# **Online Learning: A Review**

# Jhunu Debbarma, Sudeshna Das, Chinu Mog Choudhari

<sup>1</sup>Department of Computer Science & Engineering, TIT, Tripura,India Email: <u>jhunudb@gmail.com</u>, <u>jsudeshnadas@gmail.com</u>, mogchinu03@gmail.com

# Abstract

Our civilization has experienced a spectacular development in online education, ushering in a new era of teaching and learning. Online learning has dramatically increased and expanded. In an effort to meet student demand, higher education institutions are expanding the number of online courses they offer. Despite how spectacular this rise is, it is not without drawbacks. It is admirable that distance learning holds such promise and possibility for enhancing accessibility and convenience to education. Because learning may now take place "asynchronously" at any time, anywhere, and any location—thanks to advancements in Internet technology, this is now conceivable. This promise is impressive, but it also has negative effects. The growth in demand and enrollment that online education is generating for many institutions is being accompanied by greater rates of failure and withdrawal. This article examines these phenomena by reviewing recent studies and literature on the subject, with a focus on the community college setting. Discussion also includes suggestions for future study as well as tips for practitioners.

**Keywords:** virtual learning, e-learning, online learning

# 1. INTRODUCTION

E-learning significantly alters how individuals and organisations learn and how they apply what they learn to perform in a classroom. Researchers must seek out novel methods to supplement training due to the quickening rate of knowledge expansion and change as well as the mounting pressures of the market. Learning is a continuous process that must continue after the class has ended. According to the author in [1], the classroom will always be a key component of any learning technique. It offers a setting where educators and students can communicate, experiment, work together, and create. It's important to note that this study's objective is to inform policymakers on how to manage online learning by giving them tips and pointers. The author must define e-learning and list its components in the subsequent paragraph. The World Wide Web (WWW) can be accessed through a public or private intranet, and is generally referred to as the internet when the term "e-Learning" is used to describe learning that takes place at a computer [2]. Information is delivered via a browser, such as Internet Explorer, Firefox, or Netscape Navigator. The initial web sites were text-heavy when the World Wide Web's first browser was released in 1993 [3]. The average internet experience has changed somewhat. Many internet apps now incorporate rich media. Moving graphics and audio are frequently found on web pages. There are several reasons why people download or stream material. Online users can also find games, simulations, and virtual worlds, all of which offer a particularly media-rich experience.

Online students could come from diverse backgrounds than those who study in conventional classrooms. Each student has different expectations for what they will gain from a learning object. Because various students have varied traits and learning styles, the traditional strategy of offering one choices to all students is ineffective in an online learning environment. The provision of effective and adaptive e-learning systems, however, is the primary problem facing e-learning research.

This study is organised as Section 2 gives Literature survey. The sections 3 and 4 deals materials used, findings and experiments. Section 5 is the conclusion.

#### 2. LITERATURE SURVEY

The literature review and meta-analysis differ from previous distance learning meta-analyses. It excludes studies on videoand audio-based telecourses or self-contained computer-based instruction. The survey includes studies that used experimental designs with random assignment. This review and analysis make a distinction between training that is delivered purely online and instruction that mixes online and face-to-face components. When compared to traditional classroom training, online learning is more convenient and less expensive. The second option, known as blended or hybrid learning in the online learning community, must be more efficient than traditional face-toface training in order to be worth the extra time and money it requires. This meta-analysis provides distinct estimates of the mean impact size for the two categories of studies because the evaluation criteria for the two forms of learning vary.

People searched major publications from the last three years, computerized searches for citations in online databases and previous distance learning comprehensive assessments, and found 1,132 abstracts. After he screened abstracts and full-text publications in two stages, he found 176 online learning studies that had an experimental or quasi-experimental design and objectively examined student learning outcomes. These studies were published between 1996 and 2008.

Ninety-nine of the 176 studies included one or more comparisons between online or mixed learning conditions and offline learning conditions and can be used for quantitative meta-analyses. Of the 99 K-12 students, only 9 of her attended. This 77 studies that investigated various online learning formats did not include face-to-face learning and were therefore reserved for narrative synthesis. The effectiveness of online learning for K-12 students has not been the subject of extensive research studies. A thorough review of the academic literature from 1994 to his 2006 found experimental or contrasting quasi-experimental studies comparing learning outcomes in online versus face-to-face classes for K-12 students. was not found. So far, after an extended search period, he has only five published papers that meet the meta-analysis criteria.

