumers over the period of past decade after their exposure to the world of cellular services. This study analyses the triggers of consumer complaining behaviour among the cellular consumers of the Kashmir valley.

Key words: Telecommunication Sector, Consumer Complaining Behaviour, Service Perspective.

Introduction

The present day customer is acting in a more demanding way in its interaction with service providers due to the increased abundance of choices. Accordingly many service providers are directing their strategies towards increasing customer satisfaction and loyalty through improved service quality. Therefore the effective management of consumer responses to service failure becomes very important, especially in highly competitive markets. The study of the behavioural process of consumers has revealed a very important subject: the complaining behaviour of the consumers and its effects on businesses. The consumer complaining behaviour refers to the set of actions and attitudes that a customer relies on when confronting with a problem caused by a product or service that he has acquired, a problem associated with the manufacturer or seller. Once he acknowledges the problem, the consumer decides how to solve it, by expressing his situation to the provider, or worse, to other potential clients. Academics consider that the complaints of the consumers can be a very useful source of information for companies in making strategic and tactical decisions with the purpose of improving their business (Nyer, 2000). In the specialized literature, complaining behaviour is defined as “a set of possible responses to perceived dissatisfaction, regarding a bill of sale or during the consumption of of goods or services” (Phau and Baird, 2008). This type of behaviour arises when consumers are faced with the inconvenience caused by an item that does not work as it should, or a faulty service without fault. Complaining behavior may be viewed in terms of a set of possible consumer responses to dissatisfying purchase experiences (Singh, 1988). Fornell and Westbrook (1979: 105) indicate that for the consumer, complaining is a means of making his/her feelings known when he/she encounters unfair business practices and feels disappointment with a product or service. Therefore, complaining can be considered as an expression of dissatisfaction of consumers about a product or service in order to change the unsatisfactory situation in their favor, vent their anger about the unfair business practices, and/or harm the business of the firm that causes their dissatisfaction. Although a complaint from a consumer is an overt manifestation of dissatisfaction, the impact of complaints on corporate policy cannot be ignored. Complaints can serve as customer feedback about a product, service or

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company performance (Resnik and Harmon, 1983). Various studies have been carried out to identify the possible triggers of complaining behaviour. Past studies have examined characteristics of complainants that may influence complaining propensity such as demographic, psychographic, cultural, social and situational factors: Demographic factors linked to propensity to complain include age (Singh, 1990; Fails & Francis, 1996; Volkov, Harker & Harker, 2003), gender (Parker, Funkhouser & Chatterjee, 1993; Volkov et al., 2003), income (Fails & Francis, 1996; Volkov et al., 2003), level of education (Kolodinsky & Aleong, 1990; Volkov et al., 2003) and lifecycle stage (Kolodinsky, 1993). Psychographic factors that have been implicated in consumers’ propensity to complain include personal values (Rogers & Williams, 1990), personality factors (Fornell & Westbrook, 1979; Bolfing, 1989), attitudes towards complaining (Day, 1984; Bearden & Oliver, 1985; Singh, 1990; Volkov, Harker & Harker, 2002), attitudes regarding business and government (Jacoby & Jarrard, 1981; Moyer, 1984), personal confidence levels (Richins, 1983) and attitude to past complaining situations (Singh & Wilkes, 1996; Volkov et al., 2002). Cultural factors that have been identified as contributing to consumer propensity to complain including the various dimensions of culture such as collectivism individualism (the traditional continuum whereby according to sociological and social psychology research people in individualist cultures value independence and self-sufficiency and those in collectivist cultures tend to behave according to social norms that are often designed to maintain social harmony among members of the in-group) (Liu, Watkins & Yi, 1997; Liu & McClure, 2001). Social factors that have been identified as influencing consumer complaint behaviour include consumer response to peer-pressure (Malafi et al., 1993; Slama & Celuch, 1994) and an individual’s self-view (Markus & Kitayama, 1990; Liu, Watkins & Yi, 1997). Situational factors involved in consumer complaint behaviour include issues such as the perceived importance of the product/service (Blodgett & Granbois, 1992), the intensity of consumer dissatisfaction (Prakash, 1991), consumers’ decisions to voice or not to voice their dissatisfaction to the firm (Richins, 1983; Day, 1984; Moyer, 1984; Bolfing, 1989; Singh, 1990; Volkov et al., 2002) and the perception of the consumer regarding the cost/benefit of complaining at all (Singh & Wilkes, 1996).

Singh (1988) stated that there are three types of complaining behaviour found when dissatisfaction occurs: 1) Voice responses (seeking redress from the seller or no action), 2) Private responses (word-of-mouth communication); and 3) Third-party responses (implementing legal action). Correspondingly, Oh (2003) stated that the complaining behaviours of public library users were divided into the categories of exit, negative word of mouth, voice, and third-party complaints.

1) Exit (or repatriate intentions): a vow or expressed intention to never again patronize the offending library.
2) Negative word of mouth: telling others about ones dissatisfaction (i.e., complaints about the library and/or the service to friends and/or relatives).
3) Direct voice: complaints registered directly with the library at the time of dissatisfaction.
4) Indirect voice: complaints registered indirectly with the library using complaint cards, e-mail, etc.
5) Third-party complaints: formal complaints directed toward agencies not directly involved in the exchange relationship, that is, other than the library itself.

One of the studies in telecom sector reveals that there is no difference in consumer’s complaint behaviour with regards to their demographic characteristics like age, gender, income and education (Khraim, 2006). The Indian Telecommunications network with 500 million connections is the third largest in the world and the second largest among the emerging economies of Asia. Today, it is the fastest growing market in the world. The telecommunication sector continued to register significant success during the
The variation between the consumer complaining behaviour attitudes and behaviours across nations was minutely studied in case of British, Israeli, Dutch and Turkish hotel customers. The results showed that the respondents from these countries had a favourable attitude toward complaining. A moderate relationship between attitudes and choice of complaining behaviour was found. The respondents with favourable attitudes to complaining were more likely to engage in voice behaviour, whereas respondents with negative attitudes were more likely to display switch or loyalty behaviour. Some customers may remain loyal due to high switching costs, unavailability of alternatives, prior knowledge, probability of complaint success, fear of confrontation and so on. A mediating role of consumer attitudes related to consumer complaint behaviour needs further empirical attention (Yuksel, Kilinc and Yuksel, 2006). Recently conducted research support an argument that, aside from personality and emotional drivers, consumer choices are influenced by country differences centred around culture, market structure conditions and product category. The researchers also note that Complaint behaviour actions may vary from the seeking of direct redress from the perceived responsible party to prolonged litigation, and/or a wide range of indirect actions such as negative word of mouth. No action is also a possibility if there is a sense of powerlessness (Badghish, Fletcher and Stanton, 2010). Complaining behaviour is a topic that has not been studied much. The researchers are of the opinion that the consumers are more likely to complain when the product that is involved in the complaint situation has attributes that are considered important for the consumer. The researchers also opine that gender and social class are not relevant in this matter while the type of complainer is a more important variable. Active complainers have a more positive attitude while passive or non-complainers have a more negative attitude towards complaining (Valenzuela et al, 2005).

Sustainable consumer behaviour has been found to be multifaceted. Attitudinal factors, personal capabilities and external contextual factors influence sustainable consumer behaviour. Most research so far however has focused on attitudinal factors. More research into the personal capabilities as well as external contextual factors is needed (Gust, 2004). In case of utility products consumers are only likely to review
their supply decision if they become dissatisfied. However, for most routine purchases, although dissatisfaction may cause consumers to change brand, this is unlikely to be an event associated with extensive information search (Assael, 1987), whereas, for a product such as electricity, heightened dissatisfaction may cause the consumer to undertake significant information search, as, drawing parallels with the Warwick research, it becomes an investment decision (Watson, Winey and Schomaker, 2002). The differences between normative and predictive expectations, calculated both for respondents' assessments of problem incidence and their judgments of the likelihood of retailers providing remedies, appeared to be related to the level of complaining behaviour reported, but in a somewhat unexpected way. In both cases, a larger gap was associated with lower complaining rates. However, absolute levels of predictive and normative expectations about retailer remedies varied directly with the level of satisfaction reported with retailer remedies reported by those who had complained. Satisfaction with retailer remedies varied over the five problem areas, but the tendency to report fairly high levels of satisfaction (between 70 and 97 percent reported satisfaction) indicated a somewhat higher level of satisfaction than has been suggested by recent literature (Summers & Granbois, 1977). Negative emotions are usually the result of an unfavourable service experience and subsequently a trigger for customer complaint behaviour (Westbrook 1987; Bougie, Pieters, and Zeelenberg 2003; Mattson, Lemmink, and McColl 2004). It is therefore vital for the service provider to understand the emotional aspects of an unfavourable service experience in order to prevent damage complaint behaviour. Most research attention on the service experience of customers, however, has emphasised the cognitive aspects of various service constructs (Bearden and Teel 1983; Oliver and DeSarbo 1988). The most common argument to explain complaint behaviour has been customer dissatisfaction (Oliver 1997). Dissatisfaction is based in disconfirmation theory and is defined as a customer experience that is lower than the perceived expectation. Complaints do not always come from dissatisfaction and dissatisfaction does not always lead to complaining behaviour; therefore dissatisfaction is not sufficient cause for customers to complain (Day 1984; Singh and Pandya 1991). Davidow and Dacin (1997), for example, have shown that personality-related variables represent almost half of the total complaint responses. Emotions, therefore, play an important role in post-complaint behaviour (Bagozzi, Gopinath, and Nyer 1999). The same situation likely applies to pre-complaint behaviour. Some scholars even believe that decision-making without the influence of emotions is not possible (Damasio, 1999). The emotional reactions of customers must be carefully considered in any attempt to explain customer complaint behaviour and the effectiveness of service recovery. It has further been found that other-attributed negative emotions, such as frustration, are the main drivers of complaint behaviour to the service provider (Tronvoll, 2011). The disconfirmation, negative effect, and attribution of blame lead to dissatisfaction, which together with product importance provides the motivation to complain. Given dissatisfaction with an important product, the specific type of complaining behaviour undertaken is largely dependent on the likelihood of success, one’s attitude toward complaining, and one’s level of store loyalty. Consumers who are averse to seeking redress, who perceive the likelihood of success to be low, and/or who are not store loyal, are more likely to exit and to engage in negative word-of-mouth behaviour, while consumers who have a favourable attitude toward complaining, who perceive the likelihood of success to be high, and/or who are store loyal are more likely to seek redress (Blodgett and Granbois, 1992).

Research has shown that product importance was proven sometimes to be a determinant of redress seeking and sometimes not, and the product importance is proven to be a moderating variable rather than a determinant, in integrated model testing. In a case of high product importance, customers are more likely to seek redress, should they have a favorable attitude toward redress seeking, should they perceive a high
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likelihood of success and low cost of redress seeking behavior. However, in a case of low product importance, customers are not likely to seek redress even though, they have a favorable attitude toward redress seeking and perceived high likelihood of success and low cost of redress seeking. Further perceived justice could be a moderating variable in the process of CCB that develops to redress seeking behavior (Cho and Joung, 1999). While proposing a further model of complaining behaviour, complaining behaviour has been classified in terms of two dichotomies- involved/uninvolved and primary/secondary. It is argued that factors other than procedural, interactional and distributive justice impact on whether or not a dissatisfied consumer takes a complaint further. The other important factors to be taken into account are the speed of redress, the degree of redress sought, the type of redress sought (eg; monetary or apology), and the rank of the employee dealing with the voiced complaint. Buying behaviour and feedback loops used in the model signify that consumers do not buy in vacuum, both past complaining and purchase experiences affect future buying behaviour (Boote, 1998).

Considering consumer complaining behaviour studies as a whole, two aspects seem constantly present: on the one hand, the fact that consumers voice their complaints only in particular circumstances; on the other hand, the "discovery" of the value of complaints for consumers, companies and for society as well. Nevertheless, few studies have focused on real implementations of effective complaint handling procedures and on the resultant benefits: an ideal field for action research (Butelli, 2007). Studies on relationship between Consumer Politeness and Consumer Behaviour have shown that the more polite people are, the less likely they are to complain. The most polite people are least likely to use the voice method of making a complaint, perhaps because this requires direct confrontation with the service provider. Customers, both polite and impolite, are more likely to engage in private action than they are to voice their complaints (Lerman, 2006). User complaint is an overt manifestation of a customer’s dissatisfaction. The study shows that library users, even if dissatisfied with the service, are reluctant to complain because they perceive the service to be free. On the other hand, if their dissatisfaction with the service is caused by the library or its staff, they might exit, give negative word-of-mouth, voice their complaint directly, or report to a third party. Loyal users are less likely to report a complaint to the authorities (Oh, 2003).

Dwelling on the concept of complaining behaviour further in the context of Turkey it was found that consumers are more likely to complain when they are dissatisfied with a product or service. They are willing to ask refund or return when they encounter with dissatisfaction because they have strong self-confidence in seeking redress and complaining. The recent developments (such as technological developments, increased education level in the society, increased consumer consciousness, etc.) during the past few years in Turkey have resulted in change in the attitudes of consumers. Turkey as a prospective member of the European Community progressively makes legislation reforms in order to be compatible with European Community’s laws and legislation. Turkey, as an example of a progressive developing country, has also taken some important steps on the issue of consumer protection. This contributed to the rise of consumerism in Turkey and changes in the attitude of consumers toward the act of complaining (Kurtulûs and Nasir, 2007). The situation in which the products actual performance fails to meet a customer’s expectations leads a customer to a mental state technically referred to as cognitive dissonance- a state of psychological discomfort that the consumers experience when they find inconsistency in their expectations vis-à-vis a product and its actual performance. In order to come out from the Psychological discomfort, a dissatisfied buyer may attempt to return the product or may seek positive information about it to justify his choice or may think seriously for deflection to some other brand (Sahaf, 2008).
An exploratory study of Chinese purchasing of imported health food reveals that while dealing with dissatisfaction upon purchase, 48.1% of the respondents chose “Non-formal complaint” category, in which, they either share their negative attitudes toward the products they have purchased with their friends and family members or internalize the negative attitude into their personal experience (memory). The “Reactions to dissatisfaction” (Formal complaint or Non-formal complaint) has no association with demographic factors, however, it does have association with “Frequency of purchase”, “Premium range”, “Timing of purchase” and “Information source”. Generally speaking, the frequent purchasers and early purchasers tend to conduct formal complaint, the people who are willing to pay higher premium prices for imported health food products are inclined to carry out formal complaint, and people relying on the information from personal-non-marketer source are less likely to do formal complaint (Lee, 2005). Complaint behavior starts with dissatisfaction as a prerequisite. In general, under the Chinese culture influence, Chinese consumers are more likely to choose private actions over public actions (Li, 2010).

Conclusion

After administering a structured questionnaire to the randomly selected respondents from selected areas of the Kashmir valley various dimensions of consumer complaining behaviour among the residents came to the fore. One of the brightest observations from consumer’s perspective is that nowadays customers are acting in a more demanding way in their interaction with service providers due to the increased abundance of choices. In response to this shift in consumer behaviour many service providers are directing their strategies towards increasing customer satisfaction and loyalty through service quality. In spite of this the best of the service companies are not able to completely avoid the service failures. Therefore, the effective management of consumer responses to service failure becomes very important, especially in highly competitive markets. As regards the triggers of consumer complaining are concerned, it is an interesting domain with various dimensions. The Complaining behaviour stems from dissatisfaction which in turn is a product of an interactive process of three variables i.e., disconfirmation, negative effect and attribution of blame. Dissatisfaction alone however does not lead to complaining but works in tandem with the product importance. Actually when the dissatisfaction and product importance is more than a threshold, only then a consumer is likely to complain. The Psychographic and demographic profile of a consumer impact the recourse which a consumer undertakes after experiencing a service failure. In addition to these social, cultural and situational factors also determine whether the consumer would show an active or a passive response. The final outcome of the complaining process is also influenced by the perceived justice. Kashmiris are increasingly becoming more and more active as far as complaining is concerned as they attribute high importance to the cellular services owing to its penetration in the Kashmiri society. The literate class regardless of sex is more likely to complain as compared to the illiterate when they encounter a service failure. However age does not play a major role. The consumers of private service providers complain frequently as compared to that of public service providers probably because of perceived justice. The domain of consumer complaining behaviour in the context of Kashmir valley however needs to be studied more minutely and across various dimensions particularly in the emerging field of complaint channel choice to begin with.
References


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Inaugural Session

The Directorate of Distance Education, University of Kashmir in collaboration with STRIDE IGNOU and Gandhi Memorial College of Education, Jammu organized a two day National Workshop on the theme “Role of Academic Counselors in ODL System” on 8th & 9th November, 2012. Forty five participants attended the workshop from various universities, colleges and institutions across India. Two renowned resource persons from STRIDE-IGNOU conducted eight technical sessions in two days. In addition to technical sessions, the Inaugural and Valedictory sessions were also conducted which were presided by Jenab Abdul Gani Malik (Hon’ble Minister for Higher Education, Labour and Employment), Jenab Raman Bhalla (Hon’ble Minister for Revenue, Relief and Rehabilitation) and Prof. Talat Ahmad, Hon’ble Vice Chancellor University of Kashmir.

At the outset of the inaugural session Prof. Nilofar Khan, Director DDE presented a brief profile of the Directorate regarding the programmes offered, study-cum-information centres, faculty, faculty development programmes, new programmes in offering, ICT support for distance learners of the Directorate at their doorsteps, library facility at study centres, grievance redressal, feedback forum, enquiry cell and other extension activities carried on by the Directorate in Jammu, Kashmir and Ladakh provinces for the enrolled students from J&K and other parts of the India.

Sh. Anil Dhar, President HESK (Hindu Education Society of Kashmir) highlighted the role and objectives of HESK and its instrumental role in spreading education in Jammu & Kashmir. In his emotional address, he expressed his social, educational and intellectual attachment with University of Kashmir.

Prof. P. K. Biswas highlighted the objectives of the workshop and the need for conducting such workshops for providing training to faculty working in ODL system. Prof. Talat Ahmad, Hon’ble Vice Chancellor University of Kashmir, Srinagar stressed that the message of University of Kashmir should be spread to far flung areas by strengthening extension and outreach activities of the Directorate. He said that the Directorate should expand its network of study centres to other districts of Jammu and provide educational opportunities to all those desirous students who because of socio-economic or geographical constraints are not in a position to go for higher education.

Jenab Abdul Gani Malik, Hon’ble Minister for Higher Education said that Distance Education has a promising role to play in enhancing Gross Enrolment Ratio (GER) and employability. He also stressed upon the growth of private sector so that they can shoulder the responsibilities of the Government in education sector by offering courses where students have better job prospects.

Dr. Nahid Ruhi, Associate Professor, Directorate of Distance Education, University of Kashmir, presented vote of thanks.
Dr. Mushtaq Ahmad Dar, Associate Professor (Law), Directorate of Distance Education, University of Kashmir prepared and presented the workshop report.

Objectives of the Workshop

1. To develop professionalism among the personnel responsible for the delivery of distance education system.
2. To make the persons aware about the philosophy and methodology of ODL system.
3. To help them to identify the strategies and methods for realizing the objectives of ODL system by providing effective support services to distance learners.
4. To develop in them skills about latest trends and ICT enabled developments to resolve the problems of students in cost effective manner.
5. To provide training to resource persons about the dimensions of academic counselling.

Target Group

- Academic counsellors engaged for providing counselling and guidance to distance learners
- Resource persons engaged in Personal Contact Programmes, for delivering lectures to DDE students
- Resource persons engaged for evaluation of assignments submitted by students as an essential component of ODL system and their curriculum.
- Liaison officers working at different Study-cum-Information Centres

Technical Sessions

In this workshop eight technical sessions were conducted in two days jointly by the experts Prof. Biswas and Dr. Mithili. The workshop methodology was through presentations, discussions and interactions. Brain storming sessions were conducted frequently at the end of each session. The issues raised were discussed and replied to the best satisfaction of the participants.

1st Session (Day 1)

The 1st technical session was conducted on the topic “ODL : Concept, Development and Components”. In this session Prof. Biswas explained the difference between conventional and distance education system. He explained the concept of open education as an alternative mode to formal system. In his excellent presentation he highlighted characteristic both conventional system of education and distance education. He also discussed open learning system and its flexibly in admissions, contact programs, counseling etc.

2nd Session (Day 1)

The 2nd session was conducted by Dr. Mithili on the topic “The Models of Distance Education System”. The expert highlighted various stages of Distance education system from correspondence to online mode and its corresponding delivery technologies. The focal point of her presentation was on the mixed use of Audio, Video, print and ICT enabled teaching-learning in ODL system. It was followed by discussion and interaction session. The queries were nicely replied by the expert.

3rd Session (Day 1)

The 3rd session was on the topic “Self-learning Materials: Need and Characteristics. This session was conducted by Prof. Biswas and discussed various aspects of self learning material, viz., need, characteristic features and importance of SLM as an essential component of student support in open and
distance learning system. He explained how to develop Self Learning Material (SLM) which should be self explanatory, self contained, self directed, self motivating and self evaluating. He stressed upon the need that a teacher should be in-built in the self learning material.

The remarkable feature of his presentation was to develop the study material in user friendly mode to inculcate interest, motivation and curiosity among distance learners while studying at their own place and pace.

4th session (Day 1)

The 4th session was on the topic “Development of Study Skills”. It was once again nicely conducted jointly by both the experts. They highlighted various teaching techniques like 5Ws and 1H, Fishbone diagram and Spider diagram for the development of study skills among distance learners.

5th Session (Day 2)

The 5th session was on the topic “Student Support Services”. It was partly conducted on 1st day in the form of home work assignment and partly on day second by Prof. Biswas. Student Support Services is one of the essential components of ODL system. The quality of any institution depends upon its student support service. It includes both Academic and Administrative support services which must be student oriented. Support services to students is one of the important parameters of quality education and is in itself a recognition of the institution.

6th Session (Day 2)

The 6th session was on “Tutoring and Counselling in Distance Education”. It was conducted jointly by both the experts. Very important aspects relating to assignments, their importance, role of counsellor etc where explained thoroughly to participants. The experts also deliberated upon “problem solving exercises” and “comment writing by tutor”. The purpose of assignment is that a student can develop his own thinking and act independently according to his own level of understanding. Independent learning especially by a distance learner has to pass through various stages. It starts from understanding of basics, second understanding of concepts, third independent understating and lastly developing his own ideas. It is because of this reason that assignment is also considered one of the essential components in ODL system.

7th & 8th Sessions (Day 2)

The 7th & 8th sessions were jointly conducted on practical’s, projects and participants views. The experts touched an important an interesting topic for practical’s “Use of Media” in ODL system. The practical sessions also included –how to design:

- In-text Questions within sub-headings in the material
- Self-assessment Questions at the end of the lesson
- Exercises, illustrations, examples, activities and case studies for conceptual clarity
- Assignments both theoretical and practical oriented with the objective that the students can make a serious homework

The questions and issues raised by the participants were addressed nicely by experts.

Recommendations

1. There is an urgent need to establish open universities one at Jammu and one at Kashmir for providing higher educational opportunities to poor, needy, weaker sections and other students belonging to far flung areas of the state.
2. Faculty development programmes like workshops, refresher courses and orientation programmes in ODL system is the only way to impart training and inculcate professionalism in the faculty working in Distance Education Institutes and Open Universities.

3. Training programmes in Information Communication Technology to every faculty member (teaching and non-teaching) working in ODL System is the need of the hour and demand of the system, otherwise people working in ODL system would become irrelevant. ICT enabled teaching learning in ODL system will develop skills among faculty to tackle problems faced by Distance Learners in their day-to-day online feedback and instant reply to queries of students.

Conclusion

Support services to students are one of the important parameters of quality education and is in itself a recognition of the institution. It includes both Academic and Administrative support services which must be student oriented. Research studies in India and abroad have revealed that learners in various programmes have shown interest in various forms of student support services and have been benefitted by the same. Most of the open and distance learning institutions and open universities in the world have well established student support centres at local, regional national and international level to cater the needs of thousands of students in respect of admissions, courses on offer, examination schedules, course combinations, material dispatch, face-to-face interaction, personal contact programmes, counselling and guidance sessions, ICT support, library support, grievance redressal, instant and online feedback support for queries and overall decentralization in educational facilities for facilitating distance learners. Hence we can conclude that success of ODL system in general and any Distance Education Institution in particular largely depends on strong network of student support services (SSS). To conclude this historical workshop has not only taught us to minimize the distances between the distance learners and our educational systems but also in our social and intellectual relationships. Hope this trend will continue in future also. This workshop has reminded us our culture, history and our origin Mooj Kasheer for the affection, cooperation and hospitality shown by the organizers to our honourable guests and participants.

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Understanding, Creating and Delivering Value to Boast Horticulture Industry in Jammu and Kashmir

Farzana Gulzar*
Shazia Manzoor**

Abstract
The State of J&K is probably known as the “Heaven on Earth” with many potential opportunities which can contribute to Gross Domestic Product. However, the trend of development in the State of J&K has not been so encouraging. There are various impediments to the growth, low productivity in agriculture and allied sector being the one. As the agro-climatic conditions are ideal for production, horticulture forms the core of agriculture economy of the State of J&K. About, five lakh families were involved in growing of fruits in the State. Horticulture contributes about INR400 crore of the states Domestic Product and about 20 per cent of the total cultivated area is under horticulture crops. However, the development of horticulture in the State continues to be characterized by lower productivity despite implementation of various schemes involving an expenditure of Rs.28.26 crore during 2001-02 to 2004-05. However, various initiatives have been undertaken to revive the horticulture sector in the State. Still, there are numerous issues yet to be addressed. Thirty per cent of the total fruits produced get wasted due to poor processing and marketing facilities. The present study is an endeavor to give a strategic model for enhancing horticulture sector in the State of J&K.

Key words: Heaven on Earth; Impediments to Growth, Horticulture, Strategic Model

Introduction
The review of horticulture industry is very crucial for the development of Jammu and Kashmir State especially to create employment opportunities as well as to provide marketing opportunities for horticulture produce both for local as well as export markets. Jammu and Kashmir is the Indian State popularly known as ‘Heaven on Earth’ and has its own distinct cultural ethos and natural beauty. It shares its international boundary with Pakistan and china. J&K is enriched with the mesmerizing snow clad mountains; large forests with reach wealth, large natural lakes, rivers and springs. It has three main natural regions-Jammu, Kashmir and Ladakh. The State has indeed rich natural resources and a large pool of entrepreneurial and labor force, but has not been fully utilized. Potential and attractive investment opportunities exist in many areas in J&K, which can contribute to GDP and has employment absorption capacity. However, the trend in the development of J&K is not so encouraging. It has been lagging behind most of the states in regard to the growth of the Net State Domestic Product (NSDP) at current prices. The average annual growth of Per Capita Net State Domestic Product at Current prices during 1980-2000 was estimated as 9.63 per cent for J&K against 12.9 per cent, 11.63 per cent, 11.63 per cent, and 12.86 per cent for Andhra Pradesh, Gujarat, West Bengal and Kerala respectively.

Impediments to Growth
Jammu and Kashmir has potential in key sectors such as Tourism, Hydel Power etc. Besides Agro-climatic diversity offers extraordinarily good prospects for the development of high value adding Agri business projects. In addition, the knowledge base of its people can be utilized to develop IT service sector. However, this is quite unfortunate that the rich state like ours is experiencing the slow growth. This slow growth can be attributed to various factors:

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Misdirected Economic Policies.

Indo-Pak relations.

Armed Insurgency.

Poor infrastructure with poor investment climate.

Low productivity in Agriculture and allied sectors.

Political turmoil.

Lack of Good Governance.

Lack of sound Fiscal Management etc.

All these factors have been responsible for the poor economic growth of the State.

Horticulture Industry

India is bestowed with a varied agro-climate, which is highly favorable for growing a large number of horticultural crops such as fruits, vegetables, root tuber, aromatic and medicinal plants and species and plantation crops like coconut, cashew and cocoa. Presently horticulture crops occupy around 13 per cent of India’s gross cropped area, producing 177.41 million metric tones during 2005-06.1

India is the second largest producer of fruits and vegetables. The total production of fruits has been estimated at 52.85 million metric tones from an area of 5.34 million hectares and vegetables has been estimated at 108.20 million metric tones from an area of 7.05 million hectares during 2005-06.1

India is the largest producer of mango, banana, sapota and acid lime. About 39.5 per cent of the world’s mangos and 11 per cent of world’s bananas are produced in India. The horticulture sector was given boost by enhancing its outlay from Rs.1000 crore in the Eighth Plan to Rs.1454 Crore in the Ninth Plan and further to Rs.2105 crore in the Tenth Plan.

Horticulture Industry in the State and its Performance Review:

General Overview

The State of Jammu and Kashmir has a high potential in the horticulture sector that contributes INR 400 crore of the states' domestic product. This horticulture sector occupies an important position in the farming system of Jammu and Kashmir. The State has four agro climatic conditions: sub-tropical, temperate, sub-temperate and intermediate arid. Each agro-climatic region has its own potential to grow specific fruits. The area and production of major crops is given in table 1.1:
Table 1.1: Area and Production of Major Horticultural Crops

<table>
<thead>
<tr>
<th>Crops</th>
<th>Area (in Million Hectares)</th>
<th>Production (in Million Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits</td>
<td>2002-03</td>
<td>2003-04</td>
</tr>
<tr>
<td></td>
<td>Area</td>
<td>Production</td>
</tr>
<tr>
<td>Fruits</td>
<td>4.3</td>
<td>49.2</td>
</tr>
<tr>
<td>Vegetables</td>
<td>5.9</td>
<td>34.8</td>
</tr>
<tr>
<td>Spices</td>
<td>2.4</td>
<td>3.8</td>
</tr>
<tr>
<td>Plantation crops</td>
<td>3.1</td>
<td>13.1</td>
</tr>
<tr>
<td>Flowers</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Others</td>
<td>0.00</td>
<td>0.9</td>
</tr>
<tr>
<td>Total</td>
<td>16.4</td>
<td>152.0</td>
</tr>
</tbody>
</table>

Source: National Horticultural Board. *Estimates

Temperate fruits like apple, pear, plum, apricot, cherry, walnut etc grown at elevation of 1000 to 3000 meters above sea level are important cash fetching fruits of the State. These fruits not only supplement the diet of the people in the State and country, but also form an important item of exports.

Facts about Apple, Temperate Fruits and Nuts

- Nearly, 75% of the country’s temperate fruits, mainly apples, are grown in Jammu and Kashmir.
- Apple occupies around 40% of total area under fruit and accounts for 90% of the total production of fruits in the State.
- The area under apple cultivation accounts for 87,000 hectares with an annual production of 9.29 lakh metric tons (2003-04).
- Amri (Ambri Kashmiri), American trel (American Apriogue), Delicious (Red Delicious), Maharaji (White Dotted Red), Hazaratbali (Benoni), Kesri (Cox’s Orange Pippin) are some of the choicest varieties of apples in J&K.
- Kashmir produces excellent quality of temperate and dry fruits like Pear, Cherries, Walnuts, Almonds, Pine Nuts or Chilgoza and Apricot.
- Pulwama is considered as “crown” of north India in respect of fresh fruit and dry fruits.
- 5 lakh farmers involved in the trade.
- Each Hc of orchard generates 400 man-days per year (1.30 man-year).
- State has been declared as an agro-export zone for apple and walnut.
- J&K generates Rs 2100 crore annual income from fresh fruits, Rs 250 crore from dry fruits.
- Share of Indian Walnut in the International Market is 7%.

