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## **RESEARCH STUDIES ON EDUCATION THROUGH WORLD WIDE WEB AND THEIR IMPLICATIONS**

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### **ABSTRACT**

It is said, "Time and tide waits for none" and change is inevitable in course of time and those who do not adopt and adapt to changes, they become outdated from the society. Education started using technology to leverage its purpose and the present era is an era of information and communication technology that should take advantage of the current technology. Education, since, a bringing up activity by exploiting the existing resources, should use World Wide Web for its effective utilization. Thus, it becomes imperative to know the researches conducted in this area. The present study is an attempt to study the various researches conducted on education through World Wide Web. The present study explores various studies conducted and place them under various categorised and finally provides conditions for efficiency of research studies under this area and suggests means for improving the efficiency. It has concluded by stating that any technology has its pros and cons and these depend upon the context and participants too and as such the effective use of World Wide Web(www) depends upon the instructors, designers, users and their context.

**Keywords:** www- World Wide Web, Penny Post: Penny is a unit of British currency equivalent to one-hundredth a pound-sterling; RLO: Reusable Learning Objects

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### **Introduction**

Education, etymologically being derived from *ēducātiō* – a bringing up or rearing (Wikipedia, 2019, June 9), implies one or more who bring up and one or more who are brought up. Rearing involves a shepherd(ess) who tends his/her sheep but the technology changes the tradition of the physical requirement of the one who teaches others face to face and enables this to be done through distance using some medium (i.e. the technological devices). In the human civilization, the role of science and technology in its invention of computers and connecting them through internet and intranet, brought a greater revolution in the field of information and communication and consequently upon education. In the effort on minimizing the barriers to education and to maximize the number of people receiving education, human curiosity is trying to use technology. One such technology, enabling education reaching the unreached and making the communication in people more facilitated, is World Wide Web.

Good educators are good learners and learning results from curiosity. This curiosity makes the educationists to look for ways and means to exploit the technology for reaching their goals and removing barriers across their goals. In 1939, when the postal mode of communication introduced 'Penny Post,' an educator- Pitman well utilized the new mode of communication for not only reaching people but also teaching people staying far away from them. The worldwide web is a boon for all modes and forms of learning such as formal, informal, non-formal, individual, group, self and tutored and with its added efficiency in economy, it is drawing a great attention of and attraction for researchers. This article is a survey of some of the researches conducted on worldwide web that is analysed and categorised as under:

### **Studies on Effectiveness**

Many research works have focussed on a comparative effectiveness of WBI (Web Based Instruction) with the conventional mode. Kulik (1994) found that the average student receiving WBI performed better than the average student in a conventional class, moving from the 50th percentile to the 61<sup>st</sup> percentile. The overall use of hypermedia resulted in more positive effects than non-hypermedia instruction (Liao, 1999). The centre for Technology in Learning, U.S. Department of Education in 2010 conducted a study on online learning and found an average number of student in online learning conditions performed modestly better than those receiving F2F (Face to Face) mode. Similarly, more positive effect from WBI than conventional instruction was also found in studies by Fletcher(1990) and Kulik(1994). But, Wisner and Chapagne (2000) in their study advise to tap the maximum capabilities of the WWW (World Wide web) while making comparison and some others denounce the possibility of comparativeness as these two require different parameters.

### **Studies on Economy**

Though, Visser (2000) found the requirement of more lead time for developing WBI programmes, DiBiase (2000) suggests to give preference to synchronised online programmes as per the requirement by careful planning. In spite of higher developmental costs, the recurring costs could be reduced by using RLOs (Reusable Learning Objects). Fletcher (2001) found the reduction costs of instruction by about one-third in the use of CBI (Computer Based Instruction).

### **Studies on Culture versus Structure**

There found a correlation between the cultural aspects and the attitude towards online learning (Murphy, Shang and Perris, 2003). McDougall (2008) identified six cultural factors that affected their online learning. Daugherty and Funke (1998) found the students who had access to web technology found web-based instruction as a convenient approach but Pajo and Wallace(2001) found that the structural factors like age, gender, and ethnicity play a significant role in the continuous existence of usage gap of online courses.

### **Studies on Design**

Designing instruction in the WWW has a direct effect on the effectiveness as Gunawardena et al. (2010) found online courses using problem-centred and case based approach to learning brought learner satisfaction. Dede(1996) describes how a carefully designed online learning assists the construction of knowledge. Dede (1996) further puts that skilled facilitation is required in online learning for effectiveness.