#### 3. MATERIALS USED

The following material are included:

- (a) Curriculum materials
- (b) Learning time under the treatment and control conditions.
- (c) Pedagogical elements

A thorough survey of the scientific literature from 2001 to the present uncovered over a thousand empirical investigations of online learning.

This screening led to the identification of 51 independent effects that might be the subject of a meta-analysis. According to the meta-analysis, students who received their education online performed on average better than those who received their education in-person. When comparing conditions that included both online and in-person instruction with those that were taught exclusively in-person, some studies found that differences in student achievement were greater between online and face-to-face classes. The difference between the treatment and control means, divided by the pooled standard deviation, was used to calculate this difference. Analysts discovered that youngsters were typically exposed to extra teaching time and elements in these blended scenarios that were not present in the control environments. This finding suggests that the media shouldn't be solely to blame for the advantages of blended learning. It was a surprise to see that there were so few comprehensive research comparing the in-person and online learning settings for K–12 students. The results are mainly derived from studies conducted in other contexts, therefore given the small corpus, care must be used when extending them to the K-12 population.

A meta-analysis of the results of 51 studies found that 44 of them were from studies with older students, and students who completed all or part of their coursework online were more likely to attend traditional face-to-face classes performed better on average than students who took the same course. Students who participated in online learning achieved learning results that were superior to those of students who took classroom instruction, favouring the online environment. The amount of time that students spent on task varied widely between the online and face-to-face circumstances, which should be taken into account when interpreting this finding. Therefore, the benefits noted for online learning conditions may result from elements of those treatment conditions rather than the actual method of delivering instruction.

It was better for students to receive training that combined online and in-person components than it was for them to learn only in-person.

#### 3. OBSERVATION ON ONLINE LEARNING

• Studies that compared the amount of time students spent on tasks in the online and face-to-face conditions revealed that online learning was more beneficial.

- The majority of the variables in how various studies used online learning did not significantly alter student learning outcomes.
- Across a variety of subject and learner types, the effectiveness of online learning methodologies seems to be relatively broad.
- Larger effect sizes were found in studies where the online and face-to-face conditions varied not only in the mode of instruction but also in the curricular materials and elements of the instructional technique.
- In general, blended and entirely online learning environments used in a single study produce comparable student learning outcomes. Student learning is typically comparable between the two settings when a study compares mixed and completely online situations.
- In online classes, features like videos and quizzes don't seem to affect how much the students learn. Some of the techniques for online learning that are widely advised do not have support from the study. More media is not perceived to improve learning in an online application. Online testing does not shown to be any more helpful than other strategies, such as giving homework.
- Online learning can be enhanced by allowing students to choose how they interact with media and by promoting learner reflection. Studies demonstrate the value of manipulating online learning in a way that encourages individual student participation, reflection, and self-auditing of understanding.
- Giving instruction to a group of pupils seems to be less effective than employing such techniques with a single learner. Supportive tools like leading questions usually have an impact on how students engage with one another when they are learning in online groups, but not always on how much they really learn.

# 4. CHALLENGES

# International Research Journal

The fundamental issue for e-learning systems is to offer various courses to various students with various levels of learning aptitude. Additionally, these systems must be effective and flexible. The ability to choose a suitable learning object for a particular learner can be improved, which would increase adaptivity. This is how e-learning differs from conventional classroom instruction. Because each learner has unique traits and learning preferences, the conventional method of giving all students the same selection is ineffective in an online learning environment. Rich media technologies allow users to participate in interactive discussion by allowing them to see, hear, and interact with several communication streams simultaneously or asynchronously.

#### 5. CONCLUSION

Learners in e-Learning courses could come from a wider range of backgrounds than those in conventional courses. As a result, choosing a learning path that is appropriate for a particular student is acknowledged as an exciting research topic in e-learning systems. Blended training has proven to be more effective in recent experimental and quasi-experimental studies comparing it to traditional face-to-face classes. This justifies the time and effort needed to develop and execute blended systems. Online learning seems to have a slight edge over traditional classroom education even when utilised alone [15, 16, and 17]. There are a few restrictions, though. Despite what could seem to be convincing evidence in favour of online learning apps, the papers included in this meta-analysis do not prove that online learning is a better option than traditional classroom instruction. In many studies demonstrating the benefits of online learning, classrooms and online environments varied in terms of time spent, curriculum, and teaching methods [18]. The treatment environment, which was expected to include more learning time and materials, and more collaborative opportunities, was the combination of factors leading to the observed learning effects. It should be highlighted, nevertheless, that online learning is much more adapted to extended learning time than traditional classroom instruction. The studies that were part of the meta-analysis also commonly suffered from possible bias due to the authors' dual roles as experimenters and teachers, limited sample sizes, and omission of retention rates for students in the contexts being contrasted. Despite the fact that the papers in the meta-analysis used reliable research designs, this is the case (i.e., experimental or controlled quasi-experimental).