Productivity

About 20 per cent of the total cultivated area is under horticulture crops. In physical terms, the area under fruit cultivation was 1.73 lakh hectares by the end of the Seventh Five Year Plan period. The total fruit production in the State was 9-10 lakh tones in 1995-96. Fruit export was to the tune of 7-10 lakh tones in this period. The Ninth Plan (1997-2002) document stressed the need for diversification and zonalisation of fruit cultivation in the State. The position of area under fruit cultivation, actual fruit
production and average yield per hectare in the State during the period 2001 to 2004-05 is given in table 1.2:

**TABLE 1.2: Showing the Position of Area under Fruit Cultivation, Actual Fruit Production and Average Yield per Hectare in the State during the Period 2001 to 2004-05**

<table>
<thead>
<tr>
<th>Year</th>
<th>Particulars</th>
<th>Apple</th>
<th>Other Fruits</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td>(i) Area under fruit cultivation (in lakh hectares)</td>
<td>0.88</td>
<td>1.31</td>
<td>2.19</td>
</tr>
<tr>
<td></td>
<td>(ii) Production (in lakh metric tonnes)</td>
<td>7.51</td>
<td>1.81</td>
<td>9.32</td>
</tr>
<tr>
<td></td>
<td>(iii) Average yield per hectare (in metric tonnes)</td>
<td>8.53</td>
<td>1.38</td>
<td>4.25</td>
</tr>
<tr>
<td>2001-02</td>
<td>(i) Area under fruit cultivation (in lakh hectares)</td>
<td>0.90</td>
<td>1.32</td>
<td>2.22</td>
</tr>
<tr>
<td></td>
<td>(ii) Production (in lakh metric tonnes)</td>
<td>9.10</td>
<td>1.88</td>
<td>10.98</td>
</tr>
<tr>
<td></td>
<td>(iii) Average yield per hectare (in metric tonnes)</td>
<td>10.11</td>
<td>1.47</td>
<td>4.94</td>
</tr>
<tr>
<td>2002-03</td>
<td>(i) Area under fruit cultivation (in lakh hectares)</td>
<td>0.95</td>
<td>1.37</td>
<td>2.32</td>
</tr>
<tr>
<td></td>
<td>(ii) Production (in lakh metric tonnes)</td>
<td>9.54</td>
<td>1.93</td>
<td>11.47</td>
</tr>
<tr>
<td></td>
<td>(iii) Average yield per hectare (in metric tonnes)</td>
<td>10.01</td>
<td>1.40</td>
<td>4.91</td>
</tr>
<tr>
<td>2003-04</td>
<td>(i) Area under fruit cultivation (in lakh hectares)</td>
<td>1.01</td>
<td>1.42</td>
<td>2.43</td>
</tr>
<tr>
<td></td>
<td>(ii) Production (in lakh metric tonnes)</td>
<td>10.42</td>
<td>2.32</td>
<td>12.74</td>
</tr>
<tr>
<td></td>
<td>(iii) Average yield per hectare (in metric tonnes)</td>
<td>10.32</td>
<td>1.63</td>
<td>5.24</td>
</tr>
<tr>
<td>2004-05</td>
<td>(i) Area under fruit cultivation (in lakh hectares)</td>
<td>1.08</td>
<td>1.30</td>
<td>2.38</td>
</tr>
<tr>
<td></td>
<td>(ii) Production (in lakh metric tonnes)</td>
<td>10.93</td>
<td>2.39</td>
<td>13.32</td>
</tr>
<tr>
<td></td>
<td>(iii) Average yield per hectare (in metric tonnes)</td>
<td>10.11</td>
<td>1.59</td>
<td>5.16</td>
</tr>
</tbody>
</table>

**Source:** Audit Report, Chapter IV, for the year 2006, of Agriculture Production, Department, Srinagar.

The Ninth Plan (1997-2002) targets for fruit production were fixed as 15.46 lakh metric tones. However, against this, the fruit production at the end of 2001-02 was only 10.98 lakh metric tones which was far below the targeted level targets for fruit production. Apple continued to occupy predominant position with a share of 81 to 83 per cent of the total production of fruit crop in the State during 2000-01 to 2004-05. The average yield per hectare of apple crop during 2000-01 to 2004-05 ranged between 8.53 metric tones and 10.32 metric tones. The production of other fruits varied between 1.81 to 2.39 lakh metric tones during this period. The area under almond production in the State declined from 0.18 lakh hectares (2000-01) to 0.15 lakh hectares (2004-05). In Budgam and Pulwama districts, which constituted about 97 per cent of the production of almonds in the State during 2000-01, the area under almond cultivation decreased by 13 per cent from 0.15 lakh hectares (2000-01) to 0.13 lakh hectares (2004-05). In Pulwama district the area under dry fruits (walnut and almond) got reduced by 492 hectares during the period from April 2000 (12,464 hectares) to March 2005(11,972 hectares) and the average yield per hectare had also declined from 1.45 metric tones during 2000-01 to one metric tones during 2004-05. Similarly in Baramulla and Anantnag districts, the average production per hectare decreased from 16.28 metric tones and 5.51 metric tones during 2002-03 to 15.80 metric tones and 5.09 metric tones respectively during 2004-05. Thus the development of horticulture in the State continued to be characterized by lower productivity despite implementation of various schemes and providing incentives for increasing productivity of fruit crop in the State involving an expenditure of Rs. 28.26 crore during 2001-02 to 2004-05. Besides the Departmental nurseries on an area of 19243 (Kashmir Division: 129.43 hectares) was not only unsatisfactory but these were also economically unviable. The year-wise position of availability and mortality of plants in 43 departmental nurseries of five test-checked districts during 2000-01 to 2004-05 was as given in table 1.3.
TABLE 1.3: Showing the Year-Wise Position of Availability and Mortality of Plants in 43 Departmental Nurseries of Five Test-Checked Districts during 2000-01 to 2004-05

<table>
<thead>
<tr>
<th>Name of the district</th>
<th>Number of nurseries</th>
<th>2000-01</th>
<th>2001-02</th>
<th>2002-03</th>
<th>2003-04</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total stock of plants</td>
<td>Mortality</td>
<td>Total stock of plants</td>
<td>Mortality</td>
<td>Total stock of plants</td>
</tr>
<tr>
<td>Kupwara</td>
<td>8</td>
<td>2.06</td>
<td>0.56</td>
<td>1.70</td>
<td>0.24</td>
</tr>
<tr>
<td>Srinagar</td>
<td>10</td>
<td>0.41</td>
<td>0.15</td>
<td>0.57</td>
<td>0.02</td>
</tr>
<tr>
<td>Pulwama</td>
<td>10</td>
<td>0.91</td>
<td>0.17</td>
<td>0.69</td>
<td>0.11</td>
</tr>
<tr>
<td>Budgam</td>
<td>4</td>
<td>0.41</td>
<td>0.11</td>
<td>0.27</td>
<td>0.07</td>
</tr>
<tr>
<td>Anantnag</td>
<td>11</td>
<td>0.71</td>
<td>0.15</td>
<td>0.74</td>
<td>0.44</td>
</tr>
</tbody>
</table>

Source: Audit Report, Chapter IV, for the year 2006, of Agriculture Production, Department, Srinagar.

Thus, the performance of departmental nurseries was dismal which contributed to non-achievement of the primary objective of providing genetically improved and high quality plant material to the orchards.

Sale Proceeds of Fruit Crop

Of 101 orchards possessed by Horticulture Department, 56 belong to Kashmir with an area 258.05 hectare (total area 321.35 hectares (Kashmir: 258.05 hectares. The table 1.4 presents the status:

Table 1.4: Showing the Status of orchards possessed by Horticulture Department in the State of J&K.

<table>
<thead>
<tr>
<th>S. No</th>
<th>Year</th>
<th>Targets fixed</th>
<th>Achievements</th>
<th>Percentage shortfall</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>2000-01</td>
<td>50.00</td>
<td>46.98</td>
<td>6</td>
</tr>
<tr>
<td>2.</td>
<td>2001-02</td>
<td>50.00</td>
<td>43.12</td>
<td>14</td>
</tr>
<tr>
<td>3.</td>
<td>2002-03</td>
<td>47.00</td>
<td>38.76</td>
<td>18</td>
</tr>
<tr>
<td>4.</td>
<td>2003-04</td>
<td>55.00</td>
<td>41.35</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: Audit Report, Chapter IV, for the year 2006, of Agriculture Production, Department, Srinagar.

The percentage shortfall in realization of sale proceeds of fruit crop ranged between 6 and 25 during 2000-01 to 2003-04. Further, the sale proceeds of fruit crop in these orchards declined by 12 per cent from Rs. 46.98 lakh (2000-01) to Rs. 41.35 lakh (2003-04). These shortfall in achievement of targets and decline in sale proceeds was attributed by the fixation of targets without considering ground realities.

Initiatives Undertaken to Promote the Horticulture Sector

The horticulture sector plays a significant role in J&K in providing employment from the stage of tree plantation to the point of its marketing, it has a good potential in employment creation. There is need to explore other options, that too in the field of value added agriculture. However, the State is facing many problems in regard to the development of horticulture. It includes low productivity, great variability in important crops like Walnut and Almond, higher percentage of off grade fruit, poor connectivity with the market place and small and fragmented land holdings. The state Government has undertaken certain initiatives to promote the horticulture sector:
Introduction of high-density plantation of apples and soft fruits like strawberry and currants around cities and towns.

In cooperation with NABARD, it has developed 19 markets, 17 satellite or rural markets, one terminal market and one gain market.

Carton packaging for apple recently revealed in a high level meeting of officers with Minister for horticulture and tourism, M.Dilwar in chair (G.K.Wednesday July, 2007).

Agro products to be marketed through Shogni Commercialization Limited, a Himachal based company, to reach world markets ((G.K.Wednesday July 2007).

National Horticulture Mission wherein an amount of Rs.771.86 crore was provided to the State Horticulture Mission during 2006-07.

Technology Mission for integrated development of horticulture in various North-Eastern States including J&K. The Tenth Plan outlay for the scheme was approved at Rs 845.00 crore for implementation in 11 states. These funds to the States are made available on the basis of yearly action proposals, which are approved by the State-Level Steering Committee under the chairmanship of the Chief Secretary of the State Government concerned.

The NHB is involved in the development of high quality horticulture farms in identified belts and in making such areas vibrant with horticulture activity as hubs for developing commercial horticulture, development of post-harvest infrastructure, strengthening of market information systems and horticulture database.

Special Economic Zone Act, 2005 has into force from 2006 with SEZ Rules, 2006 being notified. This Act aims to provide duty free environment, single window clearance and significant tax sops to SEZs. SEZ units get special fiscal incentives like deduction of 100% of profits for a period of any 10 consecutive years out of 15 years from the beginning of the year in which the SEZ is notified. Exemption on interest and capital gains, exemption from Minimum Alternate Tax and no dividend distribution tax and other benefits are also provided to horticulture sector.

Critical Issues:

- Improvement in the productivity of the fresh and dry fruits.
- Average land holdings size quite less for the commercialization of the horticulture activity.
- Thirty percent of the total fruit produced get wasted due to unavailability of packaging and processing facilities.
- Inadequate marketing facility and lack of investment and integration n the marketing chain and value addition in the supply chain is negligible.

Recommendation to Revive Horticulture Sector

One of the study (Exploring possibilities of achieving 4% growth rate in Indian agriculture, Ramesh Chand, Oct.2005) shows that the, expansion under irrigation, improvement in total factor productivity, resource shift towards high value enterprises and increase in application of fertilizers are the four sources of growth in agriculture. Scope to raise agriculture output through various sources in different states is summarized in table 1.5.
However, still a lot needs to be done to exploit the huge potential in horticulture sector. The State currently faces the problem of differentiating its produce from the other states or countries and this can be achieved by using Market Orientation.
Market Orientation to Revive Horticulture Sector

- **Customer Orientation**
  Understanding customer well enough continuously to create superior value for them and this can be achieved by:
  - Development of sustainable production, value addition and quality control systems for fruits of J&K.
  - Value addition from non-traditional fruits like asparagus, mushroom, broccoli, etc.
  - Low cost fruit processing units.
  - Post harvest management of fruits:
    - On farm storage.
    - Innovative packaging solutions for fresh fruits.
    - Modern grading lines and cold storage
  - Reduction of cycle time from the farmers’ field to consumers’ plate and suitable infrastructure in case of perishable produce segment.

- **Competitive Orientation**
  Awareness of the short and long term capabilities of competitors and can be done by:
  - Access to information on prices, policies, trade regulation etc of apple, temperate fruits and nuts.
  - Strengthening of backward and forward linkages.
  - Export oriented technologies and methodologies for fruit industry.

- **Inter functional Coordination**
  Using all resources of the State to create value for customer. This can be achieved by:
  - Optimum use of land through high-density plantation of fruit crops.
  - Building the confidence of the private investor in the horticulture development and fruit processing industry.
  - Transport efficiency and working out arrangements with the airlines for the transportation of perishable items to other parts of the country.
  - APEDA should be encouraged to set up an Export Promotion Zone to promote the export of selected fruits.
  - Collaboration with SKAUST in the field of research for developing technology like tissue culture, hybridization, genetic engineering to get improved varieties with better quality and yield.
  - Government to provide fertilizers and pesticides at subsidized rates.
  - Disease forecasting system to regulate the pesticide usage.
  - Farm credit.
  - Modernization of nurseries and rejuvenation of old orchards.
  - Increasing extension efforts in order to facilitate diversification in the portfolio of crops.
  - Consolidation of highly fragmented land holdings in which 90% of the farmers fall.
  - Strengthening the extension infrastructure in order to facilitate transfer of technologies to farmers for better productivity.

- **Market**
  Certain measures also need to be taken on exploring marketing facilities:
  - Promoting the private initiative in the marketing of products.
  - Reduction in market transaction costs in areas such as freight commission, bulk braking and value loss.
Support initiatives to build an umbrella brand name like “Kashmir Produce” for horticulture produce in the outside export market.

Trade support services to reach processed food markets and grasp the growth opportunities in international markets.

Exploring organic and export market for apple and temperate fruits.

Marketing tie-ups between producers and buyers.

Display of fruits during exhibition to be enhanced.

Cost competitive and efficient marketing system to be developed. For fruit industry.

Culture

Existing culture to be transformed to marketing culture to get maximum support for reviving horticulture sector. This requires efforts from all stakeholders of this industry.

Long Term Profit

This is important for the value maximization of the industry, given the huge potential of this sector J&K, if managed properly and efficiently can result in decrease in costs and increase in revenue. This orientation is possible only if there is a strategy of making three components skill, system and technology to have a very close coordination between them.

There should be a system to harness skill by using the modern technology. Based on this, enhancing the horticulture sector to ensure the development in the State should be the aim of all concerned.
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WHAT BEGAN AS CRUDE, NOW ROCKS THE WORLD

Khursheed Ahmad Qazi*

ABSTRACT

One might wonder what the title of this paper implies. What does one mean when one says what began as crude, now rocks the world? Most of us know English today as a universal global language but reality is something else. It began some 1500 years ago as a crude language originally spoken by obscure Germanic tribes who invaded England. David Crystal says that there has never been a language so widely spread or spoken by so many people as English. This is the youngest language in the use today. The man who did most to give it shape was none other than Geoffrey Chaucer who lived only 600 years ago. In the present form, it is even less than six centuries old, for modern English was not established until the 16th century, the Elizabethan Age. No doubt, English is an amalgamation of many older languages such as Latin, Greek, German, Spanish, French, and many others. The alliance of these varied tongues has created a language that is currently perhaps simpler, richer, more effective, more flexible and versatile than any of those from which it has been derived. Today, it has made its place in all spheres of life – home, office, business or market place. In fact, English Language has now become the commonest language of communication and economy. Research reveals that perhaps it is the only language which is currently so strongly affiliated with commercial, economic and industrial interests. This paper discusses how English language has emerged as language of opportunities and greater prospects in the contemporary world of information technology.

Key words: Communication, Backbone, Economic Growth, Outsource, Opportunities

Introduction

We know that English is the global language (Crystal 2007: 1). David Crystal, world authority on English Language, in English as a Global Language, presents a lively and factual account of the rise of English as global language and explores the whys and wherefores of the history, current status and future potential of English as the international language of communication. English has been lauded as the most ‘successful’ language ever, with 1500 million speakers worldwide. In a multi-religious, multilingual and multicultural scenario like ours, English has been serving as a link language which has succeeded in emerging as a strong vehicle of communication used all across the world by people for varied purposes only to make it the spine for the growth and development of a nation in the fields like education, business, trade, science, management, information technology, etc. due to its uniqueness with respect to its clarity of expression, dynamism, lucidity, flexibility, receptiveness, rhetoric, adaptability, resourcefulness and rich vocabulary. A good command of English is increasingly necessary in today’s global job market. Given the nature and requirement of modern job environments, the need for professionals with strong useable linguistic competence and skills are heavily required in developing expertise in essential skills such as explaining, persuading and negotiating.

Main Argument

English is no longer a language of colonizers, one country or one nation. It has crossed the British Channels and has earned now successfully global acceptance. It began emerging as a global language over the last 400 years or so for the English people started conquering and colonizing different parts of the world. This way English expanded its geographical presence and was adopted in different parts of the

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world in different ways. Soon it was realized that the English colonized the people and governed the lands through a group of locals. The English language, in these contexts, was seen as the language of power and locals who aspired to work for the government (British) or to achieve official recognition strived to learn it. In the postcolonial era, many countries maintained English as an official language. Examples of current nation states where English was introduced through colonization and has been maintained include: Bangladesh, Hong Kong, India, Kenya, Pakistan, the Philippines, Singapore, etc. The English language has been used for hundreds of years in these countries and has become ‘nativized’ or ‘indiginized’ (Kachru, 1992). Then, we have many other countries which were settled by the English and became hubs for slave trade and settlement. For instance, many Caribbean islands served as destinations for slaves brought from different corners of Africa, who spoke different languages. These people developed new languages over time used English as the lexifier language. These languages are dubbed as creole languages and can be considered as varieties of English as they have been lexified by English. Now, in the contemporary world of globalization, privatization, liberalization, it acts as a spine for the overall economic growth and development of a country across the world. This way, English is presently learnt in most countries for gaining greater employability and opening newer vistas of advanced learning in Science and technology, commerce and industries, politics and judiciary. It enables us to earn access to modern scientific and non-scientific learning at the advanced level where the aspirants find it easy to achieve what they choose to. It is repository for the entire corpus of literary, technical and scientific jargon and terms which compels people to equip them with it more and more for fining jobs of their own liking. We see that today when Mexican pilots land their aeroplanes in France, they and the ground controllers use English. When German Physicists want to alert the international scientific community to new discoveries, they first publish their finds in English. When Japanese executives conduct business with Scandinavian entrepreneurs, they negotiate in English. When pop singers write their songs, they often use lyrics or phrases in English. When demonstrators want to alert the world to their problems, they display signs in English. This proves the fact that English plays a vital role in the current global world and India has effectively made use of this potential and acquired today a great name and fame of being one of the largest English using countries in the world attracting multinational companies to outsource this potential at cheaper rates and cost. Good confident Indian English Speakers compete today globally and have wider choice of jobs with lucrative earnings. English is currently extensively used in business, industry, commerce, government, research and education for day-to-day transactions. It is also an instrument of intellectual discourse and social interaction among the elite class all across the world especially India. Research reveals that the globalization of job market has certainly opened countless opportunities for the youth who have a good command of the English language as it has become a prerequisite qualification for majority of jobs and vacancies across the world and those who among us lack these soft skills experience extreme difficulties in finding suitable employment and have bleak chances of excellence and growth in the career ahead. For achieving success in one's career, an ability to use English as per the global requirements effectively is a must. In India, English is perhaps the language of Indian middle class as its learning has created wider opportunities for better careers among the youth. Pertinently, the advancements in Science and IT sector have made a big difference in the modern world. The world is now a small global village due to the tremendous developments in science, technology, transport and communication resulting in emergence of e-commerce, e-learning, e-trading, e-governance etc. People correspond with others around the globe on regular basis, products are bought and sold on line and services are provided globally on net. The English language has inarguably and undoubtedly become indispensible in this 'globalization' scenario and has thus become the
prime language of choice for communication for varied nationalities for the role it performs. Effective skills galore jobs to doors in sectors like media, advertisements, BPOs, KPOs, films, fashion designing, etc. For all the professionals especially the IT related job aspirants good knowledge of English is perhaps the first essential qualification as the market is fully globalized. The emerging career options for the youth which bring them higher mobility, respect, pay and international exposure are: Software Engineering, Call Centre, Animation/Graphics, Hotel Management, Advertisements, Tourism Management, Radio Jockeying, TV Presentation/ Journalism, Investment Banking and Fashion Photography. Most of these jobs mentioned above, require soft skills, particularly the communication skills in English. The exciting jobs that demand soft skills are advertising executives, announcer, archivist, assignment editor, author/playwright, bibliographer, columnist, journalist, copy writer, court reporter, translator, interpreter, critic, editor, proof reader, transcriptionist, technical writer, editorial assistant, educator, foreign correspondent, free lance writer, PRO, air hostess, etc. Usually employers look for various eligibilities in the candidate such as education, soft skills, experience, aptitude, achievements and training. Aspirants of these jobs must be able to converse in English effectively and fluently for the nature of job demands so.

**Emerging Job Sector**

Research reveals that people with strong soft skills have easily earned jobs with better earnings. In fact, IT sector alone now hires millions of people each year and in future too, it is expected that millions of jobs would get created in it. The services sector has been a major and vital force steadily driving growth in the Indian economy for more than a decade. The economy has successfully navigated the turbulent years of the recent global economic crisis because of the vitality of this sector in the domestic economy and its prominent role in India’s external economic interactions. According to the employment outlook report of the Paris based Organization for Economic Cooperation and Development for the year 2007: India has created more than 11 million jobs every year between 2000 and 2005. A study carried out by An Associated Chambers of Commerce and Industry reveals that IT sectors hired 1.63 million people till March 2007. The industry is further expected to create about 11 million jobs over the next three years. The IT and IT enabled services (ITeS) sector are giving India the image of a young and resilient global knowledge power. The IT-ITeS industry has four major sub-components: IT services, business process outsourcing (BPO), engineering services and research and development (R&D), and software products. As per the estimates of NASSCOM, India’s IT and BPO sector (excluding hardware) revenues were US$ 87.6 billion in 2011-12, generating direct employment for nearly 2.8 million persons and indirect employment of around 8.9 million. As a proportion of national GDP, IT and ITeS sector revenues have grown from 1.2 per cent in 1997-8 to an estimated 7.5 per cent in 2011-12. 10.45 Software exports in 2011-12 are estimated at US$69 billion compared to US$59 billion in 2010-11. While exports continue to dominate the IT-ITeS industry and constitute about 78.4 per cent of total industry revenue, the CAGR of the domestic sector has also been high at 12.8 per cent compared to the 14.2 per cent for exports during the Eleventh Five Year Plan period. The growth rate of the domestic sector in 2010-11 was 20.6 per cent as compared to 18.8 per cent for the export sector; in 2011-12 it was 9.7 per cent for domestic sector and 16.4 per cent for export sector. In 2012-13, as per NASSCOM estimates, export revenues are expected to grow by 11-14 per cent and domestic revenues by 13-16 per cent. These estimates are a pointer to the possibilities of making further forays into the untapped domestic sector for IT and ITeS. Consistent demand from the US, which increased its share in total exports of India's IT and ITeS services from 61.5 per cent to 62 per cent, characterized 2011-12. Emerging markets of Asia (For more details see, http://indiabudget.nic.in).

Economic Survey 2010-12 states that Pacific and the rest of the world also contributed to overall

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growth. While the industry’s vertical market mix is well balanced across several mature and emerging sectors, there was broad-based demand not only across traditional segments such as banking, financial services, and insurance (BFSI), but also new emerging verticals of retail, health care, media, and utilities. Sub-sector-wise in 2011-12, as per the provisional estimates of NASSCOM, in the export sector, IT services were the major component with a 58 per cent share and CAGR of 15.7 per cent for the Eleventh Plan period; followed by BPO with a 23.1 per cent share and 12.5 per cent CAGR; and software products / engineering with a 18.9 per cent share and 11.8 per cent CAGR. Indian IT service offerings have evolved from application development and maintenance to emerge as full service players providing testing and infrastructure services, consulting, and system integration. The year also witnessed the next phase of BPO-sector evolution, characterized by greater breadth and depth of services, process re-engineering across the value chain, increased delivery of analytics and knowledge based services through platforms, strong domestic market focus, and Small and Medium-sized Business (SMB) centric delivery models. In the engineering design and products development segments, there was increasing use of electronics, adoption of fuel efficiency norms, convergence of local markets, and use of localized products. Increasing confidence between customers and service providers successfully executing a variety of activities across low-medium-high complexity projects has led to increasingly larger sizes of projects being sourced from India. In the domestic sector, the major component is IT services with 64.2 per cent share, followed by software products/ engineering with 19.6 per cent share and BPO with 16.2 per cent share. The CAGRs of these sectors were 11.5 per cent, 13.6 per cent, and 18.1 per cent respectively. Strong economic growth, rapid advancement in technology infrastructure, increasingly competitive Indian organizations, enhanced focus by the government and emergence of business models that help provide IT to new customer segments are the key drivers for increased technology adoption in India. The IT and ITeS sector is also a generator of skilled employment with direct employment expected to reach 2.8 million in 2011-12 compared to 2.5 million in 2010-11. Some of the challenges faced by the IT and ITeS sector include increasing competition from other countries with incentivized low costs, rising costs in India with wage-push inflation, increasing costs of relevant talent and skilled personnel, infrastructure constraints with over 90 per cent of total revenue generated from seven Tier-1 locations, risks like currency fluctuations and security, both physical and data related, and rising protectionist sentiments in key markets. Government has taken various initiatives to promote the growth of the IT/ITeS industry and has been a key catalyst for increased IT adoption--through sectors reforms that encourage IT acceptance, National e-Governance Plan (NeGP), and the Unique Identification Development Authority of India (UIDAI) programme that creates large-scale IT infrastructure and promotes corporate participation. The Draft National Policy on Information Technology 2011 focuses on deployment of information communication technology (ICT) in all sectors of the economy and providing IT solutions to the world. The Policy emphasizes adoption of technology-enabled approaches to overcome developmental challenges in education, health, skill development, financial inclusion, employment generation, and governance so as to enhance efficiency across the board in the economy. It seeks to bring ICT within the reach of the whole of India while at the same time harnessing the immense human resource potential (For more details see, http://indiabudget.nic.in).

Service Sector

Service Sector is one of the fastest growing sectors. India depends on service sector heavily around 60% of its GDP and growth. It is also a significant employment generator for finance, banking, insurance, and management professionals are in great demand. Banking, trading and real estate are the
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major components of this sector. It is estimated to hire lakhs of people every year. The retail sector is another important sector of new economy. Bharat Enterprises on a tie-up with Wal-mart forecasts a $600 billion market by 2015. The other allied job markets are advertising, media department, production, television, photography, industry, client servicing, creative department, market research, exhibition, event management, and direct marketing. India's service sector is growing at a strong 8.5% growth rate which will drive the demand for commercial real estate in the second half of the current year (2012-13), say real estate research firms. The service sector occupied 70% of office space in 2011 and the pace is likely to continue this year. Mumbai, NCR-Delhi, Bangalore, Chennai, Hyderabad, Pune and Kolkata saw a significant growth in office space absorption, with information technology (IT), IT-enabled services and banking, financial services and Insurance (BFCI) segments claiming most of the space occupied. (See, The Times of India News of Oct. 9, 2012). Here too, aspirants with proficiency in English language will find lucrative assignments and adjustments.

Business Process Outsourcing (BPO) Sector

The BPO is the leveraging of technology or specialist process vendors to provide and manage an organization’s critical and/or non-critical enterprise processes and applications. The most common examples of BPO are Call Centres, human resources, accounting and payroll outsourcing. Business outsourcing may involve the use of offshore resources (Sinha & Bright 2011:1). India has emerged as one of the largest pool of low-cost English speaking scientific and technical young talent which makes her one of the best choices to outsource to Dell, Sun Microsystems, LG, Ford, GE, Oracle all have already announced plans to scale up their operations in India. Several foreign airlines and banks have already established business BPOs in India. Currently, India is the biggest destination of the BPO companies across the world. The BPO sector employed 23 lakh by 2010. Due to soaring property prices, rising wages, and high attraction rates, companies are trying to move to II tier and III tier cities, thereby creating opportunities for both urban and rural youth for employment. Most of these jobs in these industries obviously require people with strong soft skills. A candidate with good communication skills in English can have a promising career in these BPOs.

Knowledge Process Outsourcing (KPO)

The mere figures of 300,000 jobs coming up in a year in the Knowledge Process Outsourcing industry is an indication of how big this sector is going to be in the future. Considered as a cousin of the BPO sector, KPO is going to be the next big thing in the country. Pertinently, ‘in many Call Centres in either North America or in Europe, labor costs are the largest share of operating expenses. In India, labor costs are much lower, about 10-20 per cent of what it is in the US. Because of this, operating expenses are more evenly distributed across labor, systems and telecom, and real estate and utilities. The savings, for some of these companies, have been truly phenomenal going up to as much as $250 million annually. Labor costs in India are quite low compared to the US. Someone answering complicated financial questions on the phone in the US may expect $40,000 a year, but in India, labour costs are a fraction of what they are overseas’ (Sinha & Bright 2011:5). Since outsourcing offers several advantages like cost savings, access to skilled resource, big pool and better quality, many global companies are thus outsourcing their knowledge based processes to India. Among major ones are designing, web applications, data management, financial and legal services, business and market research and analysis, research and development, medical, pharmaceuticals and biotechnology related services, training, publishing, content development, remote education, etc. However, the biggest segment is data search integration and management which holds 29%
of the KPO sector revenue. Next is biotech and pharmaceuticals, followed by engineering and design, R&D, education and publishing, and animation. The KPO is expected to grow at a cumulative growth rate of about 45%. Thus, after the BPO, it is the KPO, which is sweeping the job market. Knowledge Process Outsourcing (KPO) is emerging as a lucrative job destination for the youth. The KPO touched $10-12 million by 2010, creating 2.5 lakh jobs spanning different background as science, engineering, law, accounting and pharmaceuticals; Legal Process Outsourcing (LPO), is now surely going to boom the global job market.

Today, the Indian KPO industry faces the challenge of adequate talent availability and high attrition rate among young professionals. Further, services in this sector are specialized and professionals with specific domain knowledge are only preferred. A higher education degree and an experience within the sector most often becomes a prerequisite to getting employed with a KPO company. However, these knowledge professionals often lack the inclination towards continuous learning and understanding of the dynamic nature of this profession. Furthermore, continuous training of business-related skills is essential in the outsourcing services sector. This is because, unlike the BPO industry, which is process oriented, the KPO market demands professionals with decision making, problem solving and analytical skills. During the recent economic crisis, all the industries across the globe felt the pinch on their revenues, forcing them to cut down their costs. The situation was further fuelled by the growing political pressure, driven by the ever increasing unemployment in developed countries. This had a huge impact on the Indian outsourcing sector. Some other challenges faced within the Indian KPO sector is the continuously improving quality standards, further investment towards the KPO infrastructure, requirements of higher level of control, confidentiality and enhanced risk management. Despite all these challenges, the Indian KPO industry is expected to reach USD8 billion in 2011 and USD10 billion by 2012, implying a CAGR of around 32.5% (2010-2012).

Hospitality

The hospitality is one of the flourishing careers at present. This industry comprises granting services in the hotels, motels and lodges etc. Now the industry isn’t limited to it and is extended to the resorts, cruise, spas and various other places which are the human recreational place. It includes hotel industry, entertainment industry and aviation and thus plays a vital role in strengthening the tourism industry. All the professionals of these jobs require soft skills. As the job is related towards serving the people and so the individuals are needed to possess the quality to be kind, generous, and entertaining. This industry required a work force of 95000 by 2010. The entertainment industry has opened 3 lakh jobs and aviation sector 1,50000 people during 2010 but these jobs would also need people with sound ability to communicate with others especially in English. Communication is thus key in such organizations for career advancement and professional growth.

Conclusion

Since in modern organizations, employees spent 60% of their time in oral communication, greater importance is given to devising and maintaining an efficient system of communication. Researchers in this area have shown that 70- 80% of the total time of the professionals is spent on communication. As such, ability to communicate effectively, present ideas efficiently and manage people through one’s linguistic competence matter a lot. In India where other languages are also used for this purpose, out of the total time spent on communication, 64.14% is on communicating in English as against 27.22% in Hindi and 8.64 % in regional languages. Thus, the role of English in the current professional world is very dominant and
indispensable and hence we are all set to look at how to produce good effective speakers who will carry a good value and price in the international market. On the whole, there is dire need to start courses on communications skills at university level both urban and rural campuses to bring about parity in quality and growth that create equal opportunities for all.

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ISSUES RELATING TO ELECTRONIC AND DIGITAL SIGNATURES

Manirani Dasgupta*

ABSTRACT

The documents, records as well as information or data should be retained for a specific period to be accessible and usable for a subsequent reference. The retention of electronic records must be in original form as generated, sent or received indicating the identification of origin, destination, date and time of dispatch or receipt of such records except such e-records as are automatically generated solely to enable to be dispatched or received as e-record, for example, format of e-mail must be received or dispatched in the form of e-record or information which are solely generated for this purpose and therefore question of retention in original format of the same is not disputable. The e-record will be treated as original format as generated, sent or received when it will indicate details of its creation, sending and receipt. Creation in this context is not necessarily typing by the user rather on behalf of user any one can type or create the document. Digital Signature is the use of electronic and statutory method to authenticate electronic record by anyone who subscribes it through digital signature certificate issued by appropriate authority appointed for this purpose by the Central Government. It is very difficult to define the term digital signature in precise form. Article 2 (a) of the United Nations Model Law on Electronic Commerce, 85th plenary meeting on digital signature, 12th Dec’ 2001, defines the term ‘Electronic Signature’. In India, according to section 2(p) of the Information Technology Act, 2000 ‘Digital Signature’ means authentication of any electronic record by a subscriber by means of an electronic method or procedure in accordance with the provisions of section 3 of the Act. Section 2 sub-sections (ta) and (tb) were inserted by the Information Technology (Amendment) Act, 2009 which defines ‘Electronic Signature’ and ‘Electronic Signature Certificate’ respectively to authenticate electronic record in electronic technique not to supplant but to supplement the Digital Signature and the Digital Signature Certificate. Authentication of electronic records and electronic signature must be following procedure prescribed under sections 3 and section 3A of the Information Technology Act, 2000 in India. The procedure is called affixing electronic signature or digital signature. That is adoption of specific method or procedure by means of electronic signature for its authentication. Any person can affix digital signature or electronic signature on his electronic record. Authentication shall be effected by use of asymmetric crypto system and hash function which envelop and transform initial electronic record into another electronic record which are reliable and according to second schedule. This function has to be completed by Key pair. In key pair there are private key and public key. Keys are unique to the subscriber and constitute a functioning Key Pair. If corporate sectors, government and individuals use their own digital or electronic signatures on maintaining level of confidentiality and privacy then it will be definitely helpful to prevent and control unauthorized access to data and related acts and can hope for authenticity, integrity and non-concealment of e-data which are transferred.

Key words: Education, Philosophy, Value Education, Teacher.

Introduction

The documents, records as well as information or data should be retained for a specific period to be accessible and usable for a subsequent reference. The retention of electronic records must be in

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original form as generated, sent or received indicating the identification of origin, destination, date and
time of dispatch or receipt of such records except such e-records as are automatically generated solely to
enable to be dispatched or received as e-record\(^1\) for example, format of e-mail must be received or
dispatched in the form of e-record or information which are solely generated for this purpose and therefore
question of retention in original format of the same is not disputable. The e-record will be treated as
original format as generated, sent or received when it will indicate details of its creation, sending and
receipt. Creation in this context is not necessarily typing by the user rather on behalf of user any one can
type or create the document. For example, in a cyber café or office on behalf of A, Y may type a document
and A after verification of the same may save it or send it to X as e-mail attachment through A’s e-mail
address. Here generator of the record is A and original format is as verified, approved and sent by A to X.
X is the recipient and the document as received by X in the original form without tampering or changing
the format, style and so forth will be treated as original form. Here X must not convert e-document into W
or MS word document format or should not make copy-past in any file or folder changing format, style,
colour, font size or anything else rather he has to save it as is it in the original format sent by A and
received by him. Then only it will be treated as primary evidence and original document.