### **Studies Learner Participation and Interaction**

The WBI facilitates more learner interaction and participation. In the Curtin Learning Link, a web-based electronic environment facilitates communication with other students and staff (Herrmann et al., 1996). The same result was also found in other studies (Brooks, 1997; De La Beaujardiere et al., 1997; Khan, 1997). Application of instructional strategies like collaboration in small

groups (Murphy and Cifuentes, 2001) use of e-mail (Woods and Keeoer, 2001), and online collaboration (NG, 2001) facilitate interaction and reduces learner isolation. For Kaye (1990), the CMI (Computer Managed Instruction) liberates users from time and space constraints and enhances interactivity and reduces isolation.

### **Studies on LMS, Assessment and Counselling**

In a case study it was found that the most educational computer systems keep track of each student's progress and make reports to the teacher (Moskowitz, 1995). Some WBIs through instructors conduct online quizzes or exams to evaluate their performance and some even have teaching assistants assigned to each course to answer questions by e-mail (Ryan, 1997). WebAssign (NCSU, 1998) uses a Sybase database in which homework questions are stored, assignments are organised, and grades are recorded.

### **Instructional Support**

1. Attitude: Education, in any mode, requires and adds some basic knowledge, skills and attitude and tools to support. In their studies, Naxin Zhao, Douglas and McDougall (2008) found that the participants had a positive attitude towards online courses.
2. Loneliness: Online courses often feature consensus building and group projects, through which learners can develop skills in collaboration with distant colleagues and cooperating with diverse individuals. (Dede, 1996)
3. Convenience: Fletcher and Dodds, 2001, have concluded that there is a greater ease in convenient, modification, redistribution, ready access and quick link to related sources of knowledge.
4. Learner Participation: In areas of education WBI offers a medium that has the potential to be more responsive to students, to encourage greater participation in their own learning, and to give greater access to different sources of information than traditional methods offer (Brooks, 1997; De La Beaujardiere, et al., 1997; Khan, 1997)
5. Community Learning: In their study, Wiesenberg and Hutton (1995) conclude that building a learning community is of critical importance to the creation of a successful virtual classroom. Cook (1995) argues that the assumption of a sense of community in traditional classrooms may be false. If community is defined as shared interests, not geographic space, electronic communities are possible. Thus, WBI provides electronic community participation.
6. Attrition: It has been widely recognised that the attrition of students is greater problem for online courses than classroom courses (Phipps and Merisotis, 1999; Terry, 2001). In addition, some research has shown that blended courses should be considered separately from completely online courses when assessing student attrition as blended courses have lower attrition rates (Bonk, 2001)

### **Discussion**

Every approaches and tools have both pros and cons and the efficiency of any approach depends upon the context – physical, social, economical, cultural and individual. Thus, the efficiency can be increased through efficient planning, designing and implementing and this requires a careful analysis. Following are the inferences for improving efficiency from some studies conducted.

The efficiency can be improved by:

- a. Effective tapping of Web tools and application (Chamagne, 2000)

- b. Strengthening interactions between faculty and students, sharing of resources and providing collaborative learning through web tools (Chickering and Ehrmann, 1996).
- c. Using appropriate pedagogical practices (Fisher, 2000)
- d. Applying instructional strategies like collaboration in small groups (Murphy and Cifuentes, 2001)
- e. Using of e-mail to increase students' participation in group discussion (Woods and Keeler, 2001)
- f. Knowing the basic technical requirements like bandwidth (Saba, 2000), software, faculty support, technical and faculty support (Brace-Govan and Clulow, 2000) and providing suitable mode of instruction; and
- g. Developing necessary skills before students select the mode (Spalck Heiko, 2000)

### **Conclusion**

There are both strengths and weaknesses in education through World Wide Web like any other approach. All the students may not be successful in conventional mode too. Therefore, effective use depends upon the instructors, designers, users, and the context. As Rosen (1998) points out, "The World Wide Web is merely a tool, as is a chalkboard, overhead projector, or VCR. Tools don't teach. When effectively implemented they assist in the learning process. If learning on the part of the students has been helped by the use of a tool, then the tool has been used successfully."

Therefore, with the availability of good knowledge, skills and attitude, infrastructure and resources, appropriate designs can be made as per the context for the effectiveness of education in formal, informal and non-formal through World Wide Web.

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