### References

[1]. Andrews, T. & Klease, G. (1998). Challenges of multisite video conferencing: The development of an alternative teaching/learning model. *Australian Journal of Educational Technology*, 14(2), 88-97.

[2]. Baecker, R. (2003), A principle design for scalable internet visual communications with rich media interactivity and structured archives. *Proceedings Conference of the Centre for Advanced Studies*.

[3]. Barnes, C. & Tynan, B. (2007). The adventures of Miranda in the brave new world: learning in a Web 2.0millennium. *ALT-J Research in Learning Technology*, 15(9), 189-200.

[4]. Bowden, J., & Marton, F. (1999). *The University of learning: Beyond quality and competence*. New York.

[5]. Cailliau, R. (1995), A short history of the Web.WC3http://www.w3.org /History.html

[6]. Caladine, R. (2008), An evaluation of the use of peer to peer real time Communications applications within the Australian Academic and Research Community.

[7]. Clegg, S. (2003), Problematising ourselves: continuing professional development in higher education. *International Journal for Academic Development*, 81(1/2):37-50.

[8]. Fullan, M. (1998), Scaling up the Educational Change Process.

[9]. A. Hargreaves, A. Lieberman, M. Fullan & D. Hopkins (Eds.), *International Handbook of Educational Change* (Vol. 2, pp. 671-672).Dordrecht: Kluwer Academic Publishers.

[10]. Greenberg, A., & Austin-Li, S. (2005). *Best Practice for Video- and Collaboration-Based Distance Education in China: Opportunities for Distance Learning and Training Programs within and across the Great Wall* (Whitepaper). Brookline,

[11]. M. A Wain house Research <u>http://www.wrplatinum.com/</u>, (2007) in their own words. Exploring the learner's perspective on e-learning. Bristol:

IJNRD1902007	International Journal of Novel Research and Development ( <u>www.ijnrd.org</u> )	36
--------------	--	----

[12]. Karampiperis P., Sampson D., (2004) .Adaptive Learning Object Selection in intelligent learning systems, Journal of Interactive Learning Research, vol. 15(4), pp. 389-407. November 2004.

[13]. Karampiperis, P., & Sampson D. (2005), Adaptive Learning Resources Sequencing in Educational Hypermedia Systems., IFETS: International Forum of Educational Technology and Society, pp 128-147

[14]. Kirkup, G., & Kirkwood, A. (2005), Information and communications technologies (ICT) in higher education teaching-a tale of gradualism rather than revolution. *Learning Media and Technology*, *30*(2), 185-199.

[15] Kurzweil, R., & Meyer C. (2003), *Understanding the Accelerating Rate of Change*. In KurzweilAI.nethttp://www.kurzweilai.net/articles/art0563.htm [viewed 17 July 2008].

[16] Leslie, S. & Landon, B. (2008), Social software for learning: What is it, why use it? The Observatory.

[17] Liu J., & Greer J., (2004), Individualized selection of learning object, Workshop on Applications of Semantic Web Technologies for e-Learning.

[18] Mathias, H. (2005), mentoring on a program for new university teachers: a partnership in revitalizing and empowering collegiality. *International Journal for Academic Development*, 10(2), 95-106.

[19] U. S. Department of Education. (2009), Evaluation of evidence based practices in online learning: A metaanalysis and review of online learning studies.

[20] Oliver, B. & Görke, V. (2007). Australian undergraduates' use and ownership of emerging technologies: Implications and opportunities for creating engaging learning experiences for the Next Generation. *Australasian Journal of Educational Technology*, 23(2), 171-186.

[21]. Rosenberg, M.J. (2006). Beyond e-learning: Approaches & technologies to enhance organizational knowledge, learning and performance. Pfeiffer: San Francisco

# International Research Journal Research Through Innovation