However, where there is express law relating to retention of electronic documents, records or
information, section 7(1) of the Information Technology Act, 2000 will not be applicable and that special
provision will prevail. For example, section 5 of the Trade Mark Act, 1999 provides that in Trade Mark
Registry Office the register must be kept in manual form and in electronic form such as in floppy disk or
hard disk which must be circulated to all branch offices from head office and the Registrar shall take care
of it. Not only that, rules, regulations, orders, bye-laws, notifications or other matters of the Government if
published in official gazette or electronic gazette, the date of publication shall be deemed to be the date of
the gazette or media in which it was first published in any form whether electronic or manual\(^2\). On the
other hand, with reference to sections 6 to 8, though e-records and e-signature have legal sanctity but it is
not a matter of right of any one to claim that any appropriate Government or Government authority should
accept, issue, create, retain and preserve any document in electronic form or effect any monetary
transaction in the electronic form.\(^3\) Therefore, inspite of wide use e-records are not compulsory for every
transaction and communication. So, e-publications of government records are subject to official secrecy
and confidentiality.

Electronic money transaction without proper safeguard tends to create several problems, for
example, ATM fraud and fraud in banking transactions, fraud in financial transactions, internet fraud,
credit card fraud and so forth are increasing day by day. Criminals in cyberspace are very often misusing
and abusing e-banking and e-financial transaction facilities. Hackers in cyberspace unauthorisedly access
password and source code of the users and institutions to commit economic crimes and other cyber crimes
e.g. theft, denial of service attack, flowing of virus, spamming and so forth. If separate machine is used
only to keep e-record without internet or network connection, there will be 100% safety and security of
data. For example, Calcutta University Law Department and Technology Department having their own
network to exchange data within two departments and no computer of these two departments is connected
with internet. There will be very little chance of data tampering, misuse or crime in respect of the records.
But if one computer is connected with internet, there will be chance of direct as well as remote cyber

\(^1\) For detail see section 7(1) the Information Technology Act, 2000.
\(^2\) For detail see section 8 of the Information Technology Act, 2000.
\(^3\) For detail see section 9 of the Information Technology Act, 2000.
attack through I-Way. Therefore, nowhere is safe in cyberspace without standard security and control. On
the other hand if we advocate use of separate machine only for keeping records without internet
connection, it is a bar to advancement and sanctity of Information Communication Technology (ICT) and
it will bring us back to the genesis of computer and development of ICT because without communication
processing facilities a machine can be treated as a calculator but not a computer.

The Concept of Digital Signature

The concept of Digital Signature was first evolved by Whitfield Diffie and Martin Hellman in the
year 1976 and thereafter Ronald Rivest, Adi Shamir and Len Adleman invented the RSA algorithm to be
used for Digital Signature. The first widely marketed software package to offer digital signature by them
was totus Notes I.O. released in the year 1989. Though, Silvio Micali Ronald Rivest and Shafi Gold
Wasser fist thought about the security system of Digital Signature. Digital Signature is the use of electronic
and statutory method to authenticate electronic record by any one who subscribes it through digital
signature certificate issued by appropriate authority appointed for this purpose by the Central Government.
It is very difficult to define the term digital signature in precise form. Article 2 (a) of the United Nations
Model Law on Electronic Commerce, 85th plenary meeting on digital signature, 12th Dec’ 2001, defines
the term ‘Electronic Signature’. It runs as follows: ‘Electronic Signature’ means data in electronic form
affixed to or logically associated with, a data message, which may be used to identify the signatory in
relation to the data message and to indicate the signatory’s approval of the information contained in the
data message. Article 2(b) of the United Nations Model Law on Electronic Commerce states that a
‘Certificate’ means a data message or other record confirming the link between a signatory and signature
creation data. According to section 2(p) of the Information Technology Act, 2000 ( IT Act); Digital
Signature means authentication of any electronic record by a subscriber by means of an electronic method
or procedure in accordance with the provisions of section 3 of the Act. Section 2 sub-sections (ta) and (tb)
were inserted by the Information Technology (Amendment) Act, 2009 which defines ‘Electronic
Signature’ and ‘Electronic Signature Certificate’ respectively to authenticate electronic record in electronic
technique not to supplant but to supplement the Digital Signature and the Digital Signature Certificate.

Authentication of electronic records and electronic signature must be following procedure
prescribed under sections 3 and section 3A of the Information Technology Act, 2000 in India. The
procedure is called affixing electronic signature or digital signature. That is adoption of specific method or
procedure by means of electronic signature for its authentication. Any person can affix digital signature
or electronic signature on his electronic record. Authentication shall be effected by use of asymmetric

4. For detail see Section 2(ta) and (tb) of the Information Technology Act, 2000.
5. Section 2 (d) "Affixing Electronic Signature" with its grammatical variations and cognate expressions
means adoption of any methodology or procedure by a person for the purpose of authenticating an
electronic record by means of Electronic Signature". (f) “Asymmetric Crypto System” means a system of
a secure key pair consisting of a private key for creating a digital signature and a public key to verify
the digital signature; (g) Certifying Authority” means a person who has been granted a license to issue
a Electronic Signature Certificate under section 24; (h) “Certification Practice Statement” means a
statement issued by a Certifying Authority to specify the practices that the Certifying Authority
employs in issuing Electronic Signature Certificates; (q) “Digital Signature Certificate” means a Digital
Signature Certificate issued under sub-section (4) of section 35; (t) “Electronic Record” means data,
record or data generated, image or sound stored, received or sent in an electronic form or micro film or
computer generated micro fiche;
(ta) [Inserted by proposed ITAA-2006] “electronic signature” means authentication of any electronic
crypto system and hash function which envelop and transform initial electronic record into another electronic record6 which are reliable and according to second schedule.7 This function has to be completed by Key pair. In key pair there are private key and public key. Keys are unique to the subscriber and constitute a functioning Key Pair.8 For the verification of the electronic record the subscriber needs to use his public key.9 The Central Government may prescribe the procedure10 and publish it in the official Gazette to add or omit such procedure for affixing digital signature from the second schedule11 depending on its reliability.12

Therefore, whosoever uses information technology to communicate, data exchange or transmit information for online contract, regular business affairs, to provide Government services or personal use must use electronic or digital signature in the electronic record by using asymmetric crypto system and hash function, to protect data in cyberspace and prevent misuse or abuse of information; to authenticate data and to prevent data from any abuse or misuse. Hash function envelops it and transforms original document and authenticates original document with secure digital signature. The document will be treated reliable if it contains digital signature under verification process. There will be very little chance of tampering or misuse of data. Specially, Government sectors while using e-records must always use secure electronic or digital signature for its authentication and reliability.

**Security of E-records and E-signature**

When electronic signature is under the process of verification of keys till verification completes, data is under the exclusive control of signatory during the time of affixing signature and it is stored, controlled and affixed in exclusive manner13 using private key, then it will be treated as secure electronic record by a subscriber by means of the electronic technique specified in the second schedule and includes digital signature.

(tb) "Electronic Signature Certificate" means an Electronic Signature Certificate issued under section 35 and includes Digital Signature Certificate

(x) "Key Pair", in an asymmetric crypto system, means a private key and its mathematically related public key, which are so related that the public key can verify a digital signature created by the private key;

(zc) "Private Key" means the key of a key pair used to create a digital signature;

(zd) "Public Key" means the key of a key pair used to verify a digital signature and listed in the Digital Signature Certificate;

(zh) "Verify" in relation to a digital signature, electronic record or public key, with its grammatical variations and cognate expressions means to determine whether

(a) The initial electronic record was affixed with the digital signature by the use of private key corresponding to the public key of the subscriber;

(b) The initial electronic record is retained intact or has been altered since such electronic record was so affixed with the digital signature.

(t) Defines the term electronic record that...........................................................

(p) defines the term Digital Signature that it means authentication of any electronic record by a subscriber by means of an electronic method or procedure according to section 3 of the IT Act, 2000 .

6. For detail see Section 3(1) of the Information Technology Act, 2000.
7. For detail see Section 3A(1) and (2) of the Information Technology Act, 2000.
8. For detail see Section 3(4) of the Information Technology Act, 2000.
9. For detail see Section 3(3) of the Information Technology Act, 2000.
10. For detail see Section 3A(3) of the Information Technology Act, 2000.
11. For detail see Section 3A(4) of the Information Technology Act, 2000.
12. For detail see Section 3A(4) proviso of the Information Technology Act, 2000.
signature. So, the security system starts from the time of application of security procedure\textsuperscript{14} to the time of its verification in case of electronic records.\textsuperscript{15} Then it will be treated as Secure Electronic Record. However, in case of digital signature, the signature creation data means the private key of the subscribers. For using the same the user needs to receive a certificate, which contains public key, from certifying authority authorised by the Controller and the Central Government. In e-governance use of secure digital signature must be compulsory in confidential and important data for authentication and reliability to citizens.

**Legal Recognition of Digital Records, Electronic Signature and Digital Signature**

Where law requires information or records compulsorily in writing or typewriting or printed form, such law recognises electronic records when such information or matters are (a) rendered or made available in an electronic form; and (b) accessible so as to be usable for a subsequent reference. Therefore, only availability in an electronic form is not enough rather for legal recognition it must be accessible and usable for any subsequent reference. Where it is legal compulsion to sign or bear electronic signature, it shall be deemed to have been satisfied where the requirements are fulfilled.\textsuperscript{16} Where law requires that information or any matter shall be authenticated by affixing the signature or any document shall be signed or bear the signature then that information or record must be authenticated by affixing electronic signature, earlier which was digital signature, according to the prescribed manner. However, explanation to section 5 of the IT Act, 2000 provides that ‘signed’ means affixing of his handwritten signature or any mark on any document and the ‘signature’ shall also mean accordingly.\textsuperscript{16a} Electronic records and electronic signatures are recognised and approved for the e-transaction in Government and its agencies according to format and fees prescribed by the Central Government.\textsuperscript{17}

The United Nations 85\textsuperscript{th} plenary meeting on Digital Signature, 12\textsuperscript{th} Dec’ 2001, Article 1 provides that e-signatures are applicable in the commercial activities without affecting rule of law for the protection of consumers. Article 3 deals with equal treatment of e-signatures, except article 5 where variation may be caused by valid agreement and in fulfillment of the requirements referred to in article 6, Para 1 and other applicable laws. Article 6 provides for recognition of electronic signature. Para 1 provides that where signature is legally compulsory for data message if an electronic signature is used that will be reliable and appropriate communication. It is applicable and reliable in every circumstances including relevant agreement. Therefore, Para 2 provides that electronic signature is applicable in case of legal obligation and where law provides consequence in absence of a signature.

**Jurisdiction**

E-record will be treated as attributed to the originator when it is proved that it was sent by originator himself or his authorised person or by information system programmed by or on his behalf to operate automatically.\textsuperscript{18} For the date and time of dispatch and receipt of e-record we have to depend on the time when it enters the designated computer resource, when it is retrieved by addressee or when it enters into the computer resource of the addressee.\textsuperscript{19} So for the jurisdiction or place of sent and receipt of records

\textsuperscript{14} For detail see Section 14 of the Information Technology Act, 2000.
\textsuperscript{15} For detail see Section 16 of the Information Technology Act, 2000.
\textsuperscript{16} For detail see Section 5 of the Information Technology Act, 2000.
\textsuperscript{16a} See also The IT (Security Procedure) Rules, 2004 rules 3 and 4.
\textsuperscript{17} For detail see Section 6 of the Information Technology Act, 2000.
\textsuperscript{18} For detail see Section 11 of the Information Technology Act, 2000.
\textsuperscript{19} For detail see Section 13(2) of the Information Technology Act, 2000.
are concerned, it is the place of their business\textsuperscript{20} though location of computer resource and place of business of originator and addressee are different.\textsuperscript{21} The principal business place will be treated as place of business where there are several business places of concerned person. And if either one has no business place their usual place or residence will be treated as place of business. For a Corporate body, it is the place of registration.\textsuperscript{22} For example, X enters into an agreement with Y. X is residing at Kolkata and Y is residing at London. X sent e-copy of agreement to Y while he visited Delhi through Delhi based Cyber café and Y received it while he was at Singapore. Here place of agreement will be Kolkata or London or residential address of either X or Y, or if they are registered Company, the place of business, in case of several branches principal place of business, if no such place of business then place of registration and where nothing is working then place of server. And under section 75 of the Information Technology Act, 2000 only reasonable and incidental link to Indian Computer is enough to settle jurisdictional issues. Therefore, Delhi and Singapore are also important to determine jurisdiction in cyberspace.

**Certifying Authority**

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<tr>
<th>Central Government</th>
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<tbody>
<tr>
<td>Controller</td>
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<tr>
<td>Certifying Authorities</td>
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<tr>
<td>Subscribers</td>
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<td>Users</td>
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The Central Government may by notification appoint the Controller and other officers who shall use office seal of the Controller.\textsuperscript{23} For the purpose of regulation and functions of Certifying Authority, the Controller may recognise any foreign Certifying Authority for the purpose of this Act with previous approval of the Central Government and by notification in the official gazette and their activities will be treated as valid until the Controller revokes such recognition.\textsuperscript{24} Article 12 of the UN Model Law on Digital Signature provides for recognition of foreign certificates and electronic signature and states that it will have similar legal effect as in one’s own country if it has substantial and equivalent level of reliability according to international standards or parties may agree between themselves regarding the same. Any person, who is eligible under section 21(2) of the Information Technology Act, 2000 may make application to the Controller for a license to issue e-signature certificates. The essential requirements are qualifications, expertise, manpower, financial resources and other infrastructure facilities which are essential to issue such certificates as prescribed by the Central Government. This licence, once granted, shall be valid for the period as the Central Government may prescribe and shall not be transferable or heritable but subject to terms and conditions as may be specified by the regulations\textsuperscript{25} and subject to renewal of license in prescribed form and fees not exceeding five thousand rupees and not less than forty-five days before date of expiry of validity period as prescribed by the Central Government.\textsuperscript{26}

\begin{footnotesize}
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20. For detail see Section 13(3) of the Information Technology Act, 2000.
23. For detail see section 17 of the Information Technology Act, 2000.
25. For detail see section 21(3) of the Information Technology Act, 2000.
\end{footnotesize}
However, the controller may grant or reject the license and application after considering reasonable factors or suspend the license accordingly by notification through website or such electronic or other media as he may consider appropriate. So, Certifying authority means a person who has been granted a licence to issue electronic signature certificate under section 24 of the IT Act, 2000 as provided in section2(g). Every Certifying Authority shall follow appropriate procedures to provide reasonable level of reliability and security to ensure the secrecy and privacy of the electronic signature. Certifying Authority is the repository of all e-signature certificates and they publish information regarding its practices, e-signature certificates, current status of such certificate and observe other legal standards.

Electronic Signature Certificate

According to section 2(tb) of the IT Act, 2000 ‘electronic signature certificate’ means an Electronic Signature Certificate issued under section 35 and includes digital signature certificate. Every electronic signature certificate application shall accompany with fees not exceeding Rs. 25,000/- to be paid to the Certifying Authority and a certification practice statement or particular statement to be considered by Certifying Authority. After due enquiries and reasonable opportunity given to the applicant, the authority may grant or reject the application with recorded reasons with or without conditions. Before the Information Technology (Amendment) Act 2009, essential conditions were as follows: i) The applicant holds the private key corresponding the public key to be listed in the Digital Signature Certificate (DSC); ii) The applicant holds a private key, which is capable of creating a digital signature; iii) The public key to be listed in the certificate can be used to verify a digital signature affixed by the private key held by the applicant.

However, the Electronic Signature Certificate may be suspended by the issuing authority on receipt of request from the subscriber or duly authorised person or if it is against the public interest for a period not exceeding 15 days without hearing the subscriber. But in such a situation the authority must communicate the same to the subscriber. If it is proved that a material fact in the DSC is false or has been concealed; a requirement was not satisfied; the security system or Certifying authorities, private key was compromised to effect DSC’s reliability and so forth then after giving reasonable opportunity of being heard to the subscriber or on request of the subscriber or duly authorised person; or on death of the subscriber; or on dissolution of the firm or winding up of the company where the subscriber is a firm or company, the authority can revoke the DSC. Accordingly the Authority shall communicate the same to the subscriber and notify according to section 39 of this Act.

Under article 9 of the United Nations Model Law on Electronic Commerce, Plenary meeting, the Certification Service Providers (a) must act according to its policies and practices. (b) They must exercise reasonable care to ensure the accuracy and completeness of all material representations which are relevant

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27. For detail see section 24 of the Information Technology Act, 2000.
29. For detail see section 26 of the Information Technology Act, 2000.
30. For detail see section 35(4) proviso 2 of the Information Technology Act, 2000.
31. For detail see section 35 (2) to (4) of the Information Technology Act, 2000.
32. For detail see section 35 (4) proviso of the Information Technology Act, 2000.
33. For detail see section 35 (4) proviso of the Information Technology Act, 2000.
34. For detail see section 37(1) to (3) of the Information Technology Act, 2000.
35. For detail see section 38 (3) of the Information Technology Act, 2000.
36. For detail see section 38(1) of the Information Technology Act, 2000.
to the certificate or included in the certificate. They must provide reasonable accessible means to enable relying party to ascertain from the certificate (i) the identity of the certification service provider, (ii) the signatory as identified in the certificate had control of the signature creation data at the time when the certificate was issued; and (iii) the signature creation data were valid at or before the time when the certificate was issued. (d) To ascertain relying party (i) the method used to identify the signatory (ii) about any limitation for the purpose of the use of the signature creation data or the certificate, (iii) That signature creation data are valid and have not been compromised. (iv) Any limitation on the scope or extent or liability stipulated by the certification service provider. (v) Signatory followed all means according to article 8; and (vi) whether a timely revocation service is offered. (e) To utilise trustworthy systems, procedures and human resources in performing its services. In case of failure to satisfy the requirements mentioned under Para 1, a certification service provider shall be responsible for the legal consequences. Article 10 provides that the trustworthiness of the Certificate Service Providers depends on (a) Financial and human resources, including existence of assets. (b) Quality of hardware and software systems. (c) Procedures for (i) processing, (ii) applications for certificate and (iii) retention of records. (d) Availability of information (i) signatories as identified in certificates and (ii) potential relying parties. (e) Regularity and extent of audit by an independent body. (f) Declaration by the state or authenticating authority about compliance with or existence of the fore-going; or (g) any other relevant factor.

Duties and Liabilities of Subscribers

Part VIII of the Information Technology Act, 2000 deals with duties of subscribers of Digital Signature Certificate and Electronic Signature Certificate. First and foremost duty of subscriber is generating key pair. If the subscriber accepts the public key of corresponding private key then he must generate that key pair by applying the security procedure as prescribed by the Central Government. Therefore, generating key pair with signature must be following security standards, confidentiality and regulations. However, in respect of Electronic Signature Certificate the subscriber shall perform such duties as may be prescribed.

Generation, Distribution and Security

Rule 18 of the Information Technology (Certifying Authorities) Rules, 2000 deals with key management for Digital Signature Certificate. Sub-Rule 1 of Rule 18 deals with Generation of Key. It provides that (a) the subscriber’s key pair shall be generated by the subscriber or on a key generation system in the presence of the subscriber; (b) the key generation process shall be statistical random process which prevents possible cyber attack. Rule 18.2 provides that distribution of keys from key generation system to storage device must be using a secure mechanism that ensures confidentiality and integrity. However, it should be stored in tamper resistant devices and activated under strict control by the person other than who are related to Certifying Authority. It can be stored under the custody of the key custodians in a tamper-resistant cryptographic module or split into sub-keys for split control.

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37 For detail see section 40 of the Information Technology Act, 2000.
37a For detail see section 40A of the Information Technology Act, 2000.
38 Rule 18.3 (1) of the Information Technology (Certifying Authorities) Rules, 2000.
39 See supra note 38.
40 Rule 18.5 of the Information Technology (Certifying Authorities) Rules, 2000; in accordance with PKIX Certificate Management Protocol, or via an equally secure manner.
The Certifying Authority’s public verification key must be delivered to the prospective Digital Signature Certificate holder in an online transaction following secure process.\textsuperscript{40} Rule 19 provides for the private key protection and backup system as follows: (1) the Certifying authority must protect its private keys from disclosure. (2) The Certifying Authority must backup its private keys and store in encrypted form to protect at no lower than primary level; and (3) store in a secure storage facility away from where the original key is stored. After use the private key and all copies of it must be securely destroyed following the prescribed method.\textsuperscript{41} The public and private key must be used for limited period with periodical change following key generation guidelines. There must be reasonable notice to subscriber’s relying parties about any change to a new key pair with reliable process by showing generation of key interlocks such as signing a hash of the new key with the old key.\textsuperscript{42} However, validity period for all keys is not more than five years and suggested validity of particular key lengths or period should be according to Threat-Risk Assessments of particular department.

Confidentiality of Subscriber’s Information
Rule 22 deals with the implementation of privacy, confidential and secure procedure to protect subscribers’ data from third party. However, there may be discloser of subscribers’ data with his consent and according to Law. These are as follows: (i) procedures and security controls to protect the privacy and confidentiality of the subscriber’s data under the Certifying Authority’s custody shall be implemented and confidential information of the subscriber must not be disclosed to a third party without his consent unless it is required according to law or a court order. (ii) Subscriber’s information during its operation shall be protected to ensure his privacy. (iii) There must be a secure communication channel between Certifying Authority and its subscribers to ensure the authenticity, integrity and confidentiality of the exchange e.g., transmission of Digital Signature Certificate, password, private key during the certificate issuance process.

Control of Key Pairs
Section 42 of the Act, 2000 deals with control of private key. It provides that every subscriber shall exercise reasonable care to retain control of the private key of key pairs as listed in the Digital Signature Certificate and take steps to prevent its disclosure.\textsuperscript{43} If it is compromised, then, the subscriber shall immediately communicate the same to the Certifying Authority. Till he informs the Certifying Authority about such compromise, he shall be liable.\textsuperscript{43a} The Certifying Authority then following Rule 21.3\textsuperscript{43b} shall immediately revoke all affected subscribers, subscribers key, subscribers’ certificates and public keys of Authority along with keys useful for audit and investigation purposes. However, this public key again must be protected by the Certifying Authority from unauthorised modification.

Use of secure medium
The subscribers have to use key pairs that are of 1024 bits long generated on a secure medium for signing.\textsuperscript{43c} A subscriber shall be deemed to have accepted a certificate if he publishes or authorises the publication of a Digital Signature Certificate (a) to one or more person; or (b) in a repository or demonstrates his approval in any manner.\textsuperscript{44} For example, when X represents or publishes himself or

\textsuperscript{41} For detail see Rule 20 and Rule 21.1 of the IT(Certifying Authorities) Rules, 2000.
\textsuperscript{42} For detail see Rule 21.1 of the IT(Certifying Authorities) Rules, 2000.
\textsuperscript{43} For detail see section 42(1) of the Information Technology Act, 2000.
\textsuperscript{43a} For detail see section 42, Explanation of the Information Technology Act, 2000.
\textsuperscript{43b} For detail see Rule 21.3 of the IT(Certifying Authorities) Rules, 2000.
authorizes his agent y to publish any Digital Signature Certificate to A or advertises his authority through any media then the Certifying Authority shall deem that X has accepted his authority as the subscriber to use key pair following standard confidentiality, reliability and privacy. Subscriber certifies to all who reasonably rely on the information of the Digital Signature Certificate issued to the subscriber by the Certifying Authority that (a) the signature holds the private key corresponding public key listed in the Digital Signature Certificate and is entitled to hold the same; (b) all representations and relevant information to the Certifying Authority by subscriber and in Digital Signature Certificates are true. (c) And subscriber knew all information as true. 45

Subscriber’s Liabilities

However, in case of failure to protect data subscribers may be responsible for compensation to the person affected. While it is a body corporate and negligently hold, possessed or it deals with any sensitive or personal data in a computer resource where reasonable security practice and procedures were to follow and which causes wrongful loss or wrongful gain to any person. 46 Where no specific provisions are mentioned for contravention of any rules or regulations made under this Act, the wrongdoer shall be liable to pay a compensations not exceeding Rs. 25,000/- to the affected person. 46a

Cyber Appellate Tribunal

To deal with the disputes and to adjudicate the matters the Act provides for the establishment of Cyber Appellate Tribunal. 46b However, section 64 of the Act empowers the appropriate authority under Cyber Appellate Tribunal to recover the penalty or compensation as an arrear of land revenue and the licence or the Electronic Signature Certificate where penalty or compensation is not paid and to suspend these till the penalty is paid.

Subscriber’s Criminal Liability

Penalty for Misrepresentation of Material Fact Relating to Electronic Signature

If anyone misrepresents or suppresses any material fact from the Controller or Certifying Authority relating to licence or electronic signature certificate, he shall be punished with upto two years imprisonment or upto one lakh rupees fine or with both. 46c

Liability for Breach of Confidentiality And privacy by any Authorised Person

Section 72 prohibits disclosure of electronic record, book, register, correspondence, information, document or other material by any authorised person who has access to those information to third person and impose punishment with upto 2 years imprisonment or up to one lakh rupees fine or with both. However, section 72A, was inserted vide IT(Amendment) Act, 2009, prescribes punishment for disclosure of information in breach of lawful contract with up to three years imprisonment, or upto five lakh rupees

43c. For detail see The Information Technology (CA) Regulation, 2001, R.4 (1) (i) that the minimum key length for Asymmetric cryptosystem (RSA Algorithm) shall be 2048 for the Certifying Authority’s key pairs and 1024 for the key pairs used by subscribers.
44. For detail see section 40(1) of the Information Technology Act, 2000.
45. For detail see section 41(2) of the Information Technology Act, 2000.
fine or with both. For subscribers always section 72A will be applicable because subscription of certificate always requires fulfilling some terms and conditions according to agreement between the Certifying Authority and the subscriber. Only after valid contract subscribers get authority to publish or authorise to publish or issue certificates. Therefore, fine for subscriber is five lakh i.e. more than for breach of confidentiality and privacy without contract. 46d

**Penalty for publishing false Digital Signature Certificate**

Section 73 is applicable not only to subscribers but also every person who publishes false particulars of certificate. Under section 73(1) no person shall publish it or make it available to any other person knowingly that (a) the Certifying Authority has not issued the same certificate, (b) the subscriber listed in the certificate has no Authority immediately and till then he should have responsibility to maintain confidentiality and privacy as accepted. It can be done by the Certifying Authority or any other person including the subscriber. (c) The certificate has been revoked or suspended. For example, in case of private key compromise it is the prime duty of the subscriber to inform the Certifying Authority.

**Revocation and suspension**

The Certifying Authority if comes to know about misuse or abuse of certificate then he may revoke affected keys and certificates. During this revocation period if the subscriber certifies and uses the certificate as valid then it will be treated as criminal offence unless such publication is for the purpose of verifying a electronic signature created prior to such revocation or suspension of certificate. There may be temporary revocation or suspension of certificate for the purpose of periodical change of key pairs and in such case the authority should immediately inform about new key pairs to the subscribers. But during this suspended period no one should publish certificate to other person with knowledge. Therefore, here mens-rea is very important factor. If knowledge is absent, it is not a crime because there are two elements of crime actus reus and mens-rea. Except exceptional cases, if both are present then only the human conduct will be treated as crime. Here exceptional situation is, if such publication is for the purpose of verifying a electronic signature created prior to such suspension or revocation. Section 73(2) prescribes punishment for the contravention of the provisions of section 73(1) with upto two years imprisonment or upto one lakh rupees fine or with both. Under sections 25 and 26 the Controller may suspend licence or revoke it with due notification.

**Fraudulent Publication of Electronic Signature Certificate**

Fraudulent Publication of Electronic Signature Certificate or making available of it knowingly for fraudulent or unlawful purpose is offence punishable with upto two years imprisonment or upto one lakh rupees fine or with both.

** Examiner of Electronic Evidence:**

Chapter XXA was inserted by the Information Technology (Amendment) Act, 2009 after Chapter XII and section 79A is the only section of this new chapter. It empowers the Central Government to notify the examiner of electronic evidence about related matters. According to this section the Central Government may specify by notification in the official gazette any department, agency of the Central Government or a State Government as an examiner of electronic evidence for the purpose of providing expert opinion on electronic evidence. This provision is in conformity with the Indian Evidence Law.

**Conclusion and Suggestions**

In the new communication era, to regulate digital world there is need to adopt effective, specific and proper law worldwide. Jurisdiction in cyberspace is very complex problem. The concepts of territorial nature of law and territorial application of law are not applicable in cyberspace. Therefore, world has to
adopt uniform legal system and co-operation so far substantive as well as procedural laws are concerned. To control cyber-crimes, cyber contraventions and for good governance through electronic governance and mobile governance, we must adopt specific procedure to be followed by specific court in national and international level. Issues relating to evidence are contributory factors for proliferation of cybercrimes and its growing menace. Wrongdoers in cyberspace are confident that it is very difficult to catch them and even if it has been done then procedure to impose punishments will be a great problem because evidence in cyberspace is the practical problem.

The Information Technology Act, 2000 provides several provisions for recognition of electronic records, digital evidences, digital signature, electronic signature, certificates authenticating digital and electronic signatures, to maintain confidentiality and privacy of electronic transactions as well as electronic data and the like. If Corporate sectors such as banks, industries, institutions, organisations; government departments and individuals use their own digital or electronic signatures on electronic record during transactions maintaining level of confidentiality and privacy then it will be definitely helpful to prevent and control unauthorised access to data, cyber fraud, cyber hacking, cyber theft and the like. Then we can hope for authenticity, integrity and non-concealment of e-data which are transferred. The Information and Communication Technology will become much dependable and alternative to paper transaction. But here Public Key Infrastructure and the Controllers responsibility and accountability as well as duties of the Certifying Authorities and the subscribers are vital. They must maintain standards as provided under the rules and regulations by Central Government time to time. Government has to reform rules and regulations time to time to meet dynamic world standards. Therefore, for data protection, protection of the value of information, prevention and control of cyber crimes as well as cyber contraventions, misuse and abuse of data and like, electronic signature and digital signature system with world standard security measures will be very effective.

The business enterprises while perform their transactions and authenticate confidential activities or in Government sectors or individual transactions and the like, formalities can be completed only just putting signature or signing the document and carry on further affairs; but where these activities are performed online, it requires personal identity or confidential information to complete the procedure by affixing digital or electronic signature on electronic documents. In cyberspace the mode or procedure of signing electronic records are different from manual signatures. Affixing signature on electronic documents is digital signature as well as electronic signature to confirm the authenticity, integrity and efficiency of e-records.

After above discussion we can conclude that the utility of digital as well as electronic signature are as follows:

- **Evidential value:** When the digital signature is affixed on electronic records then it gives recipient reason to believe that message or document was created by known sender and not altered during transaction and it is to be treated authenticate. Therefore, it makes the electronic record authenticate documentary evidence.

- **Proof of attached document:** While affixing digital signature or electronic signature on electronic records is only to prove legality of certain other document’s then affixing digital signature or electronic signature perform as proof of attached document/s.

- **Authentic execution of document:** While performance of business transaction requires approval by using or affixing digital or electronic signature, then to make the document legally approved and authentic for execution the digital or electronic signature is important.
• **Efficiency:** Digital signature as well as electronic signature make a document much efficient showing originators/senders and recipients and that the document has finality. Therefore, it can be executed immediately. As affixing signature only requires use of several click and hash function it is time saving too.

• **Integrity:** The sender and receiver will be confident that the message has not been altered during transmission, because any alteration to document after signature will invalidate the signature.

The private key can be used by storing it on a user’s computer which will be protected by a local password. But while user has to sign through that particular computer then security of the private key may be a question because in such case security of computer is related to security of local password which may affect on security of private key. (ii) Another way is to store the private key on smart card which is very often tamper resistant and requires Personal Identification Number Code or PIN Code of smart card user to activate it. Any third person unauthorizedly accessed the smart card will require PIN Code to make it active and to generate a digital signature. Not only that, it is difficult to copy any information from smart card because to activate it, requires a numeric keypad or card reader. Therefore, the user of smart card needs to carry and deal with the card very carefully as loss of it will mean loss of private key which may cause, even revocation of certificate. (iii) There is need of procedure against attacks on public keys and private keys. The private keys of user or owner must use properly to maintain security, authenticity, integrity of Digital Signature and procedure to use and verify keys. (iv) In case of Electronic Signature also the private keys or password of user owner has to use properly, carry with due care and keep secrecy to maintain security and authenticity. For example, maintaining secrecy is essential for ATM Cards, Credit Cards and the like. (v) In the European Union and the USA digital signatures are legally recognised. But, Law is not clear about cryptographical signatures and electronic signatures. Asymmetric cryptography is to be used for Digital Signature which makes it more authentic and mostly equal to handwritten signature because it is very difficult to forge properly implemented digital signatures. Here signer or sender cannot repudiate or claim subsequently that the message was not signed by him and at the same time senders private key will remain secret. However, sometimes there may be time stamp during which digital signature will be treated as valid even if the private key of the sender is exposed after signing the message.

Digital Signatures and Electronic Signatures must be used following proper methods or procedures and with due care and caution for several purposes such as: i) To prevent any abuse or misuse of documents by criminals or wrongdoers. ii) To maintain integrity of document and of signature. iii) To satisfy legal requirements for the documents. iv) To maintain authenticity and efficiency of documents and of signature. v) To prevent cyber piracy and other cyber crimes by use of digital or electronic signatures and such authentic information or documents. vi) To maintain law and order in society and smooth functioning of business enterprises and their activities in superhighway in the contemporary era of information communication technology, liberalisation and globalisation. vii) To maintain social security and security of nation while digital signature or electronic signature are used by Electronic Governance system whether for E-Health, E-Agriculture, E-Security, E-Administration, E-Learning, E-Education, E-contract, E-Banking, E-Services or the like. viii) To maintain security integrity, efficiency and authenticity of information or document and digital or electronic signature even while used between private individuals in their private affairs which may lead to social insecurity and disorder as well as violation of private and public laws too. ix) User of digital signature cannot see his sign as he only use hash code, public key and private key. While the private key and PIN codes are stored in a particular computer if that particular computer is controlled by unauthorised user he can succeed to control over every personal information
along with private key and thereby he can replace original document with his own documents, can tamper any information, can crack or hack any information, can commit any other cyber crimes relating to such information or document. Even he can contaminate any kind of virus or bug to destroy document or information as well as whole computer system and network. Though, unauthorised use of information or document is punishable offence under the I T Act, 2000 and also civil wrong under section 43 of the said Act. x) For any business transaction or any authentic action any one can just sign the document and proceed further. Therefore, online transactions required confidential identifications.
KASHMIRI SPELL CHECKER AND SUGGESTION SYSTEM

Aadil Ahmad Lawaye*
Bipul Syam Purkayastha**

Abstract
The aim of this research paper is to present the complete design and implementation of a Kashmir Spell Checker. Although all major word processors offer spell checking for English and in various European languages including many Indian languages like Hindi, Urdu, Sanskrit, Tamil and Kannada, but no work has been done for Kashmiri language.

Key words: Kashmiri Language, English, Script, Challenges.

Introduction
Spelling checkers are the basic tools needed for word processing and document preparation. A spell checker is a tool that enables us to check the spellings of the words in a text file, validates them i.e. checks whether they are right or wrongly spelled and in case the spell checker has doubts about the spelling of the word, suggests possible alternatives. According to O'Neill, et. al., 2003, “spelling checkers have looked for four possible errors: a wrong letter (“wird”), an inserted letter (“woprd”), an omitted letter (“wrd”), or a pair of adjacent transposed letters (“wrod”). This process can be resolve by means of a simple dictionary lookup. However, the notion of having languages with high degree of inflection requires additional computational work such as morphological analysis and stemming. Developing a Spelling checker for Kashmiri poses many new challenges, which complicates the design of the spell checker. Kashmiri language is far different from Western languages in phonetic properties and grammatical rules. Syntactically, from a word order perspective, Kashmiri shows both verb medial and verb final characteristics. Kashmiri also shows strong V2 features like Germanic, Yiddish, Dutch and Icelandic. In the root clause, the finite verb may be preceded not only by the subject, as in English, but also by other clause constituents, as is the case in the verb-second languages. Thus the existing algorithms and techniques that are being used to check the spelling and to generate efficient suggestions for mis-spelt words of English and other Western languages are not actually suitable for Kashmiri; rather it needs different algorithms and techniques for expected efficiency.

Brief Description about Kashmiri Language
Kashmiri language is primarily spoken in the Kashmir province and some parts of the Jammu province of the state of Jammu and Kashmir State and by migrant populations in the rest of India and abroad. The earliest script used for writing Kashmiri is the Sharda script which is now only used by some Kashmiri pundits for writing horoscopes. Presently, the official script of Kashmiri is the modified Persio-Arabic script with additional diacritic marks to represent Kashmiri specific sounds. Alternative scripts like the modified Devanagri and Roman script are also used for writing Kashmiri. Regarding the modified Persio-Arabic script, it is written from right to left. It has two modes: nasakh or the type script, and nastalikh, the handwritten version.

Spelling Errors
Detecting whether or not a word is correct seems simple-why not to look up the word in a set of all words? Unfortunately, there are some problems with this simple strategy. Firstly, a lexicon containing

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all correct words could be extremely large, which entails space and time inefficiency. Secondly, in some languages it is practically impossible to list all correct words, because they are highly productive. Thirdly, making a spelling error can sometimes result in a real word, which belongs to the lexicon—such an error is called a real-word error. It is impossible to decide that this word is wrong without some contextual information. Fourthly, the bigger the lexicon, the more esoteric words it contains, making real-word errors more likely. The appropriate lexicon size is dependent on the language. In only slightly inflective languages as English, lexicons of size 50,000 – 2,00,000 words were recommended (Damerau, 1990; Damerau and Mays, 1989; Peterson, 1986). For highly inflective languages, the lexicon has to be much larger, and typically contains millions of words.

The classic data structure offering a fast search is a hash table (Knuth, 1973). Its disadvantage is the need to properly choose the hash function and the size of the hash table to mitigate the problem of collisions. Minimal perfect hashing (Czech et al., 1997) eliminates collisions but requires storing the hash table of a size equal to the number of words in the lexicon and the whole lexicon (possibly compressed by some method). Another popular data structure used for lexicon storage is a trie (Knuth, 1973). It is a character-oriented tree, in which every path from a root to a leaf corresponds to a key, and branching is based on successive characters. A trie offers fast lookup and some compression of the lexicon. Its size, however, is typically comparable to the lexicon size due to the need of storing pointers to the nodes. There are many works on reducing trie sizes; some of the alternative versions of tries are the C-trie (Maly, 1976), PATRICIA (Morrison, 1968), and Bonsai (Darragh et al., 1993).

**Kashmiri Spell Checker Architecture**

There are two different applications in the system. One creates the dictionary, which is already been developed and executed once to create the dictionary. Second is designed for Spell Checking of Kashmiri Text where user gives the input Kashmiri text and the system detects the errors by looking up for that word in dictionary and provide the suggestions for those errors. Then user can select the suggestion from the list and make changes accordingly and the final output is the corrected text without errors. Figure 1, shows the architecture of the system. The system is divided into three modules. Creation of Kashmiri Dictionary (Lexicon), Error Detection and Error correction & Replacement. Various techniques and methods are used to develop these modules.
Dictionary Creation/ Lexicon

This application is a part of Spell Checker but is not needed to be executed every time because a dictionary that acts as database for Spell Checker is created using this tool. A corpus of around one million words, which contains unique Kashmiri correct words, has been created using this application, which will act as Dictionary for the Spell Checker. An application is developed in java to create that dictionary where
a large Kashmiri text is given as an input. The dictionary creation tool tokenizes each word and calculates unique hash code of each word. A Hash Set holds a set of words, but in a way that it allows you to easily and quickly determine whether an object is already in the set or not. It does so by internally managing an array and storing the object using an index which is calculated from the hash code of the word, thus resulting in a set of unique words.

**Error Detection**

It detects the errors present in the input text. There are many techniques available which can be used for error detection. The inbuilt Kashmiri dictionary has been partitioned into sixteen sub-dictionaries based on the word length and at execution time each of these sub-dictionaries is loaded in a height balanced binary search tree (AVL tree). To search for a word of length n, we look for its presence in the AVL tree storing words of length n. If the word is not found, then it is searched in the AVL tree storing the lexicon of user defined dictionary. If the word is still not found, then it is marked and sent to Suggestion module.

**Suggestion**

In this module a list of possible correct words is presented to the user. The user selects the correct word, if it is present in the suggestion list, and can give the command to replace a single or all occurrences of the mis-spelled word with the word selected in the suggestion list. The details of this module are discussed in next section.

**Suggestion List Generation**

Once the system has detected an erroneous word, it performs the following

- Step: 1. Generate a list of candidate corrections.
- Step: 2. Rank the spelling variations.
- Step: 3. Select the highest ranking as the most likely correction.

**Sorting the Suggestion List**

After gathering the suggestions, the sorting procedure is executed to sort out the suggestion list efficiently so that user may get the suggestions in the most useful format. For the efficiency of the spell checking process, it is important that the right suggestion is presented as a default suggestion. In such a case, the user needs only to confirm the default suggestion and proceed with the next error. Otherwise, the user needs to scroll through a list of suggestions and pick one as the right one. Even worse, often the right suggestion is not on the list and thus the user needs to type the full word again. In order to sort the suggestion list most usefully, we have used three parameters:

- Phonetic similarity of the suggested word with the related mis-spelt word
- Frequency of occurrence of the suggested word
- The smallest number of substitutions, insertions and deletions required in that order to change the mis-spelt word to the suggested word.

**Conclusion and Future Scope**

The developed Spell Checker for Kashmir is a Standalone application which is not a part of any word processor. In this system, we have taken care of only non real word errors. The system detects approximately 80% of the errors and provides 85% of the correct suggestions. Real word error detection and correction is a subject of future research. This system can be used for other languages also but dictionary for other languages will have to be created for its use and we will implement it as add on for open office.
References
ABSTRACT
Diffusion is typically characterized by adult-adult contact that leads to borrowing and has minimal impact on linguistic structure. All linguistic variation is the result of either diffusion or independent innovation that we may operationalize social contact as geographical distance. It is clear that the assumptions are imperfect, but they allow us to examine diffusion via the distribution of linguistic variation as a function of geographical distance.

Key words: Diffusion, Transmission, Lexical Diffusion, Technology Diffusion, Innovation

Introduction
Linguistic changes have probably been propagated via normal contact as opposed to via conquest, recent settlement and large-scale migration. [1] Labov (2007) distinguishes between change that occurs through transmission and change that occurs through diffusion. Diffusion is typically characterized by adult-adult contact that leads to borrowing and has minimal impact on linguistic structure. Transmission, on the other hand, normally involves natural language acquisition by children that is often coupled with “vernacular re-organization” [2]. Change occurs when subsequent generations acquire the restructured forms and as each generation incrementally advances those forms. All linguistic variation is the result of either diffusion or independent innovation that we may operationalize social contact as geographical distance. It is clear that the assumptions are imperfect, but they allow us to examine diffusion via the distribution of linguistic variation as a function of geographical distance. Several studies in quantitative linguistics have examined this relation, starting with Séguy [3].

The literature from dialectology and historical linguistics has mostly traced the diffusion of individual features. Some fundamental questions about one of the most important and least understood issues in cultural and linguistic geography: the diffusion of linguistic innovations. In the context of cultural and linguistic geography, an innovation of defined as either a new linguistic feature or the expansion of a rarely used one. Linguistic features can be phonological (i.e. sound changes represented by a vowel merger in the pronunciation of words such as cot and caught), grammatical, or lexical. This investigation of linguistic diffusion may be best understood within the larger context of research on spatial diffusion may be best understood within the larger context of research on spatial diffusion, on linguistic geography, and on language change in a social context. Language is a means of communication. Mankind was speaking long before the dawn of recorded history. Many people survive without a writing system. Language is a vocal means of communication. Everything we utter is set forth in a meaningful order, in order to have communication. We must have (a) vocabulary—symbols, (b) grammar grammatical signal.

Linguistic Fields
a) Applied linguistics: Applied linguistics is an interdisciplinary field of study that identifies, investigates and offers solutions to language-related real-life problems. We can divide applied linguistics in two levels. Applied linguistics is an interdisciplinary science.
b) **Macro-Applied Linguistics**: The study of language and linguistics in relation to practical problems.

c) **Micro-applied linguistics**: The study of second and foreign language learning and teaching.

In linguistics we can see that there are many types of diffusion like lexical diffusion, syntactic diffusion, and social diffusion.

### I. Lexical Diffusion

Lexical diffusion refers to the way a sound change affects the lexicon: if sound change is lexically abrupt, all the words of a language are affected by the sound change at the same rate. If a sound change is lexically gradual, individual words undergo the change at different rates or different times. Whether sound changes exhibit gradual or abrupt lexical diffusion is a topic that surfaces persistently in historical linguistics, but as yet has not reached resolution.  

"There is no evidence that lexical diffusion is the fundamental mechanism of sound change.' It happens but is only a complement--and a small one at that--to regular sound change. The most important factors in linguistic change appear to be long-standing trends in the language, internal variation, and social forces among speakers."

- That lexical diffusion is sporadic
- That it always affects the most frequent words first.
- That lexically diffused changes show no clear phonetic conditioning
- That phonetically regular change is productive, whereas lexically diffused changes are not.
- That lexical diffusion affects only phonetically abrupt changes associated with lexical rather than post lexical rules.
- That word frequency is independent of word class.

That analogy and borrowing suffice to account for lexical diffusion.

### II. Attribution of Lexical Diffusion Effects to Analogy and Borrowing

—[D]iffusionary effects in the spread of phonological change through the lexicons of speakers... are actually epiphenomenal, being the result of already-needed mechanisms of analogical change and dialect borrowing."

### III. The Problem With Lexical Diffusion

Analogical changes affect the least frequent words first—"where memory fails"—e.g. cows, dragons, aliens. But mice, geese, teeth, regular verb (correspond, irrigate, elucidate) vs. irregular verbs (be, go, see) whereas, lexical Diffusion often affects the most frequent word first. Sound change includes any processes of language change that affect pronunciation (phonetic change) or sound system structures (phonological change). Sound change can consist of the replacement of one speech sound (or, more generally, one phonetic feature) by another, the complete loss of the affected sound, or even the introduction of a new sound in a place where there previously was none. Sound changes can be environmentally conditioned, meaning that the change in question only occurs in a defined sound environment, whereas in other environments the same speech sound is not affected by the change. The term "sound change" refers to diachronic changes, or changes in a language's underlying sound system over time; "alternation", on the other hand, refers to surface changes that happen synchronically and do not change the language's underlying system (for example, the -s in the English plural can be pronounced differently depending on what sound it follows; this is a form of alternation, rather than sound change).

The formal notation of sound change:

\[ A > B \]

is to be read, "A changes into (or is replaced by, is reflected as, etc.) B". It goes without saying that A
belongs to an older stage of the language in question, whereas B belongs to a more recent stage. The symbol "\( > \)" can be reversed:

\[
B < A
\]

"(more recent) B derives from (older) A"

IV. Technology Diffusion
The process by which an innovation is propagated through certain channels over time among the units of a system. Technology is the application of scientific and other knowledge to practical tasks by organizations that involves people and machines.

a. Technology is about taking action to meet a human need rather than merely understanding the working of the natural world, which is the goal of science.

b. It uses much more than scientific knowledge and includes values as much as facts, practical craft knowledge as much as theoretical knowledge.

c. It involves organized ways of doing things. It covers the intended and unintended interaction between products (machines, device, artifacts) and the people and systems who make them, use them or are affected by them through various processes.

V. Stages of Adoption
a. Awareness - the individual is exposed to the innovation but lacks complete information about it
b. Interest - the individual becomes interested in the new idea and seeks additional information about it
c. Evaluation - individual mentally applies the innovation to his present and anticipated future situation, and then decides whether or not to try it.
d. Trial - the individual makes full use of the innovation.
e. Adoption - the individual decides to continue the full use of the innovation.

![Figure 01: Stages of Adaptation](image)

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Conclusion

Attributes of Internet technology that differ from those of traditional instructional technologies and that modify the adoption and diffusion process are discussed, as are characteristics of the potential adopters and strategies that contribute to successful technology adoption and integration within an organization. "Innovation" is similarly used with the nuance of a new or "innovative" technology being adopted. "Diffusion" refers to the stage in which the technology spreads to general use and application. Since early in this century, various "new" educational technologies have been touted as the revolutionary pedagogical wave of the future. Classroom films programmed learning devices, language laboratories, educational television, and computer-assisted instruction and, more recently, interactive videodisc technology have been adopted and integrated into the curriculum with varying degrees of success. Internet technology actually embodies a number of technologies--e-mail, databases, chat rooms, and information and education resources, among others. Additionally, the Internet exhibits many elements that constitute a culture or community--language, symbols, rituals, interaction, and other elements of communication. Linguistic diffusion is sometimes hierarchical, a correlation of diffusion patterns with the social factors that serve as barriers to and amplifiers of diffusion suggests that different patterns of diffusion are tied to the different social meanings that linguistic features carry. The phenomena of diffusion of language change from diverse perspectives amongst which the dialectological, microsociolinguistic and geolinguistic ones must not be absent, is thus crucial. The attempts of sociolinguists to adapt themselves to those aspects and artifacts of human behaviour, such as social class, sex, age, race, ethnicity, social networks, social groups, attitudes, identity, politics, ideology, etc., as well as of human geography that affect linguistic variation and communication in general.

References

AN EMPIRICAL ASSESSMENT OF STUDY HABITS AND SELF CONCEPT OF HIGHER SECONDARY SCHOOL STUDENTS IN RELATION TO GENDER AND TYPE OF SCHOOL

AN EMPIRICAL ASSESSMENT OF STUDY HABITS AND SELF CONCEPT OF HIGHER SECONDARY SCHOOL STUDENTS IN RELATION TO GENDER AND TYPE OF SCHOOL

Gulshan Wani*

Abstract

The study was carried out to investigate the study habits and self-concept of higher secondary school students in relation to some influencing factors. The sample of 500 higher secondary school students was selected through simple random sampling from different higher secondary schools of district Srinagar. Dr. Gopal Rao’s Study Habit Inventory and Muktha Rani Rastogi’s Self-Concept Scale was used to collect the study habits and self-concept of higher secondary school students. The results of the study showed a significant difference in study habits of higher secondary school students on the basis of gender. Significant difference was also found in study habits self-concept of higher secondary school students on the basis of type of school but no such significant difference was found in self-concept of higher secondary school students on the basis of gender.

Introduction

The self-concept is the accumulation of knowledge about the self, such as beliefs regarding personality traits, physical characteristics, abilities, values, goals, and roles. Beginning in infancy, children acquire and organize information about them as a way to enable them to understand the relation between the self and their social world. This developmental process is a direct consequence of children's emerging cognitive skills and their social relationships with both family and peers. During early childhood, children's self-concepts are less differentiated and are centered on concrete characteristics, such as physical attributes, possessions, and skills. During middle childhood, the self-concept becomes more integrated and differentiated as the child engages in social comparison and more clearly perceives the self as consisting of internal, psychological characteristics. Throughout later childhood and adolescence, the self-concept becomes more abstract, complex, and hierarchically organized into cognitive mental representations or self-schemas, which direct the processing of self-relevant information.

Self-concept is a multi-dimensional construct that refers to an individual's perception of "self" in relation to any number of characteristics, such as academics (and non-academics), gender roles and sexuality, racial identity, and many others. While closely related with self-concept clarity (which "refers to the extent to which self-knowledge is clearly and confidently defined, internally consistent, and temporally stable"), it presupposes but is distinguishable from self-awareness, which is simply an individual's awareness of their self. It is also more general than self-esteem, which is the purely evaluative element of the self-concept. Study habits are the ways that you study - the habits that you have formed during your school years. Study habits can be good ones, or bad ones. Good study habits include being organized, keeping good notes, reading your textbook, listening in class, and working every day. Bad study habits include skipping class, not doing your work, watching TV or playing video games instead of studying, and losing your work. Study habits are effective or ineffective depending upon whether or not they serve your child. Rather than labeling what your child does (or doesn't do) as good or bad (thereby giving the child something to rebel against) focus on whether the habit works for them or not. Study habits that serve the child create better grades, a better relationship with the teacher, a sense of competence and confidence.

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Creating good study habits is essential for success in school. Thus study behaviour by contrast constitutes
the overall approach itself, representing the student’s concept of how to accomplish learning goals and the
specific actions taken. The elements of study behaviours include, for examples study time planning,
frequency of studying, duration of studying and choice and application of appropriate study skills.

**Need and Importance**

The present investigation will be useful because higher secondary school stage is very important
and crucial in the career of a student and study habits and self-concept developed at this stage play a crucial
role in his life. It is expected that this study will be very much useful to give a clear idea about the existing
facilities and the problems faced by Higher Secondary Schools.

**Objectives of the Study**

The following objectives were formulated for the proposed investigation:
1. To find and compare the study habits of higher secondary school students in relation to gender.
2. To find and compare the study habits of higher secondary school students in relation to type of
   school.
3. To find and compare the self-concept of higher secondary school students in relation to gender.
4. To find and compare the self-concept of higher secondary school students in relation to type of
   school.

**Hypotheses**

The following hypotheses were empirically tested for the proposed investigation:
1. There is no significant difference in the study habits of higher secondary school students in
   relation to gender.
2. There is no significant difference in the study habits of higher secondary school students in
   relation to type of school
3. There is no significant difference in the self-concept of higher secondary school students in
   relation to gender.
4. There is no significant difference in the self-concept of higher secondary school students in
   relation to type of school.

**Sample**

In the present study the investigators has employed simple random sampling technique and
collected data from different higher secondary schools of Srinagar District.

**Tools Used**

The following standardized tools were used to collect the data:
1. Study Habit Inventory developed and standardized by Dr. D. Gopal Rao
2. Self-Concept Scale developed by Muktha Rani Rastogi

**Statistical Treatment:**

The collected data was subjected to various statistical techniques like Mean, S.D and t-value.

**Analysis and interpretation of the data**

By computation we mean the computation of certain indices or measures along with searching
for patterns of relationship that exist among the data groups. Analysis, particularly in case of survey or
experimental data, involves estimating the values of unknown parameters of the population and testing of
AN EMPIRICAL ASSESSMENT OF STUDY HABITS AND SELF CONCEPT OF HIGHER SECONDARY SCHOOL STUDENTS IN RELATION TO GENDER AND TYPE OF SCHOOL

the hypothesis for drawing inferences. Analysis may, therefore, be categorized as descriptive analysis and inferential analysis which is popularly known as statistical analysis.

Table 1.0: Showing the Mean Comparison of Male and Female Higher Secondary School Students on Study Habits

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S. D</th>
<th>‘t’-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Habits</td>
<td>Male</td>
<td>250</td>
<td>65.87</td>
<td>15.47</td>
<td>4.09</td>
<td>Significant at 0.01 Level</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>250</td>
<td>60.47</td>
<td>14.72</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A perusal of table 1.0 indicates that there is a significant mean difference in the study habits of male and female higher secondary school students. The obtained ‘t’ value came out to be 4.09 which is significant at .01 level of significance. The mean difference favours the male secondary school students than their counterparts which suggests that they possess better study habits than female secondary school students.

On the basis of above results, the first hypotheses which reads as “There is no significant difference in the study habits of higher secondary school students in relation to gender” stands rejected.

Table 1.1: Showing the Mean Comparison of Government and Private Higher Secondary School Students on Study Habits

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type of school</th>
<th>N</th>
<th>Mean</th>
<th>S. D</th>
<th>‘t’-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Habits</td>
<td>Govt.</td>
<td>250</td>
<td>58.70</td>
<td>15.72</td>
<td>2.32</td>
<td>Significant at 0.05 Level</td>
</tr>
<tr>
<td></td>
<td>private</td>
<td>250</td>
<td>62.53</td>
<td>16.42</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A quick look at the above table shows that there is a significant mean difference in the study habits of government and private higher secondary school students. The obtained ‘t’ value came out to be 2.32 which is significant at .05 level of significance. The mean difference favours the private students than government students which reveals that private secondary school students exhibit better study habits than government secondary school students.

On the basis of above results, the second hypotheses which reads as “There is no significant difference in the study habits of higher secondary school students in relation to type of school” stands rejected.

Table 1.2: Showing the Mean Comparison of Male and Female Higher Secondary School Students on Self Concept

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>S. D</th>
<th>‘t’-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-concept</td>
<td>Male</td>
<td>250</td>
<td>182.30</td>
<td>39.43</td>
<td>0.80</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>250</td>
<td>184.40</td>
<td>14.70</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1.2 shows the significance of difference between the mean scores of male and female higher secondary school students on self concept. The results reveal that there is no significant difference in self-concept of higher secondary school students on the basis of gender. The obtained ‘t’ value came
out to be 0.80 which is insignificant. The mean difference uniformly favours both the male and female students which suggest that male as well as female secondary school students equally exhibit their study habits.

*On the basis of above results, the third hypotheses which reads as “There is no significant difference in the self concept of higher secondary school students in relation to gender” stands accepted.*

**Table 1.3: Showing the Mean Comparison of Government and Private Higher Secondary School Students on Self Concept**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type of School</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>‘t’-value</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-concept</td>
<td>Govt.</td>
<td>250</td>
<td>185.32</td>
<td>33.00</td>
<td>3.19</td>
<td>Significant at 0.01 Level</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>250</td>
<td>176.01</td>
<td>31.99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A perusal of Table 1.3 shows that there is a significant mean difference in the self concept of government and private higher secondary school students. The obtained ‘t’ value came out to be 3.19 which is significant at .01 level of significance. The mean difference favours the private secondary school students than the government students which reveals that private secondary school students display better self concept than government secondary school students.

*On the basis of above results, the fourth hypotheses which reads as “There is no significant difference in the self concept of higher secondary school students in relation to type of school” stands rejected.*

**Conclusions**

The study has arrived at very interesting findings which are stated as:

- Higher Secondary Students significantly differ in their study habits on the basis of gender
- Higher Secondary Students significantly differ in their study habits on the basis of type of school
- Higher Secondary Students do not significantly differ in their self-concept in on the basis of gender.
- Higher Secondary Students significantly differ in their self-concept on the basis of type of the school.

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TEACHER EDUCATION IN THE AGE OF GLOBALIZATION

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ABSTRACT

Education plays a vital role to overcome many challenges and to maintain peace in the globe. Global challenges that influence all areas of human life in the world are conditions that are naturally going on as the consequence of the rapid development of science and technology. It is impossible to avoid but have to be faced by using resources with high quality especially human resources. Teacher’s quality is the keyword for insuring the quality of education. Qualified competent teachers will not be able to carry out their task professionally without the conditions that support their tasks. The present paper discusses the challenges of teacher education in the age of globalization. It also provides an overview of globalization and teacher education and changing context of teacher education in the global scenario.

Key Words: Globalization, Teacher Education, Teacher

Introduction

Education is the most important factor which plays a leading role in human development. It promotes a productive and informed citizenry and creates opportunities for the socially and economically underprivileged sections of society. Numerous empirical studies conducted by social scientists have established a strong correlation between education and national development. The Jomtien Conference 1990, the report of the Jacques Delors Commission on Education for the Twenty-first Century, and the United Nation's Millennium Development Goals (MDGs), all attach utmost importance to education as an effective tool in reducing poverty by building a viable workforce capable of competing in an increasingly competitive and global economy. It is imperative that people in the developing countries have access to basic education, health and other relevant facilities. It is an acknowledged fact that universal literacy played a significant role in the phenomenal advancement of the United States and other western countries in almost every field of life. Similarly, countries like Japan, Korea, Singapore and Thailand had achieved near universal literacy before joining the coveted club of developed nations.

Teacher Education

Teacher education refers to the policies and procedures designed to equip prospective teachers with the knowledge, attitudes, behaviours and skills they require to perform their tasks effectively in the classroom, school and wider community. It is a programme that is related to the development of teacher proficiency and competence that would enable and empower the teacher to meet the requirements of the profession and face the challenges therein. It is well known that the quality and extent of learner achievement are determined primarily by teacher competence, sensitivity and teacher motivation. No nation develops beyond the quality of its education system, which is highly dependent on the quality of its teachers. Teachers should be given the most appropriate tools during and after their training, including content knowledge and skills as well as teaching methodology to be able to do their work professionally. The globalization concept, if taken into account, would require that teachers and teaching should be recognized like all other professions and should require stringent training and acquisition of knowledge and

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skills and professional registration under a global council of unified teacher registration body to allow for easy mobility of teachers across national boundaries.

Globalization

The term “globalization” means integration of economies and societies through cross-country flows of information, ideas, technologies, goods, services, capital, finance, and people. Cross-border integration can have several dimensions – cultural, social, political, and economic. Globalization has made economic life more competitive and demanding, making human expertise development more significant. Only as educated workforce equipped with modern skills can compete and benefit from exploiting the opportunities created by globalization.

Globalization is an economic phenomenon that brings the producers and consumers of different continents and regions into functional relationships through the free exchange of goods, services, and capital. Three factors are mainly responsible for converging the world: first, the introduction of scientific and technological innovations in the field of communication has removed all the boundaries which earlier blocked the process of coming closer of the nations of the world. The second factor, which has brought radical changes for globalization, is the dismantling of the Eastern Bloc and the emergence of new regional economic blocs like the ASEAN, the EU, and SAARC. The third is the dominance of an ideology of market-led regulation, initially applied to economic and financial exchanges, and now applied to a variety of other sectors of human activities including health and education.

Globalization is a catchphrase which has entered discussion in various fields and branches (Tikly 2001, 152; Gallagher 2005, 126). What follows is a critical review of contrasting perspectives on globalization as it relates to education. In each section, after these general considerations, concerns are narrowed down to the effects of globalization on education in relation to the teaching profession. Teacher identity will be explored in terms of the role of teachers in a given society and the way specific societies conceive of this identity and adopt criteria to judge teacher success and effectiveness. Given the ascendancy of the global economic model (Clayton 2004, 276), this discourse includes other agencies that are exerting or are attempting to exert their influence on teacher identities. Teacher education and its evolving nature cannot be isolated from teacher identity (Welmond 2002, 42), the way globalization is conceived of, and the role one assigns to teachers in relation to it, will definitely bear an influence on the manner in which teacher education is structured.

Need and Importance of Teacher Education

The American Commission on Teacher Education rightly observes, “The quality of a nation depends upon the quality of its citizens. The quality of its citizens depends not exclusively, but in critical measure upon the quality of their education, the quality of their education depends more than upon any single factor, upon the quality of their teacher.” In his Call for Action for American Education in the 21st Century in 1996, Clinton indicated that, “Every community should have a talented and dedicated teacher in every classroom. We have enormous opportunity for ensuring teacher quality well into the 21st century if we recruit promising people into teaching and give them the highest quality preparation and training”. The need for teacher education is felt due to the following reasons:

1. It is common knowledge that the academic and professional standards of teachers constitute a critical component of the essential learning conditions for achieving the educational goals of a nation. The focus of teacher preparation had to shift from training to education if it had to make a
positive influence on the quality of curriculum transaction in classrooms and thereby pupil learning and the larger social transformation. The aspects that need greater emphasis are:

a. The length of academic preparation,
b. The level and quality of subject matter knowledge,
c. The repertoire of pedagogical skills that teachers possess to meet the needs of diverse learning situations,
d. The degree of commitment to the profession,
e. Sensitivity to contemporary issues and problems and
f. The level of motivation.

This is not possible if teacher preparation focused only on training. Holistic teacher building is necessary and therefore teacher education needed more emphasis than mere training.

2. Educating all children well depends not only on ensuring that teachers have the necessary knowledge and skills to carry out their work, but also that they take responsibility for seeing that all children reach high levels of learning and that they act accordingly.

3. People come to teacher education with beliefs, values, commitments, personalities and moral codes from their upbringing and schooling which affect who they are as teachers and what they are able to learn in teacher education and in teaching. Helping teacher candidates examine critically their beliefs and values as they relate to teaching, learning and subject matter and form a vision of good teaching to guide and inspire their learning and their work is a central task of teacher education (Fiemanb and Nemser, 2001).

4. The National Academy of Education Committee’s Report (Darling-Hammond and Bransford, 2005) wrote that, “On a daily basis, teachers confront complex decisions that rely on many different kinds of knowledge and judgment and that can involve high stakes outcomes for student’s future”. To make good decisions, teachers must be aware of the many ways in which student learning can unfold in the context of development, learning differences, language and cultural influences, and individual temperaments, interests and approaches to learning. In addition to foundational knowledge about the areas of learning and performance listed in the above quotation, teachers need to know how to take the steps necessary to gather additional information that will allow them to make more grounded judgments about what is going on and what strategies may be helpful. More importantly, teachers need to keep what is best for the student at the centre of their decision making.

5. Teacher education like any other educational intervention, can only work on those professional commitments or dispositions that are susceptible to modification. While we can’t remake someone’s personality, we can reshape attitudes towards the other and develop a professional rather than a personal role orientation towards teaching as a practice.

6. The Ministry of Education document - Challenge of Education. A Policy Perspective (1985) has mentioned, - Teacher performance is the most crucial input in the field of education. Whatever policies may be laid down, in the ultimate analysis these have to be implemented by teachers as much through their personal example as through teaching learning processes. Unless there are capable and committed teachers in service, the education system cannot become a suitable and potential instrument of national development. The teacher is required to acquire adequate knowledge, skills, interests and attitudes towards the teaching profession. The teacher’s work has become more complicated and technical in view of the new theories of psychology, philosophy,
sociology, modern media and materials. The teacher can be made proficient with well planned, imaginative pre-service and in-service training programmes.

Globalization and teacher education

The Delors report (UNESCO, 1996) sets out an agenda for the future which implies that significant changes are needed in pre-service teacher education programs if we are to select and prepare a new generation of teachers equipped with the knowledge, skills and values to help their culturally different and their socially disadvantaged students to learn, to resolve conflicts peacefully, to respect each other’s dignity and cultures, and to become socially responsible citizens. What emerges from the research is that teacher education which follows the ‘Do as I say, not do as I do model’ has to be replaced by one which sees learning to teach as a deeply personal activity in which includes activities designed to develop sensitivity to cultures, languages and lives of children coming from different social and cultural groups, and which provides constant and significant support, working with cohort groups, and a systematic long-term message which provides guidance and direction for personal development. The direction and culture of educational research must also change if we are to reform educational policies, established practice, curricula and teaching materials in ways which facilitate intercultural learning and ameliorate the problems created by disadvantage and discrimination in education and society. For example, there is a great deal that we do not know about the impact of international and government policies what is happening in our multicultural schools and universities; about the content and processes of education in traditional and contemporary cultural contexts; about the conditions under which intercultural learning and conflicts are resolved peacefully in different settings; about how best to select, prepare and support teachers and communities to cope with the realities and contradictions created by shifts in population, technology and policy; about the effectiveness of different approaches to combating violence, racism, substance abuse and suicide in our schools and universities.

Another research agenda for the 21st century relates to the impact of different types of student and faculty exchange programs, citizenship education, interactive multimedia packages and the web on intercultural sensitivity and the conditions under which various types of learning experiences transfer into acceptance of difference and tolerance in one’s own community, school or university. The globalization process requires the school to prepare students to play future social roles, and in particular for effective functioning in a modern democratic society, with special emphasis on effective functioning on the labour market. The point is to make them able to compete for a position with other potential candidates, not only from their own country, but from any country. According to Yang (2004) the school should equip students with suitable knowledge and skills that must be perceived as understanding the reality through personal experience and emotional reactions with the surrounding world of objects and specific situations. Such knowledge should be preceded by appropriately designed and organized learning process – learning that brings about substantial changes in the perspective of individual vision and perception of the world (O’Sullivan, 2008).

Challenges of Teacher Education in the Wake of Globalization

1. Research in Teacher Education

Enhanced scope of Teacher education requires researches and studies to visualize scope of teacher education in the context of globalization. Research must respond to the area of policy issues, curriculum issues, evaluation systems, classroom practices, training strategies, value inculcation, school community
relationship, technology mediated education, quality in education, interactive education, Inclusive education, practice teaching school etc.

2. Competency based Curriculum

The competency based curriculum represents an approach to instructions, which emphasize the application of the knowledge in a manner, which may be observe or measured. Competency based curriculum guides focus on a comprehensive view of each course of study, which is delineated into its essential components listing of most important objectives to be mastered and competencies which every student should be able to demonstrate often instruction is completed. Competency based lesson, which change the students in activities designed to apply learning with an increased emphasis on higher order thinking skills. Students are evaluated not only on knowledge, but also primarily on their ability to perform tasks associated with knowledge acquired.

3. Adaptability and Professionalism

The standard of education will improve if all the teachers have global perspective, well prepared and provided with ongoing professional development and appropriate support. Teachers need to be adapted to the socio-economic and cultural diversities of the students in order to complete in the international sphere.

4. Quality Education

Today we are now more interested in the quality in teacher education. High quality teacher education is one more challenge which is successes caters to the following conditions without any bias such as staff pattern as prescribed by NCTE, Infrastructure catering to the needs of teaching learning situations, effective technique assessment and effective learning outcome assessment.

5. The need to favour the development of skills long side knowledge

The phenomenon of globalization as helped to widen the gap between those who globalized and those who are globalized of the process at the local, national, regional and International levels. Teaching to live together is synonymous with developing an understanding and appreciation of interdependence in spirit of respect for the value of pluralism, mutual understanding and peace.

6. Use of Integrated Technology

A growing challenge in education is, establishing and implementing strategies to develop the skills and knowledge necessary for the teacher to essentially use technology as instruction tool. The extent to which teacher is prepared to infuse technology into curriculum and instruction is major contextual factor.

7. The need to favour the development of skills long side knowledge

The phenomenon of globalization as helped to widen the gap between those who globalized and those who are globalized of the process at the local, national, regional and International levels. Teaching to live together is synonymous with developing an understanding and appreciation of interdependence in spirit of respect for the value of pluralism, mutual understanding and peace.

Changing Context of Teacher Education in the Global Scenario

Teacher education is a global profession that needs to be understood properly. It is essential to grasp a global perspective of the profession as it is today, to make assumptions about it in the near future and to utilize the best thinking and instructional models available in the present times. Professionally, powerful teaching is very important and increasing in our contemporary society as a result of the steam of dynamic initiatives of human development and evolution, standards of learning would be higher in the 21st century than it has been in the 20th century. As a result teachers would need to acquire additional knowledge and skills, both general and specific, to be able to survive and be successful in the 21st century.
school environment. Education has increasingly become important to success of both individuals and nations. Growing evidence demonstrates that, among all educational resources, teacher’s abilities are especially critical contributors to student’s learning and consequently the success of a nation to advance in its economic, social and political spheres (Darling-Hammond, 2006).

1. **Dynamic teacher education and training in the 21st century globalised world**

   For dynamic teacher education and training in the 21st century globalised world, teacher education and training institutions must design programmes that would help prospective teachers to know and understand deeply, a wide array of things about teaching and learning and in their social and cultural contexts. Furthermore, they must be able to enact these understandings in complex classroom situations serving increasingly diverse students. If the 21st century teacher is to succeed at this task, teacher education and training institutions must further design programmes that transform the kinds of settings in which both the novices and the experienced teachers teach and become competent teachers. This signifies that the enterprise of teacher education and training must venture out further and further and engage even more closely with schools in a mutual transformation agenda with all the struggles involved. Importantly, the teacher education and training institutions must take up the charge of educating policy makers and the general public about what it actually takes to teach effectively both in terms of knowledge and skills that are needed and in terms of the school contexts that must be created to allow teachers to develop and use what they know on behalf of their students (Fullan, 1993).

2. **Structure of a Globalised Teacher Education and Training Curricula**

   Throughout the world, reform and innovation initiatives by nations have triggered much discussion about the structures of 18 teacher education and training programmes (Hébert, et al., 2001) and certification categories into which programmes presumably fit. Building stronger models of teacher preparation in the 21st century would require adequate and progressive knowledge content for teaching as well as knowledge content for the subjects that the teacher would be required to teach. In this respect, the -what of teacher education and training should be the focus of the curriculum.

**Conclusion**

Globalization is a term used to describe the changes in societies and world economy that are result of dramatically increased trade and cultural exchange. Globalization is today a trend, not just in economics, commercial and technological fields, but also in education. Globalization indicates “Inter connectivity of Technologies”. These technologies have rapidly made the world a “Global Village”. No county can live in isolation without seeking impact of global trends and a change in all field of life. Education is the most important tool in national development. So this age of knowledge has great impact on education. Teacher education is the brain of all educational disciplines as it delivers education to train the prospective teachers. It is also the mother of all professions. Like all other professions, globalization is also affecting teacher education.

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WORK-LIFE BALANCE – AN EXPLORATORY STUDY ABOUT WOMEN EMPLOYEES

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ABSTRACT

The paper analyzes the work-life balance issues faced by women workers. The study aimed at contributing towards filling a gap in the work-life balance literature and attempts to explore the work-life balance challenges faced by women workers and also studies how successful women are in balancing their work and personal life. The sample of 50 women employees from different sectors were chosen for the purpose of the research. The simple random sampling technique was used and women from each sector, i.e., industrial sector, education sector, banking sector and hospital sector were chosen. The sample constituted both married and unmarried women in order to make the sample healthy and to avoid similar kind of responses. The working women between age group 23-53 were chosen. The present study being exploratory in nature was mainly based on interviews and open ended questions; however, in order to make the study more objective close ended questions were also used. The obtained data was analyzed using descriptive and inferential statistics. Carl Pearson's Correlation was used to find the relationship between the different variables through SPSS 18 and MS Excel 2007. The work-life balance challenges and issues faced by women employees as reflected by the study include; role overload, role conflict, social support issues, organizational culture, workplace stress, required motherly duties, lack of achievement motivation, and the poor time management skills.

Key Words: Work-Life Balance, Stress, Role Conflict, Social Support.

Introduction

Work life balance, in its broadest sense, is defined as a satisfactory level of involvement or ‘fit’ between the multiple roles in a person’s life (Hudson, 2005). There is no one accepted definition of what constitutes a work-life balance practice, the term usually refers to one of the following: organizational support for dependent care, flexible work options, and family or personal leave (Estes & Michael, 2005). Hence, these practices include flexible work hours (e.g., flextime, which permits workers to vary their start and finish times provided a certain number of hours is worked; compressed work week, in which employees work a full week's worth of hours in four days and take the fifth off), working from home (telework), sharing a full-time job between two employees (job sharing), family leave programs (e.g., parental leave, adoption leave, compassionate leave), onsite childcare, and financial and/or informational assistance with childcare and eldercare service. Work-life balance policies can assist employees achieving a balance between their work and personal commitments that is right for them. The policies need to be supported by the workplace culture, which reflects the beliefs, values and norms of the whole of the organisation from the CEO to staff members. Other important factors in the success of balance policies include proper communication of commitment to the policies to existing and future employees, raising awareness of the policies, education of managers about the importance of policies, and training of managers on ‘how to’ implement these policies. Today there are many young women who do not want to just stay at home and do house work, Today’s women are mostly into full time services and are working 8 hours per day and 5 days in a week minimum and are confronted by increasing workload everyday. So, most of them carry work and responsibilities to home but balancing but want to have careers. About 64% of mothers whose youngest child was under age six, and 77% of mothers with a youngest child age 6-17 were employed in 2010, indicating that the majority of women with dependent care responsibilities cannot or do not work.

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not wish to give up careers. While women are increasingly represented in the work force, they still face challenges balancing work and home life. Both domestic and market labor compete for time and energy. “For women, the results show that that only time spent in female housework chores has a significant negative effect on wages” Women have to cope up with high work targets, office commitments, tight meeting schedules and the duties and the responsibilities of life and home which results in role conflict. Role conflict is a type of social conflict caused from an individual being forced to take on separate and incompatible roles. Role conflicts can occur individually, as in the case of one person being torn between separate roles for different organizations or groups, or within an organization, when an individual is asked to perform multiple roles in the same group. Employers should concentrate on framing various policies and schemes to facilitate work life balance to encourage and attract women employees. Women should be provided social support. This helps her to balance work and personal life. Social support is the perception and actuality that one is cared for, has assistance available from other people, and that one is part of a supportive social network. These supportive resources can be emotional (e.g., nurturance), tangible (e.g., financial assistance), informational (e.g., advice), companionship (e.g., sense of belonging) and intangible (e.g. personal advice). Social support can be measured as the perception that one has assistance available, the actual received assistance, or the degree to which a person is integrated in a social network.

Review of Literature

Work-life balance, in its broadest sense, is defined as a satisfactory level of involvement or ‘Fit’ between the multiple roles in a person’s life (Hudson, 2005). There is no one accepted definition of what constitutes a work-life balance practice, the term usually refers to one of the following: organizational support for dependent care, flexible work options, and family or personal leave (Estes & Michael, 2005). Work-life balance has emerged as a major theme during the last two decades, which witnessed a substantial intensification of work caused by economic uncertainty, organisational restructuring, and increase in business competition (Green, 2001; Millward et al., 2000) Work-life balance has been rather narrowly conceived and considered; as it has been predominantly viewed to pertain to individuals, especially women, who are in corporate employment and have family obligations (e.g. Parasuraman and Simmers, 2001; Hardy and Adnett, 2002; Felstead et al., 2002, p. 57). Because of this narrowness in the consideration of work-life balance, pertinent organizational actions are mostly oriented towards the implementation of “family-friendly” policies (Felstead et al., 2002; Wise and Bond, 2003).

A comprehensive survey of the literature shows that specific studies pertaining to the work-life balance issues of women are very few. The only available reports on the issue, which are mainly from developed nations, indicate that women entrepreneurs/workers of these nations enjoy a comparatively good WLB (Key et al., 2003; CIBC, 2004; Carter & Eleanor, 2006; Godwyn, 2009). On the other hand, no serious efforts have been made to analyze the work-life balance issues faced by women entrepreneurs/workers of developing and underdeveloped countries where societal etiquette, male dominance and deep-rooted discriminatory socio-cultural values and traditions (UNIDO, 2001) persist. The limited studies available from India on women workers (Khanka, 2010; Mann & Phukan, 2010; Anitha & Lakxmisha, 1999) either concentrate on the reasons for female emancipation or highlight the contributions of the few successful women entrepreneurs/workers. According to Peeters, Montgomery, Bakker and Schaufeli (2005), pressures from the job and family domains are often incompatible, giving rise to imbalance. Therefore, the concept of work-life balance, along with its implications, is a core issue that must be investigated as more women become working in Indian society. Baruch GK, Barnett RC. Role quality,
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multiple role involvement, and psychological well-being in midlife women. J Pers Soc Psychol. 1987;51:578–85. found that women who had multiple life roles (e.g., mother, wife, employee) were less depressed and had higher self-esteem than women who were more satisfied in their marriages and jobs compared to women and men who were not married, unemployed, or childless. However, authors argued quality of role rather than the quantity of roles that matters. That is, there is a positive association between multiple roles and good mental health when a woman likes her job and likes her home life.

Objectives of the Study

- To explore the work-life balance challenges and issues faced by women workers.
- To study how successful women are in balancing their work and personal life.

Research Design and Instrumentation

Sample

A sample of 50 women employees from different sectors were chosen for the purpose of the research. The simple random sampling technique was used and women from each sector, i.e., industrial sector, education sector, banking sector and hospital sector were chosen. The sample constituted both married and unmarried women in order to make the sample healthy and to avoid similar kind of responses. The working women between age group 23-53 were chosen.

Research Instruments

Two Research Instruments were used viz semi structured interviews and questionnaires with both close-ended and open-ended questions.

Reliability

The coefficient alpha of the scale ranged from 0.82 to 0.90. The scale was found to have good content, construct and predictive validity.

Statistical Measures

The obtained data were analyzed using descriptive and inferential statistics. Carl Pearson's Correlation was used to find the relationship between the different variables through SPSS 18 and MS Excel 2007.

Findings

The study aimed at contributing towards filling a gap in the work-life balance literature and exploring the challenges and issues pertaining to work-life balance of female employees. The findings show that work-life balance challenges and issues faced by women employees are:

- The different roles performed by women ultimately lead to role overload.
- Ambiguity in the roles leads to role conflict.
- The social support is of great importance to combat issues of work-life balance.
- Organizational culture plays an important role in maintaining work-life balance.
- Workplace stress leads to family conflicts.
- Required motherly duties and a lack of achievement motivation leads to poor attitude towards work.
- Poor time management skills which results in imbalance between work and personal life.
- Most of the women employees find it difficult to balance work and personal life.
- Most of the women employees suffer from stress.
Suggestions

Suggestions at Organizational Level:

- Flexible timings.
- Facilities for child care.
- Leave plans - both paid and unpaid - to suit employee's needs etc.
- Examine employee workload concerns.
- Developing and maintaining a culture that enables and supports the opportunity to have a desired work life balance.
- Extending social support to women employees.
- Introduction of supportive work-life initiatives by the organization.

Suggestions at Individual Level

- Self-Management.
- Time Management.
- Stress Management.
- Leisure Management.
- Adoption to change.

Conclusion

The remarkable rise in the population of working women has lead to the increase in the issues related to working women. Work–life balance is the most important of such issues. Although, it affects the life of male workers as well but women are the worst hit folk. The women are overloaded with the roles (both at home and office) which create role conflict and in turn women face a situation called STRESS. From the above research it can be concluded that the organizations should address the Work-Life Balance related issues pertaining to women and take a holistic approach to design and implement policies to support the women employees to manage their work-life balance which would add to their performance.

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PHILOSOPHY OF VALUE EDUCATION

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ABSTRACT

The present paper “Philosophy of value education” is the response or reaction of a teacher to the on-going debate and dialogue on the nature of value education. The time is right for a well-thought out plan for the implementation of value education to achieve our goal of a good society and enlightened citizens. As Goethe said, “Knowing is not enough, we must apply, willing is not enough, we must do”.

Key words: Philosophy, Education, Value Education, Teacher.

Introduction

The word ‘Philosophy’, according to Chamber’s 21st century Dictionary, has broadly three meanings:

1. The search for truth and knowledge, concerning the universe, human existence, perception and behaviour, pursued by means of reflection, reasoning and arguments;
2. Any particular system or set of beliefs established as a result of this;
3. A set of principles that serves as a basis for making judgments and decisions.

The issues relating to value education have to be discussed in this perspective for meaningful and practical results. Education is supposed to impart two main benefits, capability and character: Both ought to be harmoniously blended. Education gives the knowledge, skills and attitude to shoulder the responsibilities with confidence and a sense of self-respect in the world. Again, it helps to cultivate character, which is the hallmark of a civilized human being and an enlightened citizen. Values may be viewed as beliefs that help to model our assessment of relative worth and importance. They influence our approaches to:

1. How one ought or ought not to behave.
2. The desirability or undesirability of achieving certain ends or goals.

From this angle, values influence and shape both our goals and patterns of activity. Our values often make conflicting demands upon our behaviour because they relate to roles which are not always consistent and congruent...when two or more values are making conflicting claims on our conduct, ethical reflection helps us to devise the paramount value in that particular context. The clarity of approach, naturally, depends on our sensitivity to the ethical dimension of our work and behavior and how far we are really trying to strengthen and sharpen it. Sometimes, an objection is made that values are relative and one’s freedom of choice cannot be fettered by a set of values. The plea of relativism cannot be permitted to justify unfettered conduct, permissiveness, or action only from one’s selfish viewpoint. It certainly points to the dynamic nature of values and its one’s conscience that can act as a guide in certain circumstances. There are certain universal values like honesty, truthfulness, justice, freedom, equity, order, beauty, loyalty and so on which can hardly be dispensed within any situation. It is neither possible nor necessary for one to attempt to catalogue various values that society cherishes and wants to promote and preserve. It may also not be worthwhile to classify them as individual values, social values, holistic values, community or professional values. Values are values: the perception and adherence as the right time makes all the difference. Deviance from value creates a climate of distrust. Edmund Burke David, it is the virtues of individual citizens which add to the greatness of the nation.

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PHILOSOPHY OF VALUE EDUCATION

Education is rooted in humanities civilizational quest and perspective within each society and in an interaction and reciprocative relationship among different civilizations. Civilization and culture represent the process of evolving values and the hierarchy of values and the possibility of conscious reflection and replacement of values. Education is meant to cultivate the minds and hone the skills of those who are educated. It is meant to advance the frontiers of knowledge and philosophy. It is meant to build character. It is meant to inculcate moral commitment and to inspire humanity to higher purpose. The purpose of knowledge is to organize and consolidate knowledge, to transmit knowledge, to make knowledge serve the overarching twin purposes of social progress and individual evolution, to establish justice and human dignity. Value-based education is like a ship with a compass; it is a road-map of cognitive and constitutional moral consciousness. That is why the value which we wish to promote and inculcate depends largely on the view we take of human life and universe, which in turn, depends also on our view of human nature: Hobbes, a great western philosopher thought that human nature is essentially predatory, aggressive, and hostile. He said that a human being to another human being is like a wolf. Home Homim Lupus, Rousseau thoughts of the primitive man as a noble savage. Both of them came to the conclusion that for human civilization is to preserve itself and to make progress, it became necessary for the civilization to be based on a social contract. The social contract is in the nature of an organic law or constitution, based on human instincts, aspirations and values and meant to regulate human relations within the framework of state and society. Every social contract is based on the basic conception of the good life and on the ground norm of ethics.

Values can be inculcated in every society to preserve order, to establish justice, to foster fellow-feeling, to preserve human freedom and dignity and to provide checks and balances in respect to the authority and institutions of state and society. No society can exist without moral and spiritual values and without self-discipline. That is why it is necessary to consider the role of education as an instrument of establishing, advancing and self-guarding moral values. Value-based education is meant to provide a sense of direction, a sense of purpose, a sense of commitment for individual development and for social progress. Without the sheet of anchor of value orientation, education will be steroid and will be like a rudderless ship on uncharted waters. As Einstein put it, “The foremost task of education in the Atomic Age is that all human endeavors are based on morality. Our inner balance and even our very existence depend on it. Only morality in our action can give beauty and dignity to life”. In Kothari’s view, to make values a living force and weave them into the fabric of consciousness is the foremost task of education. He emphasized that never before in human history there was as today so much knowledge especially science and technology and yet never before there was so much violence, hatred, mistrust and greed. He lamented dehumanization of man in our age and felt that something had gone wrong terribly. For that dismal situation education divorced from character building bore a major responsibility. Dr. Kothari’s unhesitating and unequivocal prescription was value based education and the building of a sense of responsibility and development of the ability to judge, he therein right and the wrong in order to rescue humanity from the dangers of moral decay. To him no knowledge would be immoral and knowledge and its use could never be ethically a matter of neutrality. Those who take a negative and pessimistic view of value-oriented education belong basically to the human species of cynics. A cynic is in the words of Oscar Wild, “a man who knows the price of everything and the value of nothing”. Cynicism is essentially a kind of intellectual dandyism. These cynics oppose value oriented education and are often heard to speak in the name of secularism and modernization. The Kothari Commission report explained that modernization did not mean last of all in our national situation….a refusal to recognize the importance of inculcating necessary moral and spiritual
values and self-discipline.

National policy of Education 1986 speaks of the need for value education as follows:

"The growing concern over the erosion of essential values and an increasing cynicism in society has brought to focus the need for re-adjustments in the curriculum in order to make education a forceful tool for the cultivation of social and moral values".

In our culturally plural society, education should foster universal and eternal values, oriented towards the unity and integration of our people. Such value education should help eliminate obscurantism, religious fanaticism, violence, superstitions and fatalism. In India, there have been glimpses of understanding and consciousness of value education since the very dawn of freedom. Many committees, headed by distinguished personalities have discussed the subject and made substantive recommendations. Two important commissions, headed by Dr. Radhakrishnan and Dr. Kothari, underscored the need for induction of values in our educational system. ‘Religious Education’, ‘Moral education’ and ‘Spiritual Education’ have also been used, now there is greater consensus as regard the use of the term “value education”. The report of the Kothari Commission refers to the mis-understanding that the use of the word ‘religion’ quite often causes in certain quarters in the context of our pluralistic and multi-cultural society. It also observes:

"In such a society however, one had to make a distinction between ‘religious education’ and ‘education about religions’. The former is largely concerned with the teaching of the tenants and practices of particular religion, generally in the form in which the religious group envisages whereas the latter is a study of religion and religious thought from a broad point of view-the internal quest of the spirit”.

The commission goes on to recommend that:

"It is however necessary for a multi-religious democratic state to promote a tolerant study of all religions so that its citizens can understand each other better and live amicably together.....we suggest that a syllabus giving well-chosen information about each of the major religions should be included as a part of the course in citizenship or as part of general education to be introduced in schools and colleges up to the first degree”.

This highlights the dilemma of a pluralistic society in daily life. Hence the cautious approach about the need for awareness of religions and the presentation of the problems in its wider context.

We have the constitutional provision which stipulates that,

“No religious instructions shall be provided in any educational institution wholly maintained out of the state funds”.

In this background the Kothari commission makes this distinction between ‘religious education’ and ‘education about religions’ or ‘information about religion’. The perception of the Kothari Commission is also reflected in the 1986 National Policy on Education which emphasizes truth, peace, Non-violence, right conduct and love as the core values. Thus religion becomes one of the powerful source of values for a society, but not the main or sole one. With globalization and movement of people from one country to another, many countries are now facing increasingly the problem of religions and cultural pluralism. There is a growing realization that mutual understanding of the basics and essentials of other religions is necessary if social or political cohesion is to be maintained. We find that the movement of inter-faith dialogue is gaining ground. The essential purpose of the need for such a meeting of minds had its impact on UNESCO which promoted on recent years in many regions of the world a ‘dialogue on civilization’ after which heat had been generated in intellectual circles about Samuel Huntington’s thesis on the ‘clash of
While the Indian constitution is wedded to secularism, our concept of secularism is not anti-religious or irreligious. It has repeatedly clarified by our judicial interpretations that our constitutions gives equal freedom to the followers of all religions. It stands for equality of treatment. The state as such has no religion of its own.

Aurobindo Ghosh’s educational vision, which he describes as ‘integral education’, the genesis of his vision for present day India can be traced to four facts:

01. Age-old neglect and exploitation of the masses;
02. Religion as vital force in the lives of even the poorest and the lowliest;
03. The need to eradicate their hunger and bore necessities of life; and
04. The need for the masses to have both secular as well as spiritual knowledge.

He made a fervent plea for harmonizing the scientific knowledge of the west and Indian spirituality. Om the other hand, universal Spirituality that Swami Vivekananda proposed has a unique and important characteristic; it does not have barriers separating the sacred from the secular.

21st Report of the Parliamentary Standing Committee on Human Resource Development, on Value based education which was presided over by the late Sh. S.B. Chavan, a senior statesman and a former Union Minister of Education; it may be worthwhile to quote two relevant extracts from the report which sums up the purpose, approach and the content of value education:

“Truth (Satya), righteous conduct (Dharma), Peace (Shanti), love (prema), and non-violence (Ahimsa) are the core universal values which can be identified as the foundation stone in which the value-based education programme can be built. These five are indeed universal values and respectively represent the five domains of human personality-intellectual, physical, emotional, psychological and spiritual. They are also correspondingly co-related with five major objectives of education, namely- knowledge, skill, balance, vision and identity”.

India has the potential to become a land of splendid opportunities if only the human resources are properly developed and a disciplined work culture is cultivated. Our problems are corruption, reluctance, to work hard and lack of scientific temper. If education can help overcome these handicaps, we can eradicate poverty from this land and provide opportunities for every citizen to develop his or her potential. This is where values become important in education and personality development. Today, the society in general and youth in particular are passing through a state which portends danger for the future. Education should condition the mind to make individuals to function effectively and to have a fulfilling life. In a situation in which children spend less and less time with parents and are bombarded with quick fix solutions for every problem through media, it is important that centers of higher learning devise ways to promote ethical choices to the educated persons who are expected to be thinking individuals.

Values become important for an educated person in the context of the emerging forces of globalization converting everything to the nuked fury of the market forces. Knowledge benefit of values can be dangerous. Look at the way organized crimes, financial frauds and violence are being perpetrated by some of the people with the best educational and technical endowments. Look at the way even the members of the learned professions indulge in scandalous unethical conduct to make money in total disregard to their professional obligations and social responsibilities. The need for Value based education is central to all forms of education, but there are differences of opinion among teachers and educational administrators on how to organize it in the curriculum. The result is that it is not attempted at all and is left to individual judgment based on one’s own perception and experience. Dr. Kothari was deeply concerned about
unbelievable de-humanization of man and decay of humanness in today’s world. He noticed that there is on the one hand the exponentially rising spiral of science, technology and production (in STP spiral) and on the other we have greed, hatred and delusion (in GHD spiral). He felt this in today’s world something has terribly gone wrong resulting in total disregard for human values and the sufferings of the poor and the destitute. The world is rampant with violence. Dr. Kothari considered knowledge and values as complimentary and mutually reinforcing. He was of the view that, knowledge without ethical, moral values degenerates into arrogance and is of little avail to the individual or of benefits to the community. In the UGC Report 1972, he elaborated his ideas about the type of education which is required at all levels in the country. According to him:

“The role of education is to improve the material standard of the people and to enrich the quality of life. Besides knowledge and skills, education should be also concerned with the ‘inner content’ of our lives, with ideals and idealism and strengthening of the spirit. We need a balance between three overlapping divisions of education (at all levels) which may perhaps be described as: technical, strategic and humanistic. The first refers to the theoretical and practical knowledge of immediate and short term utility, the second to knowledge of life long utility and value, and the third relates the quality and meaning of life.”

In one of his convocation address, he said:

“The basic task of education at all levels is to promote powers of the mind, acquisition of special skills and advancement of knowledge; but above all to generate in the young generations a sense of purposefulness and mission, dedication, confidence in themselves and faith in the country’s future. This underscores the significance of moral education and promotion of an abiding sense of ethical values and social responsibility, as integral element of education in any society, secular or otherwise. The ultimate source within us, which leads to self-less and courageous deeds and creative work, is moral and spiritual, and education should help an individual to find, nourish and strengthen it.”

Dr. Kothari noted that serious defect in the school curriculum is the absence of provision for education in social, moral and spiritual values. He further noted that in the life of the Indians religion is a great motivating force and is ultimately bound up with the formation of character and the inculcation of ethical values. A national system of education that is related to the life needs, and aspirations of the people cannot afford to ignore this purposeful force. The commission recommended that conscious and organized attempt should be made for imparting moral education and inculcating spiritual values in schools through direct and indirect method with the help of the ethical teaching of great religions. To conclude, the significance of value education, Shri Aurobindo says:

“It is essential that society should refuse to give exclusive importance to success, career and money and that it should insist instead on the paramount need of the full and real development of the students by contact with the spirit and the growth and manifestation of the truth of the being in the body, life and mind”.

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References


A STUDY ON INTERNET AND E-MAIL USAGE BY THE HIGHER SECONDARY STUDENTS

Ishfaq Ahmad Bhat*
R.Muthumanickam**

ABSTRACT

Education today has been moving very fast from classroom to online education or web based delivery of education. New types of educational technologies such as internet and e-mail are emerging at an ever accelerating pace. In this regard, the investigators tried to find out the level of internet and e-mail usage among the higher secondary students. In the present study, 200 +2 students from 10 higher secondary schools in Anantnag district of Jammu and Kashmir state in India were taken as sample. The tools used in the study were constructed and validated by the investigators through pilot study. The answered tools were scored and Chi-square test was applied for each item. At 5% level of significance, the upper calculated x2 value items were selected for final study. After framing necessary objectives and hypotheses, appropriate analysis was carried out on the collected data. From this analysis, it was found that the level of internet and e-mail usage among the +2 students is average and irrespective of sub-samples taken by the investigators, they don’t differ significantly in their level of internet and e-mail usage.

Key words: Internet Usage, Education, Gender, Locality of Residence, Types of School, Subjects Taken.

Introduction

Change is the key element for the twenty first century that poses many challenges and enormous pressure on our daily life, work and society. The political, economical and technological environments are changing significantly and rapidly. Information and communication technologies transform all aspects of education, which is a rapid growing segment of teaching and learning. The advantage of internet as a means of information access and distribution and the explosive growth of the World Wide Web has transformed teaching from a passive mode to an integrative one. Faculty is at the crossroads and being pressured to increase their productivity and to change instructional strategies to accommodate changes and education reforms. There is a need for the new vision and the new roles of teachers within the changing educational environment. “Education is not the filling of a pail, but lighting of a fire” Yeats (1976). The early education systems relied primarily on printed materials for instruction. Oral and board have been the most common delivery method of teaching and course materials. The internet and the web, when combined with other network tools, create a virtual classroom. It is bringing together a community of learners for interactive education to anywhere, any time and any pace. Internet is a “network of net works” that links computers around the world. Internet allows communication across networks i.e, one can communicate between one network and another network. It enables people to have access to information from different websites, locations or machines. Internet really puts a world of information and a potential world wide audience at one’s finger tip. Electronic mail is the medium of communication that sends and receives messages through specially designed computer networks. With the revolution in information technology along with the rapid growth of the internet, e-mail has become the most popular communication medium. More and more people are spending time on the net sending e-mail messages. There is no-doubt that due to its high speed, low cost and efficiency, e-mail today is one of the most important channels of communication. E-mails are used for quick transmission of information and ideas.

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The standard of education has really gone up now. One of the important reasons for this is the application of internet. In future, an international library may be small room with internet facility and the classroom may be their monitor. This is possible, as the internet technology is growing with an unbelievable speed. The focus of the present study is to find out the level of internet and e-mail usage by the higher secondary students with respect to the certain selected demographic and organizational variables- gender, locality of residence, types of school and subjects taken. The present sample is restricted to +2 students.

Objectives of the Study
1. To find out the level of internet and e-mail usage among the higher secondary +2 students in Anantnag district of Jammu and Kashmir.
2. To find out whether there is any significant mean difference between the following sub samples with respect to the level of internet and e-mail usage among the +2 students in Anantnag district.
   a. Gender (male/female)
   b. Locality of residence (Urban/Rural)
   c. Types of the school (Government/ Private)
   d. Subjects taken (Computer Science/Science/Arts)

Hypothesis
The following hypotheses are formulated in relation to the objectives given above,
1. The level of internet usage among the +2 students is low.
2. The level of e-mail usage among the +2 students is low.
3. There is no significant mean difference between the following sub samples with respect to the level of internet and e-mail usage among the higher secondary +2 students
   a. Gender (male/female)
   b. Locality of residence (Urban/Rural)
   c. Types of the school (Government/ Private)
   d. Subjects taken (Computer Science/Science/Arts)

Methodology
In order to achieve the objectives of the study, the descriptive method of research was followed by using two separate constructed and validated research tools and by drawing the representative sample.

Research Tools
Following tools were used to conduct the study.
   a. Internet usage Scale.
   b. E-mail usage Scale.
   Personal date sheet was also framed to seek information from +2 students on the following variables:
      a. Gender (male/female)
      b. Locality of residence (Urban/Rural)
      c. Type of the school (Government/ Private)
      d. Subjects taken (Computer Science/1 Science/Arts)

Sampling
The sample of the study was 200 students taken from 10 higher secondary schools (5 government and 5 private schools) in Anantnag district of Jammu and Kashmir. Only the + 2 standard students were taken as sample.
Analysis and Interpretation of data
The purpose of the present study is to find out the level of internet and e-mail usage of the +2 standard students and also to find out the significant mean difference with respect to their level of internet and e-mail usage on the basis of selected sub-samples. The investigators used the statistical techniques as Mean, SD, t-test and F-ratio to accept or reject the hypotheses.

Descriptive analysis on the level of internet usage
One of the important objectives of the present investigation is to find out the level of internet usage of higher secondary students. For this purpose, the investigators used research tool to measure the level of internet usage. The maximum score for this tool is 40 and the minimum score is 0. Hence, in order to find out the level of internet usage among +2 students the investigators adopted the normal curve technique that is the mean value above $M+1\sigma$ (above 27) denotes high level, the mean values between $M-1\sigma$ to $M+1\sigma$ (15 - 27) denotes average level and the mean value below $M-1\sigma$ (below 15) denotes low level. The computed values of the entire sample and its sub-samples are given in Table: 1.

Table 01: Showing the Mean and S.D of the +2 students in the level of internet usage

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>Sample</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>Level of Internet Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Gender</td>
<td>Male</td>
<td>117</td>
<td>21.54</td>
<td>6.61</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>83</td>
<td>20.41</td>
<td>5.00</td>
<td>Average</td>
</tr>
<tr>
<td>02.</td>
<td>Locality</td>
<td>Urban</td>
<td>75</td>
<td>20.92</td>
<td>6.05</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>125</td>
<td>21.16</td>
<td>6.00</td>
<td>Average</td>
</tr>
<tr>
<td>03.</td>
<td>Type of School</td>
<td>Government</td>
<td>116</td>
<td>21.03</td>
<td>6.46</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private</td>
<td>84</td>
<td>21.13</td>
<td>5.35</td>
<td>Average</td>
</tr>
<tr>
<td>04.</td>
<td>Subjects Taken</td>
<td>Computer science</td>
<td>11</td>
<td>22.18</td>
<td>5.05</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Science</td>
<td>126</td>
<td>20.74</td>
<td>5.75</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arts</td>
<td>63</td>
<td>21.54</td>
<td>6.63</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Entire Sample</td>
<td>200</td>
<td>21.18</td>
<td>5.87</td>
<td>Average</td>
</tr>
</tbody>
</table>

In order to find out the level of internet usage of +2 students, the investigators calculated mean and S.D which are given in the table 1. The mean value of the entire sample is 21.18 and S.D is 5.87. The calculated mean value is higher than the $M-1\sigma$ (15) but less than the $M+1\sigma$ (27). Hence, it is inferred that the level of internet usage by the +2 students is average. The mean value of the different sub samples of students used in the present study are ranging from 20.14 to 22.12. These mean values are higher than the $M-1\sigma$ (15) but less than the $M+1\sigma$ (27). Hence, it is also inferred that irrespective of sub-samples the level of internet usage of the +2 students is average.

Descriptive Analysis on the Level of E-mail Usage
Another important objective of the present study is to find out the level of E-mail usage of +2 students. For this purpose, the investigators used a research tool based on 20 items to measure the level of E-mail usage. The maximum score for this tool is 40 and the minimum score is 0. Hence, in order to find out the level of E-mail usage among +2 students, the investigators adopted the normal curve technique that is the mean value above $M+1\sigma$ (above 23) denotes high level, the mean values between $M-1\sigma$ to $M+1\sigma$ (9 -
denotes average level and the mean value below M-1σ (below 9) denotes low level. The computed values of the entire sample and its sub-samples are given in Table: 2.

**Table 02: Showing the mean and S.D values in the level of e-mail usage by +2 students**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>Sample</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>Level of Email Usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Gender</td>
<td>Male</td>
<td>117</td>
<td>17.79</td>
<td>7.60</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>83</td>
<td>15.37</td>
<td>6.13</td>
<td>Average</td>
</tr>
<tr>
<td>02.</td>
<td>Locality</td>
<td>Urban</td>
<td>75</td>
<td>15.76</td>
<td>7.28</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>125</td>
<td>17.41</td>
<td>6.97</td>
<td>Average</td>
</tr>
<tr>
<td>03.</td>
<td>Types of School</td>
<td>Government</td>
<td>116</td>
<td>17.47</td>
<td>7.15</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private</td>
<td>84</td>
<td>15.26</td>
<td>6.99</td>
<td>Average</td>
</tr>
<tr>
<td>04.</td>
<td>Subjects Taken</td>
<td>Computer science</td>
<td>11</td>
<td>15.27</td>
<td>4.22</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Science</td>
<td>126</td>
<td>15.98</td>
<td>6.86</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arts</td>
<td>63</td>
<td>18.32</td>
<td>7.80</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Entire Sample</strong></td>
<td>200</td>
<td><strong>16.80</strong></td>
<td><strong>6.77</strong></td>
<td><strong>Average</strong></td>
</tr>
</tbody>
</table>

In order to find out the level of E-mail usage of +2 students, the investigators calculated mean and S.D. which are given in the table 2, the mean of the entire sample is 16.80 and S.D is 6.77. The calculated mean value is higher than M-1σ (9) but less than the M+1σ (23). Hence it is inferred that the level of E-mail usage of +2 students is average. The mean value of the different sub-samples of students used in the present study is ranging from 15.26 to 18.32. These mean values are higher than the M-1σ (9) but less than the M+1σ (23). Hence, it is inferred that irrespective of sub-samples the level of internet usage of the +2 students is average.

**Differential analysis on the level of internet usage**

This part deals with the differential analysis of data collected on internet usage. One among the important objectives stated earlier was to study whether there is any significant mean difference between selected sub samples of the present study with respect to the level of internet usage. For this purpose, the investigators used the test of significance (t-test and F-ratio). The investigators also framed null hypothesis for testing. The calculated values are given in the following table 3.

**Table 03: Showing the t-values and F-values among different sub samples on the level of Internet Usage**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>Sub-Samples</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>‘t’ value/F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Gender</td>
<td>Male</td>
<td>117</td>
<td>21.54</td>
<td>6.61</td>
<td>1.37\text{NS}</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>83</td>
<td>20.41</td>
<td>5.00</td>
<td>\text{NS}</td>
</tr>
<tr>
<td>02.</td>
<td>Locality</td>
<td>Urban</td>
<td>75</td>
<td>20.92</td>
<td>6.05</td>
<td>0.27\text{NS}</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>125</td>
<td>21.16</td>
<td>6.00</td>
<td>\text{NS}</td>
</tr>
<tr>
<td>03.</td>
<td>Types of School</td>
<td>Government</td>
<td>116</td>
<td>21.03</td>
<td>6.46</td>
<td>0.13\text{NS}</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private</td>
<td>84</td>
<td>21.13</td>
<td>5.35</td>
<td>\text{NS}</td>
</tr>
<tr>
<td>04.</td>
<td>Subjects taken</td>
<td>Computer Science</td>
<td>11</td>
<td>22.18</td>
<td>5.05</td>
<td>\text{NS}</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Science</td>
<td>126</td>
<td>20.74</td>
<td>5.75</td>
<td>0.57\text{NS}</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arts</td>
<td>63</td>
<td>21.54</td>
<td>6.63</td>
<td>\text{NS}</td>
</tr>
</tbody>
</table>

Level of Sig-0.05 S-Significant \text{NS}-Not Significant
The above table reveals that the calculated ‘t’-values and F-value are lesser than the table value of t and F at 5% level of significance. Hence the null hypotheses are accepted and it is found that there is no significant mean difference between the male and female, urban and rural, government and private and the computer science, science and arts +2 students for the level of internet usage.

**Differential analysis – E-mail usage**

This part deals with the differential analysis of data collected on E-mail usage. One among the important objectives stated earlier was to study whether there is any significant mean difference between selected sub samples of the present study with respect to level of E-mail usage. For this purpose, the investigators used the test of significance (t-test and F-ratio). The investigators also framed null hypotheses for testing. The calculated values are given in the following table 4.

**Table 04: Showing the t-values and F-value among different sub samples on the level of E-mail Usage**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Variable</th>
<th>Sub-Samples</th>
<th>N</th>
<th>Mean</th>
<th>S.D</th>
<th>‘t’ value/F ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td>Gender</td>
<td>Male</td>
<td>117</td>
<td>17.79</td>
<td>7.60</td>
<td>2.48NS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>83</td>
<td>15.37</td>
<td>6.13</td>
<td></td>
</tr>
<tr>
<td>02.</td>
<td>Locality of Residence</td>
<td>Urban</td>
<td>75</td>
<td>15.76</td>
<td>7.28</td>
<td>1.57NS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rural</td>
<td>125</td>
<td>17.41</td>
<td>6.97</td>
<td></td>
</tr>
<tr>
<td>03.</td>
<td>Type of School</td>
<td>Government</td>
<td>116</td>
<td>17.47</td>
<td>7.15</td>
<td>1.59NS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Private</td>
<td>84</td>
<td>15.26</td>
<td>6.99</td>
<td></td>
</tr>
<tr>
<td>04.</td>
<td>Subjects taken</td>
<td>Computer Science</td>
<td>11</td>
<td>17.27</td>
<td>4.22</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Science</td>
<td>126</td>
<td>15.98</td>
<td>6.86</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Arts</td>
<td>63</td>
<td>18.32</td>
<td>7.80</td>
<td>2.31NS</td>
</tr>
</tbody>
</table>

**Level of Sig:0.05**

S-Significant

NS-Not Significant

The table: 4 reveals that the calculated ‘t’-value 2.48 for male and female is greater than the table value of ‘t’ (1.97) at 5% level of significance. Hence the Null hypothesis is rejected and it is found that there is a significant mean difference between the male and female +2 students for the level of E-mail usage. Table: 4 also reveals that the calculated ‘t’ values and F-value 1.57, 1.59 and 2.31 respectively are lesser that table value of ‘t’(1.97) and F- value (3.04) at 5% level of significance. Hence the null hypotheses are accepted and it is found that there is no significant mean difference between the urban & rural, government & private and the computer science, science & arts +2 students on the level of E-mail usage.

**Major findings**

1. The level of internet usage among the +2 students is average.
2. The level of E-mail usage among the +2 students is also average
3. There is no significant mean difference between the male and female +2 students on the level of internet usage.
4. There is no significant mean difference between the urban and rural +2 students on the level of internet usage.
5. There is no significant mean difference between the Government and Private +2 students on the level of internet usage.
6. There is no significant mean difference among the computer science, science and arts +2 students on the level of internet usage.
7. There is a significant mean difference between the male and female +2 students on the level of E-mail usage.
8. There is no significant mean difference between the urban and rural +2 students on the level of E-mail usage.
9. There is no significant mean difference between the Government and Private +2 students on the level of E-mail usage.
10. There is no significant mean difference among the +2 students on the level of E-mail usage on the basis of subjects taken.

Recommendations
The present study gives a clear cut view about the internet and E-mail usage by the higher secondary students. Based on the important findings stated earlier the following recommendations were made.

1. Higher secondary students are having the average level of internet and E-mail usage for academic and other purposes. It may be due to the lack of internet facility and connectivity at schools or at home. The state Government should make it mandatory for the Government and private schools to establish at least one computer lab consisting of minimum 100 computers with internet connectivity to increase the internet and E-mail usage among the higher secondary students so that they may face the challenges of globalization and modernization.
2. +2 higher secondary students are having the average level of internet and E-mail usage. It may be due to the unawareness of internet and E-mail usage. Teachers should encourage them to utilize the internet and E-mail for academic studies.

Suggestions for further research
The following are some of the suggested research problems for future researcher and for healthy research outcomes on this present theme.

1. Replica of the present study could be undertaken at various levels of education.
2. The present study could be undertaken at various districts of Jammu and Kashmir to generalize the result.
3. A study could be conducted on the development of internet using skills among the high school or secondary school students
4. A study could be undertaken for the impact of internet usage on the curricular and co-curricular activities of the higher teachers and students.
5. A similar study could be conducted at +1 level of the higher secondary students with large sample.

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SURVEY OF ENERGY EFFICIENT ROUTING PROTOCOLS IN MANET

Mohammad Rafiq*
Sachi Pandey**

ABSTRACT

Mobile ad hoc networks (MANET) represent distributed systems that consist of wireless mobile nodes that can freely and dynamically organize itself into temporary ad hoc network topologies. A mobile ad hoc network is a collection of nodes that is connected through a wireless medium forming rapidly changing topologies. MANETS are infrastructure less and can be set up anytime, anywhere. I have conducted survey of simulation results of various MANET routing algorithms and analyzed them. The design of efficient routing protocols is a fundamental problem in a Mobile Ad-Hoc Network (MANET). Many different protocols have been proposed in the literature, each one based on different characteristics and properties. Some of these protocols have been studied and their performance have been evaluated in detail focusing on aspects like routing overhead, latency and route length. In this Project we concentrate on the energy consumption issues of the routing protocols. we will measure and compare the energy consumption behaviour of four routing protocols; Ad hoc On Demand Distance Vector (AODV), the Dynamic Source Routing (DSR), the Temporally Ordered Routing Algorithm (TORA) and the Destination Sequenced Distance Vector Routing (DSDV) with respect to energy consumption. Evaluating how the different approaches and algorithms affect the energy usage in the mobile devices.

Key words: MANET, Routing, AODV, DSDV, DSR, TORA

Introduction

A Mobile Ad Hoc Network (MANET) is a collection of wireless mobile nodes forming a temporary/short-lived network without any fixed infrastructure where all nodes are free to move about arbitrarily and where all the nodes configure themselves. In MANET, each node acts both as a router and as a host & even the topology of network may also change rapidly. These types of networks assume existence of no fixed infrastructure [1]. They are often useful in battle-field tactical operations or emergency search-and-rescue type of operations where fixed infrastructure is neither feasible nor practical. Mobile Ad hoc Networks (MANETs) have been an active field of research for the last few years. Fig1 shows simple example of MANET in which laptops communicate to each other and with mobile phones with out any acess point.

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The major characteristics of an mobile ad hoc network are:

- **Mobility**: Mobility can be individual node or group mobility involving random or pre-planned routes. Mobility affects routing and network performance since the network must re-learn node locations after movement.
- **Multi-hopping**: Data can traverse several nodes prior to reaching its destination and must account for obstacle negotiation, spectrum re-use and energy conservation.
- **Self-Organizing**: Ad hoc networks autonomously determine configuration parameters and topology.
- **Energy Conservation**: Nodes rely on limited battery power and usually can not generate power.
- **Scalability**: As the number of nodes in an ad hoc network increase, the complexity of routing and configuration management also increases.
- **Security**: Ad hoc networks are vulnerable to eavesdropping since transmissions occur in free space.

A MANET is a collection of mobile nodes that communicate without the assistance of a support infrastructure. This characteristic is desirable in various situations such as during natural disasters and in military environments where deploying an infrastructure can be expensive or infeasible.
Figure 02: Ad Hoc Network with Six Nodes

Figure 2 shows an ad hoc network with six nodes outfitted with omni-directional antennas. Each node can send and receive data within its transmission range (each node is centered in its transmission range circle). If more than one node is in a circle, then communication can occur between the encircled nodes. Node 1 can communicate with node 2 since they are in the same circle (i.e., their transmission ranges overlap). Node 3, however, can only communicate with node 1 only if node 2 forwards the packets. Since none of the transmission ranges of nodes 1, 2, or 3 overlap with any of the transmission ranges of nodes 4, 5, or 6, there is no way for nodes 1, 2, or 3 to communicate with nodes 4, 5, or 6.

Ad Hoc Routing Protocols: Routing in an ad hoc network is different than routing in an infrastructure-based network, because ad hoc networks have characteristics not found in infrastructure based networks such as multi-hop routing. A routing protocol can be evaluated using the following metrics:

End-to-end Data Throughput and Delay: Throughput and delay are measured from the perspective of applications that use the routing. Throughput and delay measure a routing policy’s effectiveness and are important when dealing with Constant Bit Rate (CBR) applications such as real-time audio or video.

Route Acquisition Time: This is the time required to establish route(s) when requested and is affected by the type of routing protocol.

Efficiency: This is the internal measure of the routing protocol’s effectiveness and can be measured as either overhead or throughput versus input traffic. Figure 3 shows the routing protocols for ad hoc networks. The routing protocols for MANETs can be classified into two main types – proactive and reactive. Proactive, or table-driven routing protocols, maintain valid routes from each node to every other node in the network by establishing routes before data packets are sent across the network[2]. Periodic updates are flooded throughout the network to report link and topology changes.

Figure 03: Classification of Ad Hoc Routing Protocols
Reactive are also called as on demand routing protocols where the routes are not predefined for routing [2]. This increases end-to-end delay compared to proactive routing protocols since routes are calculated when data packets are ready to be sent. However, periodic updates are not required as in proactive routing. Ad hoc On-Demand Distance Vector (AODV) is a reactive routing protocol.

**DSDV Routing Protocol**

Destination-Sequenced Distance-Vector Routing (DSDV) is a table-driven routing scheme for ad hoc mobile networks based on the Bellman-Ford algorithm. It was developed by C. Perkins and P. Bhagwat in 1994. The main contribution of the algorithm was to solve the routing loop problem which was found when using DV protocol. Each entry in the routing table contains a sequence number, the sequence numbers are generally even if a link is present; else, an odd number is used[10]. The number is generated by the destination, and the emitter needs to send out the next update with this number. Routing information is distributed between nodes by sending full dumps infrequently and smaller incremental updates more frequently.

**DSR Protocol**

Dynamic Source Routing (DSR) is a routing protocol for wireless mesh networks and was developed at Carnegie Mellon University [11]. It is similar to AODV in that it forms a route on-demand when a transmitting computer requests one. However, it uses source routing instead of relying on the routing table at each intermediate device. Determining source routes requires accumulating the address of each device between the source and destination during route discovery. The accumulated path information is cached by nodes processing the route discovery packets. The learned paths are used to route packets. To accomplish source routing, the routed packets contain the address of each device the packet will traverse. This may result in high overhead for long paths or large addresses, like IPv6. To avoid using source routing, DSR optionally defines a flow id option that allows packets to be forwarded on a hop-by-hop basis. This protocol is truly based on source routing whereby all the routing information is maintained (continually updated) at mobile nodes. It has only two major phases, which are Route Discovery and Route Maintenance. Route Reply would only be generated if the message has reached the intended destination node (route record which is initially contained in Route Request would be inserted into the Route Reply). To return the Route Reply, the destination node must have a route to the source node. If the route is in the Destination Node's route cache, the route would be used. Otherwise, the node will reverse the route based on the route record in the Route Request message header (this requires that all links are symmetric). In the event of fatal transmission, the Route Maintenance Phase is initiated whereby the Route Error packets are generated at a node. The erroneous hop will be removed from the node's route cache; all routes containing the hop are truncated at that point. Again, the Route Discovery Phase is initiated to determine the most viable route. Dynamic source routing protocol (DSR) is an on-demand protocol designed to restrict the bandwidth consumed by control packets in ad hoc wireless networks by eliminating the periodic table-update messages required in the table-driven approach.

**AODV Routing Protocol**

An Ad Hoc On-Demand Distance Vector (AODV) is a routing protocol designed for wireless and mobile ad hoc networks. This protocol establishes routes to destinations on demand and supports both unicast and multicast routing [11]. The AODV protocol was jointly developed by Nokia Research Center, the University of California, Santa Barbara and the University of Cincinnati in 1991.
The AODV protocol builds routes between nodes only if they are requested by source nodes. AODV is therefore considered an on-demand algorithm and does not create any extra traffic for communication along links. The routes are maintained as long as they are required by the sources. They also form trees to connect multicast group members. AODV makes use of sequence numbers to ensure route freshness. They are self-starting and loop-free besides scaling to numerous mobile nodes.

In AODV, networks are silent until connections are established. Network nodes that need connections broadcast a request for connection. The remaining AODV nodes forward the message and record the node that requested a connection. Thus, they create a series of temporary routes back to the requesting node.

A node that receives such messages and holds a route to a desired node sends a backward message through temporary routes to the requesting node. The node that initiated the request uses the route containing the least number of hops through other nodes. The entries that are not used in routing tables are recycled after some time. If a link fails, the routing error is passed back to the transmitting node and the process is repeated.

**TORA Routing Protocol**

The Temporally-Ordered Routing Algorithm (TORA) is an algorithm for routing data across Wireless Mesh Networks or Mobile ad-hoc networks. TORA : Temporally Ordered Routing Algorithm. Invented by Vincent Park and M.Scott Corson from University of Maryland. TORA is an on-demand routing protocol. The main objective of TORA is to limit control message propagation in the highly dynamic mobile computing environment. Each node has to explicitly initiate a query when it needs to send data to a particular destination. TORA essentially performs three tasks[11]: (a) Creation of a route from a source to a destination. (b) Maintenance of the route. (c) Erasure of the route when the route is no longer valid. TORA uses three kinds of messages: (a) The QRY message for creating a route. (b) The UPD message for both creating and maintaining routes. (c) The CLR message for erasing a route. TORA attempts to build what is known as a directed acyclic graph (DAG) which is rooted at the destination.

**Energy Efficiency**

For a wireless networks, the devices operating on battery try to pursue the energy efficiency heuristically by reducing the energy they consumed, while maintaining acceptable performance of certain tasks. Using the power consumption is not only a single criterion for deciding energy efficiency. Actually, energy efficiency can be measured by the duration of the time over which the network can maintain a certain performance level, which is usually called as the network lifetime. Hence routing to maximize the lifetime of the network is different from minimum energy routing. Minimum energy routes sometimes attract more flows, and the nodes in these routes exhaust their energy very soon; hence the whole network cannot perform any task due to the failure on these nodes.

In other words, the energy consumed is balanced consumed among nodes in the networks. Routing with maximum lifetime balances all the routes and nodes globally so that the network maintains certain performance level for a longer time. Hence, energy efficiency is not only measured by the power consumption but in more general it can be measured by the duration of time over which the network can maintain a certain performance level. It goes without saying that node failure is very possible in the wireless network. Hence saving energy when broadcasting in order to recover from the node failure or to re-routing around the failed nodes is essential. By the same token, multicast has the same challenge to
achieve the energy efficiency. For unicast, it is highly related to the node and link status, which best choice from the energy efficiency point of view.

**Literature Review**

In this section we present literature review in details for routing protocols in MANETs:

In reference [1], Bilal et al. provides an overview of different protocols by presenting their characteristics and functionality, and then provides a classification of these different routing protocols available for the transmission in ad hoc networks. In this article we provide descriptions of several routing schemes proposed for ad hoc wireless networks. We also provide a classification of these schemes according to the routing strategy. The presented classification model of routing protocols is a meaningful attempt to clarify the vast field of adhoc routing protocols. In reference [2], Dinesh Singh et al Comparative Analysis of Energy Efficient Routing Protocols in MANETS (Mobile Ad-hoc Networks) have conducted survey of simulation results of various MANET routing algorithms and analyzed them. The routing algorithms considered are classified into two categories proactive and reactive. The algorithms considered are AODV, DSR, and DSDV. The performance measurements are based on the various parameters such as packet delivery fraction, average end to end delay and number of packets dropped. In reference [3] k. arulanandam et al. In this paper, provides an overview of energy Efficiency issues in ad hoc networks .

Energy models widely used in analyzing and devising ad hoc protocols were discussed. The sources of energy consumption that pertain to communications in ad hoc network were shown to exist in four main modes of operation: transmitting, receiving, idle and sleep modes. The sources of energy consumption overhead such as idle condition, collisions and protocol control messages have been discussed. The metrics used for energy-efficiency strategies have also been explored briefly. They presented a case study which sheds light on some of the energy inefficiency issues encountered in ad hoc networks. In reference [4] Khiavi et al. in this paper evaluates performance of four commonly used mobile ad hoc routing protocols namely AODV, DSDV, DSR and TORA. Performance evaluation did in NS-2 simulator by doing many simulations. Comparison was based on Packet Delivery Ratio, Network Life Time, End-to-End Delay and Routing Overhead. By using simulation results they showed that DSDV gives better performance in wide range of simulation conditions. In reference [8] Shivendu Dubey et al.in this work analyse the energy consumption in traffic models (CBR, Pareto and Exponential) and measured using routing protocols namely AODV, OLSR and AOMDV. Simulation and computation of energy consumed, received and transmitted energy were done with ns-2 simulator (2.34 version) with parameter variation: number of nodes, pause time, average speed and send rate.

**Proposed Work (Main Theme)**

The overall goal of this work is to measure and compare the energy consumption behaviour of the four analysed routing protocols; Ad hoc On Demand Distance Vector (AODV) , the Direct Source Routing (DSR) , the Temporally Ordered Routing Algorithm (TORA) and the Destination Sequenced Distance Vector Routing (DSDV) with respect to energy consumption.

**Methodology**

Our basic methodology consisted of first selecting the most representative parameters for a MANET, then defining and simulating a basic scenario and finally, by varying the selected parameters, simulate and evaluate more scenarios. The five selected parameters are: 1) the mobile nodes number, 2) the moving area dimensions, 3) the node’s mobility pattern, 4) the number of actual traffic sources and 5) the data traffic pattern. In the simulation, nodes move according to a model called “random waypoint”. Motion
is characterised by two factors: (a) the maximum speed and (b) the pause time. During simulation each node starts moving from its initial position to a random target point, selected inside the simulation area. The motion speed value is uniformly distributed between 0 and the maximum speed. When a node reaches the target point, waits for the pause time and after that, by selecting another random target point, it moves again. According to this scheme, a pause time value equal to the simulation time corresponds to a static network, while a 0 seconds pause time corresponds to a continuously changing network. All the traffic sources used in our simulations generated constant bit rate (CBR) data traffic. The traffic structure was defined by varying two factors: (a) the sending rate and (b) the packets size.

**Simulation Environment**

NS-2 is a discrete event, object oriented, simulator developed by the VINT project research group at the University of California at Berkeley. The simulation study is done by using widely recognized and improved network simulator NS-2 version 2.34 for Mobile Ad-hoc Networks (MANETs). NS-2 is powerful for simulating ad-hoc networks. In NS-2 the user has to imagine of a scenario, the number of nodes to be placed in the scenario, and then write the TCL scripts (.tcl file) specifying the node configurations parameters and some other ns commands required to start and stop ns. Motivation for Simulations are:

i. Cheap: does not require costly equipment  
ii. Complex scenarios can be easily tested  
iii. Results can be quickly obtained: more ideas can be tested in a smaller timeframe  
iv. The real thing isn't yet available  
v. Controlled experimental conditions: Repeatability helps aid debugging

Simulators help in easy verification of protocols in less time, money. NS offers support for simulating a variety of protocol suites and scenarios. Front end is OTCL, back end is C++. NS is an ongoing effort of research and development

**Energy Consumption Model**

According to the specification of the NIC modelled, the energy consumption varies from 230mA in receiving mode to 330mA in transmitting mode, using a 3.3V or 5.0V energy supply. In this work we have are assuming an energy supply of 5V. These values correspond to a 2,400MHz WaveLAN implementation of IEEE 802.11. When a node sends or receives a packet, the network interface of the node, decrements the available energy according to the following parameters: (a) the specific NIC characteristics, (b) the size of the packets and (c) the used bandwidth. This energy is used for the propagation model in ns-2 to determine the energy with which the neighbours interface nodes will receive the packet, and consequently determine the successful or wrong packet reception.

**Parameter for Energy Model**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
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<td>Network Interface</td>
<td>WirelessPhy</td>
<td>Idle Power</td>
<td>Watt</td>
</tr>
<tr>
<td>MAC Type</td>
<td>802.11</td>
<td>Receiving Power</td>
<td>Watt</td>
</tr>
<tr>
<td>Channel</td>
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<td>Transmission Power</td>
<td>Watt</td>
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<td>Sleep Power</td>
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<tr>
<td>Radio Frequency</td>
<td>Watt</td>
<td>Transition Time</td>
<td>Seconds</td>
</tr>
<tr>
<td>Initial Energy</td>
<td>Joules</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusion

As we know that mobile nodes in MANET are battery powered and we need to increase their life by reducing energy consumption by choosing a routing protocol which is energy efficient. In this work we will try to know which protocol is energy efficient in different scenarios. In this work we have given an overview of different routing protocols namely AODV, DSDV, DSR, and TORA. In future work we will measure and compare the energy consumption behaviour of the four analyzed routing protocols: Ad hoc On Demand Distance Vector (AODV), the Direct Source Routing (DSR), the Temporally Ordered Routing Algorithm (TORA), and the Destination Sequenced Distance Vector Routing (DSDV) with respect to energy consumption.

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Integration of ICT and Education: A Roadmap for Quality Education in the 21st Century

Habibullah Shah*

ABSTRACT

Information and communication technologies (ICT) have become commonplace entities in all aspects of life. Integration of Information and Communication Technologies (ICTs) into education has been an important concern in many countries. Information technology is an amalgam of some wonderful inventions of the 21st century in electronics and communication. During a very short span of time it has acquired an important place in almost all aspects of human life and particularly in the field of education. In this paper, an attempt has been made by the authors to discuss how Information Technology has revolutionised the Higher Education system. Besides, the scope of web based learning in the 21st century and the role of Technology in the delivery system has also been an epoch task of this paper. In addition, the paper addresses the integration and convergence of ICT and education. In introduction section, it explains the ICT, education, and ICT-enhanced education. In next section it describes need of ICT in education, relationship between ICT skills and education, and stages of teaching learning process. The next two sections describe opportunities and challenges in integrating ICT in education. Finally the concluding section summaries the idea and its usefulness.

Key words: Education, Learning, Teaching, Information and Communication Technology, Higher Education, E-Learning.

Introduction

It is a gospel truth that knowledge, teaching and learning are strongly linked with society and its evolution. One cannot teach or learn nowadays the same way as a century ago. More particularly, the quick and deep changes brought by ICT (Information and Communication Technologies) have a strong influence on knowledge, teaching, learning. In terms of information, communication, computers, and technology, youngsters have new abilities, new approaches, new concepts. Certainly education has to take this into account, particularly at a time when students seem to be more competent than teachers in technological abilities. Initially, we began to use the term IT, or Information Technology, to describe computers and these various peripheral devices. Then the internet arrived together with computer networks, the World Wide Web, email and search engines. A new term entered the language – ICT. The term ICT, short for Information and Communication Technologies, embraces the many technologies that enable us to receive information and communicate or exchange information with others. You see what some of these many technologies (both devices and functions) are in Figure 1
Information and Communication Technologies (ICTs) are often associated with the most sophisticated and expensive computer-based technologies. But ICTs also encompass the more conventional technologies such as radio, television and telephone technology. While definitions of ICTs are varied, it might be useful to accept the definition provided by United Nations Development Programme (UNDP): ‘ICTs are basically information-handling tools- a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the ‘old’ ICTs of radio, television and telephone, and the ‘new’ ICTs of computers, satellite and wireless technology and the Internet. These different tools are now able to work together, and combine to form our ‘networked world’ – a massive infrastructure of interconnected telephone services, standardized computing hardware, the internet, radio and television, which reaches into every corner of the globe’.

When we talk of ICTs, we refer not only to the latest computer and Internet based technologies, but also to simple audio visual aids such as the transparency and slides, tape and cassette recorders and radio; video cassettes and television; and film. These older and more familiar technologies are referred to under the collective heading of “analogue media” while the newer computer and Internet based technologies are called the “digital media”.

Figure 1: ICT comprise many technologies for capturing, interpreting, storing and transmitting information.

As we are in the womb of the 21st century, there has been considerable international attention given to the role that ICT can play in economic, social, and educational change. The United Nations and the World Bank both advocate the use of ICT to support the development of the world’s poorest countries. A World Bank (2003) report cites the potential that ICT has to improve efficient delivery of resources to the poor, to bring markets within reach of rural communities, to improve government services, and to transfer knowledge needed to meet the Millennium Development Goals.

ICT in education is an area which is in turmoil and in which many participants play a role. Forces that operate on the micro- and meso-level of the education system (that is at schools and in classrooms) may be influential in bringing about changes that are beyond the direct control of ministries of education. Therefore, it is important for educational decision making to periodically assess the actual situation of ICT in educational practice.

Tinio (2002), states the potentials of ICTs in increasing access and improving relevance and quality of education in developing countries. Tinio further states the potentials of ICT as follows:

- ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution, and widen the range of opportunities for business and the poor. One of the greatest hardships endured by the poor, and by many others, who live in the poorest countries, in their sense of isolation, and ICTs can open access to knowledge in ways unimaginable not long ago.

The integration of ICT into education has been assumed as the potential of the new technological tools to revolutionize an outmoded educational system (Albrini, 2006). In the last 20 years, initiatives, projects and implications related to use of Information and Communication Technologies (ICTs) into education motivate teachers to gain necessary knowledge and skills in using ICT in their instruction. Pelgrum (2001) has noted that:

- ICT is “not only the backbone of the Information Age, but also an important catalyst and tool for inducing educational reforms that change our students into productive knowledge workers” (p. 2).

ICT plays a critical role in shaping the educational systems of different societies around the globe. In these societies, the stakeholders of educational policy, redesign and reconstruct their educational systems based on the new educational paradigms such as constructivist theory so that both teachers and students develop the necessary knowledge and skills sought in this digital age. Hence, most countries around the world are focusing on approaches to integrate ICT in learning and teaching to improve the quality of education by emphasizing competencies such as critical thinking, decision-making, handling of dynamic situations, working as a member of a team, communicating effectively (Anderson & Weert, 2002). Also governments especially in developing countries have tried to improve their national programs to integrate ICT into education. India has also launched a national mission on ICT and Education under the name of Saksharat.

Not only in India, the whole world realized the importance of ICT in education sector especially in the area of higher education. A motivational remark by one of the illustrious sons of Africa summarizes the need for ICT as a facilitator for socio-economic development and to bridge the digital divide:

"We paid the price of not taking part in the Industrial Revolution of the late eighteenth century because we did not have the opportunity to see what was taking place in Europe. Now we see that
information and communication technology has become an indispensable tool. This time, we should not miss out on this technological revolution”

**Classification of Learning on the Basis of ICT**

In view of ICT, education can be classified in three main categories- E-Learning, Blended Learning, and Distance Learning.

1. **E-Learning**: Electronic learning or e-learning is a general term used to refer to computer-enhanced learning. It is commonly associated with the field of advanced learning technology (ALT), which deals with both the technologies and associated methodologies in learning using networked and/or multimedia technologies. It is also known as online learning. Distance education provided the base for e-learning's development. E learning can be "on demand". It overcomes timing, attendance and travel difficulties.

2. **Blended Learning**: Blended Learning is the combination of multiple approaches to learning. It is usually used to define a situation where different delivery methods are combined together to deliver a particular course. These methods may include a mixture of face-to-face classrooms, self-paced learning and online classrooms as shown in Fig. 1:

   i. **Face to Face Learning**: Face to face learning refers to learning that occurs in a traditional classroom setting where a faculty member delivers instruction to a group of learners. This could include lectures, workshops, presentations, tutoring, conference and much more.

   ![Fig. 2: Blended Learning](image)

   ii. **Self Paced Learning**: Self paced learning provides the flexibility to learn according to the availability of learners’ own time and pace, it occurs in a variety of ways such as: reading specific chapters from text book, studying course material presented through web-based or CD-based course, attending pre recorded classes or sessions, reading articles referred by faculty member, working on assignments & projects, and searching & browsing the internet.

   iii. **Online Collaborative Learning**: Online collaboration involves interaction between learners and faculty members through the web; this interaction can occur in one of the following modes:

   - Synchronous interaction
   - Asynchronous interaction

   Synchronous, means "at the same time", it involves interacting with a faculty member and other learners via the Web in real time using technologies such as virtual classrooms and/or chat rooms. On the other hand, Asynchronous means "not at the same time"; it enables learners to interact with their colleagues and faculty member at their own convenience; such as interacting through email.
3. **Distance Learning:** In this type of learning, ICT plays a crucial role in bridging the gap of time and space via e-mail, electronic forums, videoconferencing, chat rooms, instant messaging and other forms of computer-based communication. It is also known as open learning. Most distance learning programs include a computer based training (CBT) system and communications tools to produce a virtual classroom. Because the Internet and World Wide Web are accessible from virtually all computer platforms, they serve as the foundation for many distance learning systems.

**ICT and Learning**

In this section, the need of ICT in computerization of educational institutes, relationship between different kinds of ICT use in learning, and model for teaching – learning process are accessed.

1. **Assessment of ICT Need:** ICT needs for successful nationwide institutes computerization program can be described as a hierarchy, as shown in Fig. 2. The first visible part of the pyramid shows the ICT needs in education and corresponding second visible part of the pyramid hints what are required to fulfill corresponding ICT needs.

- Access to modern and stable **ICT infrastructure** by all teachers and students.
- Multifunctional, licensed **software** tools and services for educational use (including Virtual Learning Environments and Content Management Systems).
- ICT **skills** of students and institute staff.
- Integration of ICT into **curriculum** that provides valid goals, content and methods for using ICT in institute.
- Management of the ICT innovation on the institute, district, state and national level.

The hierarchy of ICT needs shown by the pyramid does not imply that the low-level needs (ICT infrastructure and software) should be completely satisfied before high-level needs could be addressed. Suggested approach is to deal with all levels at once, in the systemic, integrated and coordinated manner.

2. **Relationship between Different Kinds of ICT Use in Learning:** The relationship between different kinds of ICT use in learning is shown in Fig. 3. It shows that ICT skills for IT jobs, derived from a partial subset of those needed for enhanced living and employment opportunities; and ICT skills for enhanced living and employment opportunities is derived from subset of those ICT skills which are needed for learning in all curriculum areas.

![Pyramid of ICT needs in education](image-url)
3. **Stages of Teaching and Learning**: Teaching and learning process is always going together; we cannot consider these two as separate and independent activities. In fact, these are similar as two sides of the same coin, interconnected and interrelated. The process of teaching and learning in institutes around the world can be divided into four main stages. These four stages are shown in Fig. 4.

**Source:** Adapted from Daniel, J. 2002.

**Stage 1 - Discovering ICT tools:**
This stage focuses on discovery of new ICT tools by teachers and students. This is linked with the emerging approach in ICT development.

**Stage 2 – Learning how to use ICT tools:**
This stage emphasizes on learning the use of new ICT tools. It involves the use of general or particular applications of ICT.

**Stage 3 – Understanding how and when to use ICT tools:**
It focuses on understanding how and when to use ICT tools to achieve a particular purpose, such as in completing a given project. This stage indicates the ability to recognize situations where ICT will be helpful, choosing the most appropriate tools for a particular task, and using these tools in combination to solve real problems.

**Stage 4 – Specializing in the use of ICT tools:**
The fourth and last stage involves specializing in the use of ICT tools. This requires deep knowledge about using ICT tools. In this stage, students study ICT as a subject to become specialists. Such study concerns vocational or professional education rather than general education.
Opportunities of Integrating ICTs in Education

Modern universities and institutes have a mission to make teaching learning process effective and interesting. Study of use of ICTs in education, reveals the following opportunities:

1. **Improved Teaching Learning Process:** The traditional way of teaching learning process can be made more effective and interesting by using information and communication technologies. For example, when a teacher uses audio, video, or power point presentations in his/her lecture, the whole class becomes more attentive about the lecture. Such activities also help students to understand the things easily.

2. **Increased Availability of Study Material:** In traditional learning system, students and teachers are limited to get knowledge on a particular topic through printed materials only. But use of ICT facilitates them to get variety of study materials on a particular topic using internet from anywhere and any time.

3. **Support for Distance Education and E-Learning:** The use of ICT supports distance education and e-learning. Each of the different ICTs - prints, audio/video cassettes, radio and TV broadcasts, computers or the Internet may be used for this purpose. There is a minor difference between distance education and e-learning. The use of ICTs is higher in e-learning than distance learning.

4. **Improved Admission and Examination Process:** Using ICTs universities and institutes can improve the admission process by putting admission form online and receiving completed form online. They can also generate admit cards for entrance examination online. Even they can conduct entrance and semester/annual examination online. This will speed up admission and examination process. It also helps in faster result declaration.

5. **Help in Research Activities:** Application of ICT in education enriches the research activities. Researchers can get information about recent developments in different segments, collect variety of information on a particular topic, and can generate innovative ideas and new findings. Using appropriate software we can easily calculate complex calculations and generate variety of graphs.

Challenges in Integrating ICTs in Education

While considering the opportunities associated with ICT enhanced education it can be said that ICT-enhanced education is better than a simple education, but there are many challenges, which hamper the exploration and exploitation of its opportunities. In view of integrating ICTs in education have following key challenges:

- **ICT Infrastructure:** The main challenge for ICT-enhanced education is the availability of information and communication technologies infrastructure. Before any ICT-based program is launched, policymakers and planners must ensure the availability of the followings: appropriate rooms or buildings to house the technology, computers as well as affordable Internet service for on line learning, and availability of electricity and telephony. In developing countries large areas are still without a reliable supply of electricity and the nearest telephones are miles away.

- **Language and Content:** English is the dominant language of the Internet. An estimated 80% of online content is in English (Stephen, 2001). A large proportion of the educational software produced in the world market is in English. For developing countries in the Asia-Pacific where English language proficiency is not high, especially outside metropolitan areas, this represents a serious barrier in maximizing the educational benefits of the World Wide Web. Even in countries such as Philippines, Malaysia, Singapore, and India where English is a second language; it is desirable that teaching and learning materials, preferably be developed in the local languages.
Teachers with ICT Skills: Lack of teachers equipped with ICT skills is another problem for the use of ICT in education. The institutes where ICT is going to be integrated in education, first of all their teachers must be well trained about ICT tools in education. Before going to teach to students, teachers must know about how and when to use ICT tools to achieve particular purposes.

Change Management: Managing the change is one of the biggest problems, as teachers don’t want to accept change easily. Change management issues must be addressed as new work practices, new ways of processing and performing tasks are introduced. In general a large number of teachers in educational institutes are non ICT proficient, and resistance to change.

Research has shown that the strategy of adding technology to the already existing activities in institutes and in the classroom, without changing habitual teaching practices, does not produce good results in student learning (Thompson, et.al, 1996). The reason for this is due to the fact that the vast majority of teachers are not proficient users of technology, especially computer technology. A number of studies have shown that most teachers consider the two main obstacles to using technology in pedagogical practices to be a lack of resources and training (Pelgrum, 2001).

Leadership: Integrating ICT in education is not an easy task, as it requires a wide range of support including higher management, and teachers. Therefore it is necessary to properly convince them for their support, and for this task a leader is required. Leadership is necessary before, during and after project implementation. Before the project is initiated, leadership is needed in order to explain the model, the concept and create awareness; during the project, leadership is needed to manage change and support the project; and after the project, it is needed to pledge the required adaptability and flexibility of the initiative.

Conclusion

The present age is the age of technology, whereby technology plays a key role in daily lives; this also includes the education system. There are endless possibilities with the integration of ICT in the education system. The use of ICT in education not only improves classroom teaching learning process, but also provides the facility of e-learning. E-learning has rendered convenience of online learning to thousands of learners who can not avail the benefits of higher education due to several constraints, such as, time, cost, geographical location, age, etc. ICT has enhanced distance learning. The teaching community is able to reach remote areas and learners are able to access qualitative learning environment from anywhere and at anytime. It is important that teachers or trainers should be made to adopt technology in their teaching styles to provide pedagogical and educational gains to the learners.
References


EMERGING TRENDS IN PRESERVATION AND DISSEMINATION OF E-BOOKS FOR DISTANCE LEARNERS

Avineni kishore*
O. Seshiah**

ABSTRACT
If ever a promising technology existed for education- and distance learning in particular- It would be e-books. Compared to the print documents, the use of e-books leaped high in the recent times. Academic and scholarly libraries are at the fore front of these changes and many are preparing for a significant shift from physical to electronic material presentation within a short period. This paper will examine why e-books should matter to the distance learners, and it also tries to debunk some myths about the e-books in the process. In addressing these issues, the paper tries to provide an assessment of e-book technology in view of its potential as well as its current limitations while also calling attention to future developments that holds genuine promise for learners.

Key words: E-books, Digital Preservation, Dissemination, Distance Learners

Introduction
For several years, it has been anticipated that electronic books will gain widespread use as an educational tool, but this has not yet actually come to fruition. It seems that, for the first time, all of the necessary elements are in place: inexpensive but highly functional portable reading devices, an increasing number of available book titles, and a technologically literate student population hungry for new media. The stage thus appears to be set for the single most widely used tool in the history of education, the printed textbook, to follow the slide rule and mimeograph machine down into the pit of obsolescence. The students are obvious targets for e-book utilization because college students are typically prove to embrace new technologies and also purchase a high volume of expensive, cumbersome and rapidly discarded books.

Humble Origins
E-books have had a long journey to gain acceptability, starting in the early ’70s as a digital library of public domain books known as Project Gutenberg. These were mostly restricted to specialty domains and closed interest groups in their earliest avatars. It is really the 1990s and the explosion of the Internet that made the humble e-books, along with their poster child format PDF, enters the mainstream. Today we see them in one form or the other, be it a product manual or the latest best-seller and, in our context, in some of the nation’s top institutions’ digital libraries.

Shift from Print to Electronic
Narrow shelves full of books, some new and sparkling, some old and musty, have long been the retreat of undergraduates frantically finishing papers, graduate students searching for the perfect argument in support of their theses, and faculty performing literature reviews. E-Books, however, are starting to make inroads in the purchasing patterns of libraries and individuals. By December 2010, e-Books made up to 10 percent of trade-book sales, and in the last week of December about 03 million to 05 million e-readers were

*Assistant Professor, Department of Library and Information Science, Dravidian University, Kuppm, A.P.
**Librarian, PBR VITS, Kavali.
activated. By May 2011, Amazon was selling more e-books for the Kindle than print books by a ratio of 105 Kindle books to 100 print books. As with mass market, eBook growth, and scholarly eBook publications have seen a measurable increase in sales in 2011, with the percentage of sales from eBooks at one university press going from 1.6 percent in 2010 to 11.3 percent in February 2011 (perhaps attributable to the number of eBook readers given as gifts in the 2010 holiday season). Public libraries are also witnessing a dramatic increase in eBook lending: according to the New York Public Library, which has the highest circulating eBook library in the U.S., eBook loans are up 36 percent compared to the same time last year. The academic community has been licensing and becoming dependent on eBooks for years, since before the debut of the first e reader - the Sony LIBRIé in 2004. Those narrow shelves of print books are preserved for the long-term due to the conservatorship of a few dedicated libraries and the general ownership of many libraries. Librarians and archivist know much about both the challenges of and solutions for preserving traditional books for centuries, if need be. What is not so clear is if we even understand the problems involved; much less have any solutions for, preserving eBooks for the long haul.

Many individuals, publishers, and libraries have copies of eBooks today, but simply knowing that many copies of electronic content exist does not protect digital content. Long term protection arises from constant care and attention to the preserved content. Today’s eBooks are often tied to a specific piece of software or hardware just to read them or they reside only on the publisher’s servers. Even if an individual or library owns the bytes that compose the eBook, it is impossible to move those bytes from one platform to another (and, most libraries and individuals are likely to have licensed eBooks and do not actually own them). To preserve access to eBooks, the intellectual content of the book must be unpacked from its reliance on particular hardware and software and then that content must be securely stowed away and maintained by one or more preservation agencies (such as third party organizations dedicated to preserving digital content, national libraries, or cooperative digital preservation efforts among libraries).

**Digital Preservation**

Within the scholarly community, an early expression of the need for robust preservation solutions for digital content was Urgent Action Needed to Preserve Scholarly Electronic Journals, a statement endorsed by the Association of Research Libraries, the Association of College and Research Libraries, and others in 2005. At that time, the consensus of the academic community was that e-journal content was the genre of electronic scholarly publication most in need of preservation. Following this call to action, a variety of reliable long-term preservation arrangements for e-journals emerged, including the e-journal preservation service offered by Portico. Since 2005, however, more and more scholarly content has been published in electronic form, including digitized collections, grey materials, research output, government documents, and, of course, eBooks addressing eBook preservation is a logical next step for the academic community. Library reliance on this material is increasing as the number of published eBooks is growing exponentially.

**Goals of Digital Preservation**

Digital preservation (whether of e-journals, eBooks, or anything else) is the series of management policies and activities necessary to ensure the enduring usability, authenticity, discoverability, and accessibility of content over the very long term.

The key goals of digital preservation include:

- **Usability** — the intellectual content of the item must remain usable via the delivery mechanism of current technology;
• **Authenticity** — the provenance of the content must be proven along with its authenticity as a replica of the original;

• **Discoverability** — the content must have logical bibliographic metadata so that the content can be found by end users through time; and

• **Accessibility** — the content must be available for use by the appropriate community.

At a base level, one published digital object looks like any other. Every object consists of some metadata and some files:

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**E-Book Preservation Challenges**

While eBooks are built from the same building blocks as all digital content, they do present some unique preservation challenges. Three particularly thorny challenges are highlighted below: versions, digital rights management, and metadata.

**Versions**

Books have a history of publication complexity. They have different editions, translations, publishers, publishing runs, sizes, and even different covers. As an exemplar, consider *Anna Karenina*. There are hundreds, maybe thousands, of manifestations of this work: the original manuscripts, the original serial publications in The Russian Messenger, the first version published in book form, many subsequent print editions, many language translations, the 15+ Kindle eBook versions, the 15+ Nook eBook versions, the two Project Gutenberg eBook versions, and more. In the electronic world, these existing issues are complicated by the ease with which it is possible to make updates or issue retractions on digital content, such that there may be multiple versions of each manifestation. Managing this complexity will be one of the unique challenges of eBook preservation.

**Digital Rights Management (DRM)**

Digital Rights Management (DRM) is another challenge for eBook preservation. DRM is technology, often embedded in a file or device, which enforces the rules of use defined by the provider of the content. DRM is particularly prevalent with eBooks, where it is common for books purchased by individuals to be tightly tied to that individual (e.g., it is often difficult to share or lend one’s eBook with a friend) or to a particular device (e.g., books purchased for one appliance or application can only be read on that appliance or application). eBooks sold or licensed to public and academic libraries are also wrapped in DRM which limits the number of times the book can be borrowed, the number of users who may borrow it at one time, or even the locations at which it can be read. The purpose of DRM (which is to limit access and replication) increases the complexity of preserving access for the long-term.

**Proliferation of Bibliographic Metadata**

Another challenge of eBook preservation is the proliferation of bibliographic metadata at many different levels of the publication. Metadata is neither simple nor straightforward — a publication does not have only an author but an editor, a translator, and so on. eBooks have all the traditional challenges of
bibliographic metadata, plus a number of unique considerations. For example, many eBooks within the academic community are delivered a chapter at a time and thus there is chapter-level metadata to be preserved (and perhaps a representation of the book as a whole and as individual chapters must be preserved). In addition, many books, especially within the scholarly community, are part of a series and thus must include metadata placing them within the context of the series or they are one volume in a multi-volume set, where the entire set is the “book.” Managing this hierarchy of metadata in such a way that preserved eBooks and accurately delivered in the future is a challenge that differentiates eBooks from e-journals.

**Portico’s eBook Preservation Solution**

Portico is a not-for-profit digital preservation service providing a permanent archive of electronic journals, books, and other scholarly content. Portico launched in 2005 with an e-journal preservation service. In 2009, Portico ingested the first eBooks into the Portico archive as part of an aggregated e-journal and eBook preservation service and fulfilled its first eBook post-cancellation access request in 2010. In 2011, Portico began to offer a separate eBook preservation service in order to allow libraries and publishers to select the preservation services best suited to their particular needs. The Portico eBook preservation service is modeled after the Portico e-journal preservation service; libraries and publishers both contribute to defray the costs of preservation. Publishers commit their current and future eBook holdings to Portico for preservation. eBook content is made accessible to all institutions participating in the eBook service in the case of a trigger event: cessation of a publisher’s operations, discontinuation of a title by a publisher, removal of back issues or a portion of a title by a publisher, or catastrophic and sustained failure of a publisher’s delivery platform. In addition, publishers have the option to designate Portico as one of their post cancellation access (also known as perpetual access) methods to eBooks. The preservation actions Portico takes with eBooks match those of both the Portico e-journal and d-collection preservation services. To meet our rigorous definition of preservation — the series of management policies and activities necessary to ensure the enduring usability, authenticity, discoverability, and accessibility of content over the very long term — Portico is guided by the following principles:

- Preservation metadata describing the technical and bibliographic natures of the content preserved is gathered as the content is being processed into the archive.
- Preservation must be practical (for example, migration of files to new formats is only done when it is necessary and is not preemptively performed without valid archive management reasons.)
- The Portico archive is self-describing and contains sufficient information and documentation to make it possible for a third-party to understand and manage the archive.
- The Portico archive is a dark archive, but transparency to participants is required. To that end, Portico provides audit privileges to participants and regularly reports on content in the archive.
- The preserved content is replicated to multiple on-line and off-line locations on multiple continents.
- The preserved content is regularly checked for bit rot and corruption and any problems are immediately corrected.
- The hardware on which and machine rooms in which the preserved content is located must be maintained to industry standards.
- Portico receives accreditation - Portico was certified as a trusted, reliable digital preservation solution by the Center for Research Libraries (CRL) in 2010.
As of June 2011, Portico has over 5,000 eBooks preserved from four publishers and over 100,000 eBooks committed to the archive from twelve publishers.

**The Nature of Distance Learning**

Distance learning refers to situations in which learners are physically separated from the educational provider, communicating in writing (by postal mail, e-mail, fax, or computer conferencing), verbally (by telephone, audio conferencing, or videoconferencing), or in periodic tutorial sessions. Distance learning courses are not like traditional face-to-face courses. They require different media, delivery methods, course design, evaluation methods, and learner-support structures.

Adaptation is the process of modifying learning materials from their original form to a form usable for distance learning. If materials are designed specifically for a particular learner population in a particular context, they may be totally unsuitable for use with a different learner population or in a different environment. The process of learning material adaptation involves facilitating the material’s effective use in a different context with different learners.

**Why E-Books Should Matter to Distance Learners**

The introduction of online learning, lectures, course materials, and journals has opened up a whole new perspective into the possibilities of distance learning for students across countries and continents. Distance learning may one day replace the actual teaching occupation. E-books have global reach and accessibility. It can reach to the most remote of places for distance-learning students. It was reported in Peterson that the enrolment of distance learning classes in the academic year 1997-1998 was five million students. This implied that distance-learning students depended upon full-text electronic resources.

There are several distinct advantages offered by e-books over the traditionally printed counterpart. These advantages are inherent in the format of the electronic devices, and the features and flexibility of the digital instrument’s offer that could not be realised and will never be possible through the printed book. Some of the advantages are enumerated here:

**Instant accessibility and up-to-date content**

One of the fundamental strengths of the book is the instant mode of publication. The e-book has enabled instant worldwide distribution of content over the Internet. Educational institutions can offer instant access of online lecture materials such as the latest updated reading lists to students. Students can download the contents direct from the Internet at their own convenience. The course materials can be updated easily, and the most current editions will take less time to publish. Students searching for library references do not have to loan the physical print book from the library or worry about damaging the printed copy. Similarly, the virtual e-book library is open for access to users ‘anytime, anywhere’, much like a 24-hour convenience store. For example, the full listing of e-books can be integrated onto the library’s online public access catalogue (OPAC) database, offering a complete substitute or optional alternative for library users.

**Compactness and Portability**

Another advantage of e-book is its compact nature. This portability feature makes it ideal for users who are always on the move. The reader appliance can store many titles into its hardware memory and can hold an entire library collection, thus offering convenience for users. From the perspective of library management, it eliminates the need for physical shelf space. Costs for rental and bookshelf procurement will be drastically reduced.
Searchability and multimedia possibilities

The contents of each digital document can be value-added. The contents can be customised, expanded or updated according to what the users desire. As for the traditional print book, majority of users usually scribble notes in the white space of the print pages, but as for e-books, the complete text can be searched for definitions of highlighted words and results can be derived from its in-built interactive dictionary. Customised notes can be annotated or removed by users electronically. E-books have advantageous functions like text search and retrieval, variable font type and size adjustment, and multimedia display possibilities. Book authors and writers will benefit when they integrate such interactive capabilities into their e-books content.

Longevity and linkages

The old titles of printed books can go out-of-print but not the eBook as it is easily replaced and duplicated. It is good way to preserve rare, limited edition books in the virtual library.

Born Digital - Interactive Textbook

When a university college textbook, Principles of Biology, comes out from the Nature Publishing Group in January’11, it won’t be on the shelves of school bookstores. That's because the book was designed to be digital-only. Students will pay not for a printed edition at a bookstore, but for permanent access on the Internet. And when they open the book on their desktops, laptops, tablets and smart phones, they will find other following differences, too.

- **Integrated Learning**: Each module integrates text, high quality figures, interactive exercises, simulations, video, and assessments into a single, rich flow of learning for the student.
- **Customization**: Instructors can easily customize Principles of Biology by rearranging or deleting any of the 200 modules, adding their own material, and turning on and off particular sections within the modules.
- **Anytime, Everywhere Access**: All content in Principles of Biology is fully accessible on desktop and laptop computers, mobile phones, and tablet computers, ensuring that you and your students can take advantage of the material wherever we are.
- **Real-time Grade book**: Each of the 200 modules in Principles of Biology concludes with a multiple-choice online test of key concepts covered. The results from this test feed automatically into a grade book, allowing instructors to track how their class as a whole is grasping the material down the level of individual questions and learning objectives.

Furthermore, Digital book technology also allows for the possibility that future readers can go directly to the cited paragraphs in referenced books rather than seeing mere footnotes, and e-books will soon be able to accommodate interactive features such as reader annotations, discussion forums, blogs, and electronic tests to support sustained analysis and measure reader understanding at designated points throughout the text. For distance educators as well as traditional classroom educators, such components would not only enhance student access to information but would also help revolutionize the processes of reading, analyzing, and researching in their courses.

Aside from the obvious benefits of portability, there are some very redoubtable reasons why the e-book is a force to reckon with. To start with, they’re quicker to procure, and you could have the digital copy of the book in question as soon as you place the order. We spare a thought for the differently-able students as well. E-books can cater to them with most software supporting text-to-voice capabilities.
That said the dead-wood variant of the book does score on some key criteria. For starters, it doesn’t need a manual to operate a paper book. The devices—PCs, laptops, dedicated e-book readers and many mobile phones—needed to read e-books require an additional outlay, which for many may prove to be the biggest deterrent. Compatibility issues are rife in the e-book space and that proper network connectivity to digital libraries is play a key role to effective usage, not to mention power requirements to run these devices.

Above all, the well-rooted cultural mindsets around reading from a screen rather than a book affect uptake and usage in India. If our students and faculty are only using the e-book for printing out a paper version, they’re defeating the purpose.

**Practical Concerns of Libraries in dealing with e-Books**

Libraries are the largest consumers of books, there is need to look into various concerns which have been a bother to libraries in their quest to include e-books into their collection. Here are some instances:

i. A recent survey done by Unisphere Research, a division of Information Today, Inc., found that of 1,201 libraries polled in North America, an average of 41% of libraries report an increase in patron requests for e-books over the past year. Individual libraries see this in increased demand for Over Drive downloadable books service and NetLibrary digital titles. Amidst all the demand is the rapidly changing e-book market. Publishers and libraries are working through the challenges of compatibility, digital rights management (DRM), and format types, among other issues, and are seeking creative ways to develop a model that provides the service to library patrons. In February 2011, HarperCollins declared its books could only be downloaded 26 times before the library would be required to re-purchase the title. The following represents other models that could be considered instead of limiting the number of checkouts per title.

ii. Iris Jastram and Steve Lawson present an option which would allow libraries to buy, lend, and preserve e-books in much the same way libraries purchase print books. Libraries will purchase, not license, e-books from publishers or other sources. The entire process would be based on current copyright law and libraries would have right of first purchase. If the copyright is not respected, publishers would still retain the right to sue for copyright infringement and damages.

iii. Libraries could retain a third party vendor to manage both access to and preservation of the e-books or some libraries may prefer to self-manage access and storage. In either case, it is essential that the files are preserved, loan policies and copyright are respected, and that patron information remains private.

iv. Chad Mairn, an Information Services Librarian at St. Petersburg (FL) College offers another model for e-book service. He suggests that library users should have unlimited access to e-books which should include a piece of code that automatically pays the publishers “per read”. There would be no waiting lines and more people would be reading the same popular book at the same time (one title many readers). E-books that aren’t read would disappear because, quite frankly, no one wants them anyway.

v. Patron authentication will continue to be key to legal sharing of e-books. Authentication is similar to the model for Freegle music downloads. This model of e-book service is probably cost-prohibitive for most public libraries, but may be a model of e-book service to explore in the future. More options are being explored by the library community and the conversations continue.

Organizations like Library Renewal have been created to do research and form strategic
relationships in order to ensure that communities can always reap the benefits of a library, even as technology evolves and content migrates to digital formats.

Another great facility in using e-books is the abundant free resources that are available today to get e-books. Many websites currently offer free e-books that have great share among all the eBooks. Free resources range from the original site for free text online, Project Gutenberg, to search engines that search e-book sources. Librarians will have to constantly monitor this evolving market as surely as library users continue to purchase e-readers and then look for reading material. For libraries to succeed and survive, e-books must be part of the library’s menu of services and resources.

Conclusion

Given the dramatic increase in publication and sales of eBooks and the growing reliance of the academic community on eBooks, the moment has arrived to address the preservation needs of eBooks. The preservation of eBooks may be met in numerous ways, including preservation through community supported independent archives such as Portico, national preservation efforts, or cooperative efforts among like-minded institutions. While eBooks offer many unique challenges, if the community begins to preserve the entirety of eBooks right now, those challenges can be addressed over time. The proliferation of distance learning in the contemporary societies, will witness a paradigmatic shift by the effective utilization of the opportunities opened by the advent of e-books.

References

ABSTRACT
With the dawn of Computer Science a new revolution is just beginning in science. The building blocks of this revolution are concepts, tools and theorems in computer science which are being transformed into revolutionary new conceptual and technological tools with wide-ranging applications in the sciences. Computer science teaching and research is currently at an awkward crossroads where it needs to decide whether it is something that serves other disciplines, is an engineering exercise, or a real science in its own right. What is clear is that computer science needs to be re-energized in schools/colleges and universities to inject new life into the discipline, and to focus around helping find solutions to ‘grand challenges’. The structure of the Computer Science teaching system needs a consideration to help it grow as a subject that can augment any other subject to be learned to the maximum of its depth, with ease and least amount of time. Any topic, on any subject, regarding anything is just a click away; just the click is to be learned.

Key words: Computer Science, Information, Design, Online, Learning, Syllabus, Counselling

Introduction
IT deals with the use of computers and computer software to convert, store, protect, process, transmit and retrieve information. Information is the backbone of almost every system today. Information technology (IT), as defined by the Information Technology Association of America (ITAA) is:

“It is the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware.”

The flow of information has changed the way we live in today world. Information Technology has changed the whole scenario. Today, the term Information Technology has ballooned to encompass many aspects of computing and technology, and the term is more recognizable than ever before. Every morning when we read a newspaper out, having so much information, we come to know the latest happening in the world, the internet edition of newspapers have it all. This is just a very basic example of IT. The Internet is used extensively in the sphere of education. On-line education is becoming more and more popular day by day. All our Railways, Air and even sea networks are connected with the help of IT. The information is very vital for running these smoothly. Even if we have do not have information for one minute it may result into a big disaster. Similarly if we want to travel around the world we can book airline tickets online and even book rooms for our hotels (of course at competitive rates- Online-Ticketing). In banking sector also the use of Computers and internet has grown at an immense pace. It is very to transact any amount of money from one part of the world to other with help of e-commerce (Online-Banking). We can purchase anything online with help of debit and credit cards. This has made our lives simpler. Nowadays if we want to buy to something and are not getting it in a nearby store, we can simply search for the thing on internet and then order it over the internet (Online Shopping). We will get it delivered at our

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doorstep with just few clicks of mouse. Companies can share data and technologies online. People are working on the internet without really having to go outside to their workplace. Even the doctors can guide/help other doctors, while operating on a patient, anywhere in the world, with the help of Information Technology. Today’s architect relies on computer-aided design (CAD) programs that enable the visualization of structures in three dimensions. Now we don’t have to sit for hours in the library and rewrite the material we need, we can just find it on the Internet and print it. So everything we need is at hand – any materials on any topic. It’s also convenient for translators – instead of endless turning over the pages we just need to install an electronic dictionary, and our time is saved. Besides dictionaries, there are lots of other electronic programs almost for every profession. A whole new world is coming in our way with the help of Computers and Technology.

Local Scenario: Status in J&K- A Case Study

Nearly everything we do today in this world is helped or even controlled by computers. So it is difficult to overestimate their role and especially the role of the Internet in our life. The Internet is used extensively in the sphere of education. Online education is becoming more and more popular. Keeping in this perspective in mind, Computer Science has been introduced in School Education Department in J&K at 11th and 12th Level for last more than five years. The objective with which the course has been started has been innovative and revolutionary. The objective behind imparting Information Technology/Computer Science at Higher Secondary School level has been to make the younger generation acquainted with the latest technological dominance. The inclusive growth of Information Technology/Computer Science has influenced almost every aspect of life. The knowledge being incomparable commodity has also shifted from “bookish” approach to practical and technical approach. Computer Science is a recent discipline in the field of Science compared to others fields and has been divided into several specific areas which are diverse yet most of them are related. These include: Computer Science and Technology, Computer Engineering, Information Systems, Information Technology, Software Engineering, Computer Aided Design and Engineering, Computer Networks, Computer Administration etc. Information/Computer science courses are customized to prepare students for careers in the application and use of computers in almost every field of life. Due to the diversity of its use, several courses are proposed and designed to train youth for specialized tasks in the field of Computer science and Information Technology. The rapid spread of computers and information technology has generated a need for highly trained workers to design and develop new hardware and software systems and to incorporate new technologies. So the more people learn and acquaint themselves with the trends and uses of computer science and information technology, the better it will be in future.

Owing to this most computer specializations are classified by areas of focus. The following is a list of major specialty areas within computer science:

- Database and Information Systems.
- Artificial Intelligence.
- Programming Languages, Formal Systems, and Software Engineering.
- Office automation and specific business applications.
- Graphics, Visualization and the Human Computer Interface.
- Architecture, Parallel Computing and Systems.
- Computer System peripheral maintenance and Network systems.
- Computer and Network Administration.
Other short and long term, Certificate courses and diploma courses are also provided to develop and widen the human resource for present day requirements in various fields.

**Present Day Functioning and Problems**

Information Practices/Computer Science has been provided as an optional subject at Secondary School level to help develop interest among students towards the present day prerequisite of computer knowledge. The motive is surely spectacular, innovative and pioneering to provide basic level of understanding, usage and applications of computer systems. The base for any subject is “Learning About Learning” and the introduction of this course is the very first step in this direction. The course, started with this motive, will help develop interest and enthusiasm amongst students towards this very important and appropriate subject in this present world.

**Objectives of the Study**

The aim of this paper is to try to analyze the present system of introduction of Computer Science at secondary school level. The subject has been introduced with focus on improving the understanding and knowledge about computers and internet. This is a foundation stone of building young generation who are conscious and aware about the latest trends and technology. This will help them build and develop their future, no matter in which stream they are planning to go ahead. Better set of courses and education be provided to the students so that they are not overburdened. Rather they develop more interest learn things with great zeal and zest. More stress should be laid on practical learning and achievement in terms of better technological competence.

**Findings and Observations**

Going through the present scenario, several issues need to be addressed / acknowledged so that the intention, with which the initiative of introduction of Computer Science at Higher Secondary Level was taken, attains its final shape and it flourishes as a leading subject as is the need of the time.

The following concerns are to be considered:

1. Syllabus needs to be revised as per the class work and level (understanding) of students.
2. Distribution of marks for units requires reconsideration.
3. Number of classes (Theory and Practical) for the session may be balanced.
4. Proper counseling sessions are introduced for newly introduced subjects.
5. Level of students is to be taken into consideration, as most of the students study and operate the Computer System(s) for the first time.
6. Students be motivated and prepared for understanding the importance of homework/ self-study/ assignments.
7. Infrastructure be developed at school/community/area level to take full benefits of computers and the world wide web (internet).
8. Student-Computer ratio in the schools should be maintained and other facilities like generator, essential power supply, broadband (internet) connections should be provided and maintained.

A detailed analysis of above issues:

1. **Syllabus**

   The syllabus that is presently prescribed has been framed, rather is similar to that of Central Board of School Education (CBSE). The marks distribution for units, Number of classes for the academic session, essential for theory and practical, total number of classes (theory and practical’s) required for the syllabus is imbalanced (needs re-consideration). The level understanding of students, no of working classes/periods
and without considering lack of prior knowledge among students, is a major concern. Since at class 11th, most of the students study it for the first time, and that too as an additional / optional subject, so the syllabus should have been such that the students should develop interest and feel comfortable while taking it as a subject. But the reality on ground is contrary to the expectations. The syllabus should have focused on developing basics of computers among students so that they would feel comfortable in studying it and at the same time learn the usage and importance of computers and information technology day-to-day life.

2. **Status of CS as an Optional subject:**

   Since it is an optional subject most of the students avoid opting for it and try to choose some subject that they think is simple and easy (human nature). Considering the elaborate syllabus of Computer Science /IT and amount of time and effort the students have to put in, most of the students try to run away from it and instead look for some simple and easy alternative subject.

3. **Marks distribution among units and elaborate syllabus structure:**

   The distribution of marks in units of the syllabus, theory and practical’s, need consideration. (Marks distribution is uneven, as compared to that of CBSE syllabus). Quantity has been given preference over quality. Compact syllabus would have resulted in thorough teaching-learning process but here the syllabus is detailed and students get less time for understanding and mostly follow the procedure to just “pass” the subject. Units that have more elaborate syllabus have less marks allocated and less marks are allocated were practical work is to be learnt.

4. **Very small or negligible counseling for subject selection:**

   It is an important factor that students must be counseled to select the subject that they like or are interested in. What happens on ground is that students select subjects that their friends select (or have selected) so as to keep company or based on the parental suggestions which, in most cases, is not survey oriented but sometimes a guess or good sounding subject, the result is disinterest and disconnection of the subject in students. Wrong subject selection further leads to depression followed by failures to cope up with the subject and finally failure in the subject. Due to lack of subject counseling at Higher Secondary level, students are left all alone and in most of the cases the parents of the students are also not able to provide proper guidance and counseling. Students study Computer Science in class 11th but soon after joining in class 12th, a majority of them change (or try to) the subject to other subjects as they do not feel comfortable with the subject keeping in view the crucial 12th class exam.

5. **Disinterest in students:**

   Students who opt (or are forced to opt) for science know in advance that they have to study for extra hours and put in more effort and time for their core subjects. They (Science students) take it as a simple and unimportant subject and try to run away in the first instance and those who take it as subject,
pay least attention towards the subject and concentrate more on core subjects as their primary focus is on MBBS, Engineering and other professional/engineering courses. These students study it at the end of the year just to pass and overcome the problem. Though some of the students do put in good effort and time to learn Computer Science, but the number of such students is very small. These students try to learn the basics of Information technology that they may need in future or may choose Computer Science/Computer Engineering as their career. The Students studying Arts consider it as a difficult subject (a pre-conceived notion). These students choose arts subjects that they think are most easy to learn/study and will fetch them good marks to pass in the examinations; their objective is to simply choose a simple optional (subject) alternative optional subjects.

7. Homework/Assignments
Most of the students do not study at home. Even if home work is to only study at home, most of them do not do it at all. Science students put more effort in core subjects and take optional subject as for granted, while arts students do no bother about the assignment/self study at all. Even repeated attempts by teacher to make students study at home, proves ineffective. Assignments are taken very lightly and usually not done at all. Though some students complete the given assignments but most of the students either copy from their friends/colleagues notes (readymade and effortless copying) or do not complete the assignments at all.

8. Infrastructure
The infrastructure in most of the schools is either not sufficient or not in proper state. The Student-Computer ratio and other lab facilities are not up to the mark. One computer is shared by many students at a time and the students get very small amount of time for practical work on computer. The students are divided in groups for conduct of practical work, and each group do the practical work according to time table and if some students miss one or more lab class, he/she is not able to cope it up in the next class. Students are not able to see the components of the computer practically. The look and feel of various components remains imaginary in the minds of students. How CPU, RAM, BUS, Motherboard, Hard disk etc look like, what is inside a floppy disk, how is data stored in CD/DVD, pen drives, hard disks, external drives; All this usually remains as theoretical concepts in the mind of most of the students.

9. Time table
Students studying various streams and various subjects need to be accommodated in a common slot for optional subject class and that is usually the class towards the end of the day, when students are exhausted and drained out. It also plays a negative role on the understanding and learning aspect of the students and enthusiasm of the teacher also. So the students try to look for easier alternative optional subjects that do not require much effort and time. They select those subjects that feel are easy and can be studied by them at home also. For students belonging to rural areas and the schools located in rural areas, the students lack exposure to use and utilities of computers in day-to-day life. They lack the exposure to present day knowledge base available on the internet through the use of computers. Places where news papers reach in afternoons, motivating people to study and use computers, is an uphill task. Non-availability or non-functionality of Community Centers, Internet Facility Centers and other online/computer based establishments keep the people unaware of the present day happenings and activities that can be accomplished with the help of computers and information technology. There is lack of knowledge and awareness of the fact that, the affairs that used to take a lot of time and effort manually can be handled easily, effectively and precisely, in the least possible time with the help of a computer system and internet facility.
All the factors above has lead to Decreasing trend in study of Computer Science as subject at Higher Secondary School level and the trend seems to be weakening with every coming year. Disinterest among students and lack of proper counseling and encouragement has led to the declining (or less growth) of the subject.

Possible Recommendations / Suggestions

It is very well said that “Just getting a good idea is sometime more than enough”. The rapid and widespread use of computers and information technology has generated a need for highly trained manpower/workforce, proficient in various computer based jobs and functions. These computer specialists include computer scientists, database administrators, network systems analysts and data communication analysts. Database administrators work with database management systems (DBMS) software and determine ways to organize, manipulate and store data. With the Internet and electronic business generating large volumes of data, there is a growing need to be able to store, manage, manipulate (process) and extract data effectively. With the growing volume of sensitive data and the increasing interconnectivity of computer networks, database security, data integrity and backup systems have become increasingly important. Network systems and data communications analysts, also referred to as network architects; design, test, and evaluate systems such as local area networks (LANs), Wide Area Networks (WANS), Intranets, the Internet and other data communications systems. Systems are configured in many ways and can range from a connection between two offices in the same building to globally distributed networks and e-mail systems of a multinational organization.

Computer engineers are the ones that develop the security algorithms that allow us to transmit data (text, audio, video, pictures etc) in a relatively secure manner over the internet, miles across countries, around the world. Computer scientists are the ones that created the algorithms that let search engines search the web and then process their data to look for key words and give you up-to-date results quickly. Computer scientists are the ones that designed modern relational database systems that can very quickly give you the data you want. Computer scientists are the ones that invented the protocols (eg: TCP/IP) that allows us to connect to web servers and get the requested data. Computer scientists are the ones that invented the web languages and scripts that we run on our computers.

As discussed above, there is an emerging and vast field of computer science in present world and the future as well. The things that need to be considered at this (School education) level may lead to development of improved and bright manpower that will lead all the fields in near future, provided proper care and development methods are introduced and considered.

1. **Improve the syllabus and course structure**

   The most important change that should be considered and accomplished is changing the syllabus to present day needs. The most basic purpose of syllabus is to communicate the goals, organizational policies, expectations and requirements to students; i.e the course design should be highly sophisticated and innovative. The syllabus and courses are designed to ensure an appropriate balance between different aspects of learning. It should be ensured that the curriculum that is offered and the facility that is provided is the best that serves our students in the school and after the school as well.

   The curriculum should integrate all the domains of child developments and design such that the designer(s) should:
   
   - Be relevant, meaningful and based on prior experiences allowing children to make connection.
   - Allow students to be active learners
2. **Subject Counselling**
   Counselling can be immensely beneficial for many people in a wide variety of situations including helping people to cope with depression and anxiety, difficulties and educational dilemmas. One of the major challenges associated with career counseling is encouraging participants to engage with it. At the same time, policy makers agree that the competence of career counselors is one of the most important factors in ensuring that people receive high quality support in dealing with their career questions. Proper counseling of the subject and its advantages, usage in present world and job avenues and how computers and Information technology has helped in overcoming limitations of time, space and communication.

3. **Engage students / ensure participation**
   Motivating students to participate in classroom discussions is a subject unto itself. There are some students who seem to assume that as long as the assigned work is completed on time, test scores are good, and attendance is satisfactory, they shouldn’t be forced to participate. It’s not that they don’t think participation improves the classroom experience, they just prefer that other students do the participating. Of course we all have a few over-participators who are eager to volunteer every answer (sometimes to the point of dominating the discussion, which creates its own problems for Teachers and fellow students alike) but a good number of students prefer to listen, observe, or daydream rather than engage in the class discussion. Whether they’re shy, unprepared, or simply reluctant to share their ideas, getting students to participate is a constant struggle.

4. **Develop/restore infrastructure at school / community / business level**
   The infrastructure at various levels should be developed and improved so that students get more exposure to use and benefits of computers in present day world. In schools, students get a very small amount of time to work on computers in schools, so encouragement of Community centers in rural areas and other online facilities should be encouraged.

5. **Scientific methods of teaching and Active learning**
   The scientific method is a great tool for scientific discovery and for coming up with sound scientific conclusions. The focus of curriculum should be to enable each child to think, reason and act independently with confidence and at the same time develop a readiness for formal academic skills.

   This gives all higher education providers a shared starting point for setting, describing and assuring the academic standards of their education programmes’ and the quality of the learning opportunities they provide.

   **5.1. The scientific methods of teaching-learning involve:**
   
   i. Define the problem.
   
   ii. Observe/Gather data

   iii. Think about it/Predict.
Learning through Inquiry
Educators generally agree that children learn best by doing. It is puzzling, that this awareness is only rarely translated into classroom instruction methods.

5.2. Active learning
Defining “active learning” is a bit problematic. The term means different thing to different people, while for some the very concept is redundant since it is impossible to learn anything passively. We might think of active learning as an approach to give instructions in which students get engaged, the material they study through reading, writing, listening, and reflecting. Active learning stands in contrast to “standard” modes of instruction in which teachers do most of the talking and students are passive. A large number of researches have made it clear, that the overall quality of teaching and learning is improved when students have ample opportunities to clarify, question, apply and consolidate new knowledge. In this case, instructors create opportunities for students to engage new material, serving as guides to help them understand and apply information. They help “light the lamp” of student learning. Active learning is experiential, mindful and engaging. We begin by defining the content (what to study) and establishing the objectives (what to learn), followed by reading and teaching. Then build a foundation of activities that can help learn and communicate what we have learned. Students and their learning needs are at the center of active learning. There are any number of teaching strategies that can be employed to actively engage students in the learning process, including group discussions, problem solving, case studies, role plays, journal writing, and structured learning groups.

5.2.1. Basic Elements of Active Learning
There are four basic activities through which all students learn; and specific active learning strategies use one or more of these elements. These four activities include Talking and Listening, Writing, Reading and Reflecting.
We need more (and perhaps more frequent) professional development opportunities for teachers. The more we share ideas about “what works” so that, as a community, we can improve the state of Computer Science as a subject at all levels of studies. Art of “Learning about Learning” should be emphasized. Use of Multimedia progressively more for Learning and for Content Creation should be promoted. Most teachers are using multimedia for teaching-learning to engage students in a more interactive and proactive manner. Facilities for online and projected content classes should be promoted to encourage better understanding among students and developing interest among students by interactive class. These are great opportunities to mix programming, media and other areas of study.

Encouragement and Accomplishment

Recognition of hard work and authentic accomplishment is the characteristic of an effort-based school. If we expect students to put forth and maintain high levels of effort, we need to encourage and motivate them by regularly recognizing their accomplishments and achievements. Recognition of accomplishment can be tied to an opportunity to participate in events that matter to students and their families, like symposiums, debates, house performances and other co-curricular activities. Writing a program in different ways, class presentations, self-study and performance in tests must be accredited and acknowledged. This can develop sense if competition amongst the students that can help in developing the concept of research and exploring among students.
Conclusions

Computers play an important role in the lives of most of us today, whether we realize it or not. Some people, however, are beginning to ask if we really need them. Teachers seeking information about the nature and standards of work/study to be done in a particular subject or subject area is just a click away. Most of the intellectuals feel that computers have become a necessary part of modern life. The use of computers can save a lot of storage space. Storing data and information on computers’ disks is one of the most efficient ways of permanently storing data for long periods of time. One computer disk can hold the amount of information that is contained in several books. Furthermore, computers save everyone a lot of valuable time and energy. Any information can be found at the touch of a button, whereas searching for it manually in books and other media takes much longer. Our everyday lives are made easier - from going to the bank to shopping and communication. Using a computer, we can make purchases, prepare documents, presentations, inventory details or just chat with friends, everything is easily possible with the help of computers and Information Technology. The time saved by using computers for repetitive tasks enables us to use our own time more creatively and productively. Computers have changed our lives for the better and there is no reason why we should not make them work for our advantage. we are able to carry out complicated mathematical calculations that are used by scientists to predict weather, assist in manipulating large volumes of data required in the field of research and development. Computers navigate the modern planes and ships, and such navigation is used in modern GPS devices that can identify the exact location of the car and make a route to any point in the world. The system structure of teaching-learning process should be designed such that we achieve or at least concentrate more on the following:

1. Syllabus should be Student centric with focus on the level at which the students are studying;
2. Develop interest among students with more stress on practical work.
3. More detail about learning basics of computers like devices, usage of basic software packages like Ms Office package in detail, CPU, basics of Operating systems etc.
4. To show how this course fits into a broader context (“the big picture”) in the modern world. i.e, the use of internet, e-commerce, online shopping, online banking system and mailing systems is stressed upon. So we should “Discuss the Big Picture” and Introduce Systems Thinking.
5. To help students assess their readiness for the course by identifying prerequisite areas of understanding and their practical value.
6. Course requirements should be made clear. What a student is supposed to do in the course: regular attendance, home work, self study/analysis, participation, assignments, exams, projects and performances.
7. The course objective should be to develop Skills and attain knowledge that students must gain.
8. It is important on part of a teacher to consider whom they are teaching, taking into account the level of understanding of students, prior knowledge about the subject, Intellectual development and Interest in the subject.
9. Assignments should be an integral part of the curriculum so that the student is engaged in self study, research and self expression. Daily assignments help extend their knowledge and augment the understanding needed to complete a particular project
10. Units should be designed in such a way that the things should flow in a sequence in a related and appropriate manner. Basic (Simpler) things first followed by relatively complex and related to prior topics. The goal should be to make things explain in a systematic and strategic manner.
11. The project work should be taken up that includes almost all the concepts covered in the syllabus. So that the practical use of the topics studied by the students takes a shape in the form of a functional module. The final project represents a culmination of their studied knowledge combined with new knowledge of integration and assimilation and provides an opportunity to expand their understandings to a next higher level that may be required in the next higher class/course etc.

12. Brief introduction about the uses of computers should be included in other non-computer science courses also. These include the concepts like:
   i. Data Communication
   ii. Mobile Computing
   iii. Parallel computing
   iv. E-Technologies
      a. Electronic Commerce
      b. Electronic Payment System
      c. Electronic Data Interchange (EDI)
      d. Data Warehousing and Mining

Computer science is expected to become more interdisciplinary than it already is, in the sense that other disciplines will use it more and more. There are many areas and a lot of them are represented here in the schools where computer science has had a very significant impact and very significant role. There is a lot of use for computer science in other disciplines and more and more of sciences and subjects are being brought into the span of computer science because it plays a bigger role. A study has considered the future of science, and in particular the role and impact of computing and computer science on other sciences. The study concluded with the finding that that computer science concepts and tools in science form a third, and vital component of enabling a ‘golden triangle’ to be formed with novel mathematical and statistical techniques in science, and scientific computing platforms and applications integrated into experimental and theoretical science. A scientific revolution is just beginning. It has the potential to create an era of science-based innovation that could completely eclipse the last half century of technology-based innovation; and with it, a new wave of global social, technological and economic growth. The basis for this revolution is the emergence of new conceptual and technological tools from computer science – tools which are already proving their potential to have a profound impact on science. This combination is likely to accelerate key breakthroughs in science and benefits to society, from understanding biology and revolutionizing medicine and healthcare, and from understanding the universe to the origin of life, and understanding and helping to protect the life-support systems of Earth on which we all depend for our survival. I distinguish computer science from computing. Computers have played an increasingly important role in science for 50-years, and in particular the past decade and a half, and will continue to do so. One of the purposes of the report is to help inform and generate discussion about the future of Computer science in the science community. If it helps to generate debate, dissent, ideas, better thought out arguments or indeed direction.
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ABSTRACT

The development of any country mostly depends upon its growth of education in society. Education is a premier instrument for achievement of all aspects of development. Progress of a society is possible only when its citizens are dynamic, resourceful, enterprising and responsible. Without such citizens, progress of country cannot be achieved in any field. Any nation’s march towards progress and prosperity will remain a dream, its aspirations will be unrealized till the women actively participate in all the developmental activities and therefore today education has a tremendous task to cope with, the destiny of a nation is moulded and fashioned through women education. Women constitute about 48.5 per cent of population of our country as per the 2011 Census of India. But they are not well represented in social, political and economic life as per their numerical strength. The principle of gender equality is enshrined in the Indian Constitution in its preamble. The constitution not only grants equality to women but also empowers the state to adopt measures of positive discrimination in favour of women. Swami Vivekananda, great reformist of India, had said that there is no chance for the welfare of the world unless the condition of women is improved. It is only possible if status of women is upgraded through empowerment and properly represented in all walks of life. Therefore, the need of the present era is to make the women fully independent and empowered through education. Media has been highlighting and time to time discussing about the gender issues and has been raising its voice against social evils towards women such as illiteracy, dowry, rape, female foeticide, domestic violence, occupation segregation, gender disparity, etc. Educational attainment and economic participation are the key constituents in ensuring the empowerment of women. The economic empowerment of women is a vital element of strong economic growth in any country. Empowering women enhances their ability to influence changes and to create a better society. The education of parents is linked to their children's educational attainment, and the mother's education is usually more influential than the father's. An educated mother's greater influence in household negotiations may allow her to secure more resources for her children. Educated mothers are more likely to be in the job, allowing them to pay some of the costs of schooling, and may be more aware of returns to schooling. And educated mothers, averaging fewer children, can concentrate more attention on each child. This paper focuses on the concept of women empowerment and its indicators. Problems of women education in India have been underscored in this paper. This paper also highlights how media is advocating education and women empowerment.

Key words: Media, Education and Women Empowerment.

Introduction

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The development of any country mostly depends upon its growth of education in society. Education is a premier instrument for achievement of all aspects of development. Progress of a society is
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of a nation is moulded and fashioned through women education. A woman is the mother of the race and
guardian of future mankind. It is imperative that enough attention has to be given to reduce the gross
number of female illiteracy in our country. Central Government and State Governments have taken a
number of steps to stimulate the education of women.

National Policy for the Empowerment of Women (2001) says that “Women’s equality in power
sharing and active participation in decision-making in political process at all levels will be ensured for the
achievement of the goals of empowerment. All measures will be taken to guarantee women equal access to
and full participation in decision-making.” If the access of education is provided with right spirit, a kind of
awareness can be generated among women and it will directly influence the status of women.

Status of Women Education in India

The Sanskrit Shaloka, “Yatra Poojyante Nariastu Ramante Tatra Devtah”, means that in the
ancient past there was great respect for the women. The women were very high in morals and in
performance of duties. No yajna could be completed without the presence of wife. It is said, historically in
early times women in India enjoyed equal opportunities like that of men. Women in the Vedic ages not
only received their due recognition in society but also got equal treatment in the matter of educational
training. Many women were composers of Rig Vedic hymns. Gargi and Maitreyi, for instance were looked
upon as the leading philosophers of the time. At the end of the Rig Vedic period the social status and
position of women came to be degraded. This is clearly evident from most of the shalokas in Manusmriti.
According to the injunctions of the Smriti literature a woman was reduced to a dependent role in relation to
men. Men folk were now callous about women's education; what they deemed to be important in women
was their capacity to bear and rear children. Only among the women of Vaishnava community academic pursuits were still considered to be of great significance.

Due to the changed political, social and economic situation in the medieval India, the status of women received a great setback and consequently the opportunity for the education. Education of women remained somewhat neglected during the British period. With the dawn of independence there ushered a new era with regard to the status of the women. Today the Indian woman has equal rights with man to individual and social status, right to education, right to work with adequate wages and security of tenure, right of freedom of association, right to property and right to health and leisure. The Article 39 of the Constitution lies down.

1. The citizen's men and women have the right to an adequate means of livelihood.
2. There is equal pay for equal work for both men and women.

According to a report, “After independence social and economic justice has progressed in this country and so has education of women. The Muslim women are now participating in ever large numbers. The reform movement like Arya Samaj and Brahmo Samaj, and the Congress movement had created a situation in which education of women received a lot of attention ever from before independence. As a result of this private and governmental effort, education among women has registered distinct progress. Thus while the percent of literacy among women was only 7% when the British left as against 25% among men, it has advanced to about 65.46% now among them against 82.14% among men. (Census of India-2011)

The Concept of Women Empowerment

Empowerment refers to increasing the spiritual, political, social or economic strength of individuals and communities. It often involves the empowered developing confidence in their capacities. Empowerment is probably the totality of the following or similar capabilities:

- Having decision-making power of their own
- Having access to information and resources for taking proper decision
- Having a range of options from which you can make choices (not just yes/no, either/or.)
- Ability to exercise assertiveness in collective decision making
- Having positive thinking on the ability to make change
- Ability to learn skills for improving one's personal or group power.
- Ability to change others’ perceptions by democratic means.
- Involving in the growth process and changes that is never ending and self-initiated.
- Increasing one's positive self-image and overcoming stigma.

Women’s groups, non-governmental development organisations, activists, politicians, governments and international agencies refer to empowerment as one of their goals. Yet it is one of the least understood in terms of how it is to be measured or observed. It is precisely because this word has now been one of the fashionable concepts to include in policies/programmes/projects that there is a need to clarify and come up with tentative definitions.

1. Definition

The nature of empowerment renders it difficult to define. On the one hand, it is often referred to as a goal for many development programmes/projects. On the other hand, it can also be conceived as a process that people undergo, which eventually leads to changes. Nelly Stromquist (1993) defines empowerment as “a process to change the distribution of power both in interpersonal relations and in institutions throughout
society” while Lucy Lazo (1993) describes it as “a process of acquiring, providing, bestowing the resources and the means or enabling the access to a control over such means and resources”.

2. Indicators of Empowerment

Understanding that empowerment is a complex issue with varying interpretations in different societal, national and cultural contexts. A tentative listing of indicators has been given below:

At the level of the individual woman and her household:
- participation in crucial decision-making processes;
- extent of sharing of domestic work by men;
- extent to which a woman takes control of her reproductive functions and decides on family size;
- extent to which a woman is able to decide where the income she has earned will be channeled to;
- feeling and expression of pride and value in her work;
- self-confidence and self-esteem; and
- ability to prevent violence.

At the community and/or organisational:
- existence of women’s organisations;
- allocation of funds to women and women’s projects;
- increased number of women leaders at village, district, provincial and national levels;
- involvement of women in the design, development and application of technology;
- participation in community programmes, productive enterprises, politics and arts;
- involvement of women in non-traditional tasks; and
- increased training programmes for women; and
- exercising her legal rights when necessary.

At the national level:
- awareness of her social and political rights;
- integration of women in the general national development plan;
- existence of women’s networks and publications;
- extent to which women are officially visible and recognized; and
- the degree to which the media take heed of women’s issues.

3. Facilitating and Constraining Factors of Empowerment

Empowerment does not take place in a vacuum. It comes as a result of “a combination and interaction of environmental factors”. The conditions/factors that can hasten or hinder Empowerment have been discussed as follows:

Facilitating factors
- existence of women’s organisations;
- availability of support systems for women;
- availability of women-specific data and other relevant information;
- availability of funds;
- feminist leadership;
- networking; favorable media coverage;
- favorable policy climate.

Constraining factors
- heavy work load of women;
- isolation of women from each other;
illiteracy;
• traditional views that limit women's participation;
• no funds;
• internal strife/militarization/wars;
• disagreements/conflicts among women's groups;
• discriminatory policy environment;
• negative and sensational coverage of media.

Problems of Women Education in India
Various committees on the development of women such as The Committee on the Status of Women in India, National Plan of Action for Women, National Policy on Education-1986 and National Perspective Plan-1990 analysed that the major problems related to poor women education in India are:
• Domestic Duties;
• Helping in the fields;
• Death in the family;
• Social problems;
• Inadequate facilities;
• Lack of qualified female teachers;
• Teacher’s unfair behavior;
• Sex bias in curricula and policies;
• Economic problem;
• Dropouts;
• Lack of transport facilities;
• Lack of hostel facilities for girls;
• Fear of sexual harassment;
• Fixed schooling hours and
• Popular perception in rural areas that educating a girl child is a waste of money and resources as there is no immediate gain from education. (Pandey, Das and Joshi, 2011)

Media Advocacy on Education and Women Empowerment
Efforts done through the use of Media (Progressive Side)
The media is instrumental in defining what we think who we are and what is one’s place in the society. Media advocacy is the strategic use of the mass media as a resource to advance a social or public policy initiative (Jernigan and Wright, 1996). Mass media has been used in various ways for bringing about education, information and development of the society such as radio has been used to lead green revolution, one-way and interactive television for rural development in some of the most backward districts, Gyan Darshan was launched in January, 2000, with three completely digital 24x7 TV channels dedicated to education. In November 2001, Gyan Vani, an FM radio station was launched through different FM stations in the country. Vidya Vahini was launched in 2002 by the Indian government to provide for IT and IT-enabled education in 60,000 schools in India. EDUSAT was India’s first dedicated education satellite launched on September 2004.

Time to time and very frequently media has advocated for female education through the popular advertisements such as ‘Parega India, Tabhi toh barega India’, ‘School chalein hum’ of Sarva Shiksha
**Limited Coverage in Media (Lagging Side)**

Newspapers cover women’s problems drawing the attention of policymakers to issues requiring immediate attention such as the adverse sex ratio, infant and maternal mortality, crime against women and the effects of poverty on women and their families. But this coverage is very limited with the rest of the space occupied by cinema actresses, models, video jockeys (veejays) and the rich women and their hobbies. Many of the women’s magazines are devoted to fashion, glamour, beauty aids, weight reduction, cookery and how to sharpen ‘feminine instincts’ to keep men and their in-laws happy. There are comparatively fewer articles on career opportunities, health awareness, entrepreneurship, legal aid, counseling services, childcare services and financial management. A study (Ray, 2008) in this regard was conducted in Jharkhand, Chhattisgarh, Uttarakhand, Uttar Pradesh and Jammu and Kashmir. Two regional newspapers and two English newspapers were selected for the study. Prominent newspapers only publish 5% of women related issues and 8% are published on main page and remaining are placed inside. Study showed no importance is given to development issues of women. In the television serials women are the central characters, but they are portrayed largely as tormentors or the victims while the men very often take sideline and just seem caught in a web of unfavourable circumstances. Television culture has portrayed a breed of weak, indecisive men ensnared by sexy women when in reality men also play an active role in oppressing women in various ways including subjecting them to physical assault, rape, pushing them into the sex trade and even abandoning them. It is only desirable that serials should be close to reality and give message to the viewers where and how the society is going wrong. This portrayal of women in media has led the National Commission for Women to recommend amendment in the Indecent Representation of Women (Prohibition Act), 1986. The NCW wants to include new technologies like MMS and the electronic media and some which were left outside the ambit of the Act like posters and TV serials which perpetuate stereotypes of women.

Explaining the reason for including soaps in proposed amendment in the Act, National Commission for Women has stated that “women are either being portrayed as Sita (Ramayana) or as Kaikayee (Ramayana) and there seems to be nothing in between the two extreme characters being shown in Soaps. Divorces, adultery are highlighted frequently in Soaps where characters break the law without repercussion.”

Negative images or just portraying reality is not enough. In fact, it can often be harmful. It has been observed that sheer duplication of the dark side of life can often lead to apathy and passivity. This can be avoided by depicting the positive images or success stories of women in whatever sphere they happen. There is need to produce programmes that talk about income generating schemes for women. Unfortunately, in these kinds of ventures typical “womanly jobs” like papad-making, sewing, embroidery, pickles making etc. are propagated. Stress should be given on non-traditional skills which can break the myth that women are suited to certain kinds of jobs only. A systematic survey of the existing schemes (Government/non Government) and presentation of the analysis and changes needed to upgrade the schemes which would make them more purposeful is essential.
The distance between women and media not only deprives the women of their right to information and knowledge but also keeps the women in the dark regarding the blatant misuse of the female and the distortion of the truth. Although the images of women as reflected by the different mass media in the country are not very different, it will be an interesting exercise to study how these images feed and reinforce the stereotypes. The distortion of realities by the media has increased the gap of understanding between the different sections of society. Effective informative communication is one of the most important channels for the growth and development of women in the informal or unorganized sector, as without information regarding services and benefits available through legislation, government schemes, banks and voluntary organizations, women can hardly take advantage of them. Thus the media should take into consideration the following points:

i. The media must project the working women in the unorganized sector as worker and not merely as performing the duties of wife/daughter. They being major earners, they must be projected as producers and not merely consumers.

ii. The media should make deliberate attempts to not only project the problems of women in poverty, but should monitor in such a way that conflicting role models are not depicted, nor derogatory references to their work are made.

iii. To improve content and coverage, coordinated efforts for increased interaction between NGO’s, women’s social action group, research organizations, institutes of mass communication, and the media personnel should be developed.

Ray (2008) finds extremely appropriate to refer to the recommendations made by the Joshi Committee regarding positive portrayal of women on Doordarshan. But these recommendations are equally relevant to all form of media. These recommendations, if followed in letter and spirit would certainly go in long way in enhancement of women’s empowerment and facilitate drastic reduction in cultural biases as well as gender biases. They are:

1. The women’s issue one of the utmost significance to the country as a whole and there is need for a widespread understanding that the nation cannot progress, as long as women are left behind as the lesser half of society. Therefore, the improvement of women’s conditions, status and image must be defined to be a major objective for media channels.

2. The Government must at the earliest formulate clear guidelines regarding the positive portrayal of women on television. This portrayal must take note of women in all facets of their lives: as workers and significant contributions to family survival and the national economy: it must further endeavour to integrate women on terms of equality in all sectors of national life and the development process. These guidelines must emphasis that the “women’s dimension” must from an integral part of all programmes and not be merely confined to Women’s Programmes, nor to isolated attempts to discuss women’s issues.

3. The number of commercial formula films screened must be drastically reduced, the cheap song-and-dance sequence totally eliminated and the content of such programmes carefully scrutinized in terms of their portrayal of women.

4. Women must not be portrayed in stereotyped images that emphasis passive, submissive qualities and encourage them to play a subordinate secondary role in the family and society. Both men and women should be portrayed in ways that encourage mutual respect and a spirit of give and take between the sexes.
5. The foreign exchange resource should be spent on importing worthwhile educative programmes, particularly those that show the roles, lives and struggles of women in neighbouring and other Third World countries so that a greater understanding and a shared perspective on problems is built.

6. It is necessary to ensure that a large number of rural women gain access to TV. Therefore, in the placement of community TV sets preference should be given to the meeting place of Mandals; Mahila Mandals should also be involved in the community viewing arrangement. Everywhere the media has the potential to make a far greater contribution to the advancement of women. They can create self-regulatory mechanisms that can help to eliminate misleading and improper gender based programming.

Media, which wields immense power in a democracy - a power which is only expanding and not diminishing, needs carrying out a focused attention about women-related issues and the portrayal of women. It is, perhaps, necessary that the stabilizing force of women must be brought home to the Indian people. In every family and society, there is an ethical and spiritual space, which has been traditionally dominated by women. The principal character in Bernard Shaw’s Pygmalion bemoans, ‘why can’t woman be like man!’ The media can play a salutary and a liberating role to give to the women the distinctive and the exclusive space, which must belong to them to enable them to generate the ethical and moralizing impulses for the entire society.

Conclusion

Mass media can play a vital role in the spreading women education and empowerment through various social and public advertisements of developmental schemes such as NREGA, NRHM, Sarva Shiksha Abhiyan. Media play a crucial role in the wider implementation of women’s welfare programmes by highlighting the traditional and modern roles played by women. Mass media can bring change in the people’s thinking and perception of events in favour of women for the greater development of the society only if it gives more importance to education. Media has a pervasive role in the aspects of women’s affairs which includes it should highlight women’s efforts to emancipate from the men’s clutches, case studies of successful women professionals and managers. The potential for overcoming from discrimination against the women in the media is there only when women have complete access to the media for self-expression and mass communication, when women would really share their control over the means of production with the men and equally establish ‘female gaze’ as a part of popular culture and present their point of view in all intriguing dimension, when women would believe in their own self and consider themselves as the makers of the history and an individual at par with man. And this can only happen when women are educated and in all sense empowered. Similarly, the issue of empowerment of women is only possible with her active participation in Indian Polity, economic affairs and every walk of life. Though Indian women has been empowered with the law of equality and considered at par with man but this is theoretical and limited to books only, the reason behind is women are not educated in true terms through media. Media should time to time educate people about the rights. Media has more to do for the women empowerment, at the same time should be more reciprocate and authentic towards the women’s problems, raise and fight against all such odds. And lastly, media should encourage more women participation such as more of women journalists, directors, producers, advertisers, etc. Until and unless women are not educated and not empowered with equal position in the society, the nation cannot be developed.
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