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Methods of Online Teaching and Its Efficiency- A Review

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Abstract

Online teaching has become a more common way to learn in college settings for the past 10 years therefore, curriculum designers must evaluate the best ways in which to deliver information and assure student knowledge in an online form. Various methods of teaching are known- analytical, episodic, narrative, which provide different advantages and disadvantages. They differ on the basis of discussions and include factors such as discussion initiation, maintenance and assessment. Chickering's seven principles of good practice are used to design courses and the usefulness of each principle and suggests ways in which the principle can be implemented effectively. In an online forum, other efficiency determining factors have been discussed, which include communication, flexibility, feedback, quality of course content among adapting to student needs.

Keywords- *Online teaching; Narrative method; Episodic method; Efficiency of online teaching; Chickering's principle*

Introduction

The world of education is currently undergoing a huge transformation as a results of the digital revolution [1]. All around us people are learning with the help of the latest technologies: children are playing complex video games, students are taking courses at online institutions, and adults are consulting Wikipedia. New technologies create learning opportunities which challenge traditional schools and colleges and enable people of all ages to pursue learning on their own terms. People round the world are taking their education out of faculty into homes, libraries, Internet cafes, and workplaces, where they will decide what they need to find out , when they want to find out , and the way they need to find out.

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The important work of researchers within the 1980s and 1990s helped define teaching effectiveness within the traditional classroom setting and provided support for the usefulness and validity of student ratings in evaluating teaching. In addition, the research in online teaching indicates that the web environment is analogous to the normal environment in some ways , yet shows important differences like the changing roles of students and instructors and the importance of careful planning. Bruner's classification which mentioned two modes of analytical and narrative thought was used as a theoretical framework. Accordingly, two teaching methods, narrative and episodic, were identified [2] and have been discussed in detail further in the article. Distance education has grown to be a fast growing delivery method for imparting knowledge. It provides improved student access and higher degree completion rates [3] There is an array of technologies available to provide web based discussions and instructions [4], some of which are discussed in the article. These courses however, primarily, are text driven [5], where the instructor has a significant impact on the efficiency [6] and the quality of content of the web based course [7]. It enquires about student perception and faculty feedback which assists campus leaders and/or school administration to change

policies necessary to improve the teaching and learning conditions [8].

Certain previous studies were used to examine the perspective of students. Findings from previous studies indicated that narrative teaching with higher interactivity level, was a preferred method [9]. The interactivity among online instructors and the perceived success of courses were moderately correlated. Participants who possessed strong computer skills preferred teaching methods which involved lower interactivity. Some participants preferred combining both, the narrative and episodic methods. Such findings inform educators about possible changes to improve the quality of online teaching[10]. Communication, feedback, flexibility, student and instructor roles, and the quality of course materials have been the focus of some studies of online teaching and learning. In one study of 104 online instructors, instructors reported that students were required to take on different roles in their learning and that students needed to be more actively involved while instructors should take on more of a facilitative role [11].

Online teaching differs from traditional courses in a number of ways , including instructor and student roles, communication, interaction, and adaptability. To find out about the online teaching methods and their efficiency, a literature review was conducted to look at empirical studies, including quantitative, qualitative, and mixed methods, also as literature reviews related to online teaching methods which were published in peer-reviewed journals since 1985. Online teaching methods, online discussion, online instruction, and online instructor role were some of the keywords used.

The aim of this study was twofold. First was to identify the recommended online teaching methods and second, in order to explore learners' perceptions about the identified teaching methods. Second was to correlate the learners' perceptions with learners' characteristics, which involve experiences, computer skills, and activity ratios in online discussions.

Materials and Methods

This review analyzed 68 articles taken from the year 2000- 2020 (till date)[12]. Cross references were also included. The sampling and data collection was done by search engines like pubmed, google scholar, and from various other journals. There was a clear five step process in selection of these articles. Identification of clear objectives, identification of relevant articles, selection, data extraction and analysis and report.

Results and Discussion

Previously our team had conducted numerous clinical trials [13–22] and lab animal studies [23–26] and in-vitro students [27–31] over the past 5 years. Now we are focussing on reviews. The idea for this review stemmed from the current interest in our dynamics of the education community, owing to the lockdown period.

Online education has become a permanent component of higher education. However, there are still major issues that need to be addressed to improve online courses. Particularly, online learning systems provide such a different platform for learning that a redefinition of the roles of instructors in online learning systems is needed.

The study showed that the programming abilities of the participants had a strong negative association with their favored methods of teaching. Participants with higher computer skills felt more confident and independent in online courses, and thus preferred less support and involvement from their instructors.

Distance education has become a fast-growing delivery method in higher studies. It is important to inquire about impressions of campus environments by the students and faculty. Reasons for offering online courses include- improved student access- higher degree completion rates- appeal of online courses to nontraditional students.

The essence of narrative teaching is its approach of employing interactive dialogue to construct knowledge. It helps learners build the knowledge by engaging with the content and teacher in interactive dialogue. Knowledge is transmitted to students in online discussions and authority and control is imposed by applying rules such as setting required numbers and lengths of postings in discussion.

Teaching aids will help students in gaining interest in the subject, consequently showing good performance in their academics[32]. It helps in discussing many problems faced by the students in routine activities in a college

and suggesting ideas to improve the student's academic performance [33] Since iPads are compact, they can be used as high-end devices for learning needs of students digitally [34]. Formal clinical teaching for senior medical students needs to be used more regularly to improve standards [35] E-learning provides a more efficient, cheaper, and potentially better alternative. E-learning needs to be introduced and made readily accessible to everyone [36]. Modern technology helps in improving the classroom management practices since students prefer activity-based learning. They find modern technology more helpful for them in understanding than the conventional method [37]. For subject specific studies, certain articles were reviewed. Proper utilization of newer technologies along with the traditional teaching methods will certainly lead to a better understanding of gross anatomy and will eventually improve students' performance [38]. In a study conducted among 100 students of Saveetha Dental College, Chennai, it was found that about 75% of students feel that it is useful to learn through video tutorials for preclinical prosthodontics [39]. Flipped classrooms showed promising results among final year graduate students as compared to conventional classroom groups in the subject of conservative dentistry and endodontics. Designing the curriculum for flipped classroom lectures takes some additional time than conventional classes. The number of distinctions obtained in flipped classroom groups was higher than conventional classroom groups[40]. Technology has been very efficient in bringing new electronic gadgets. Audio visual aids deemed more effective [41]. Now with the new technologies, many colleges and schools have started using smart boards instead of blackboard [42].

Creating videos, animations, and web sites can be helpful. Memorizing information becomes less important with the web available. Sharing customized apps, providing peer feedback, composing design proposals, keeping design journals can improve efficiency of digital methods.

Instructors also say that online classes can provide valuable resources for special needs students. For instance , teachers have indicated that students with learning disabilities contribute more to the course than they would in a typical classroom. This may be because of the increased anonymity in online courses.

In addition, shy students who would not ask questions in class appear to be more likely to participate and ask questions online due to the increased anonymity. Online learning can thus be particularly helpful in increasing the involvement of shy students or students with learning disabilities.

Narrative Teaching

There were primarily two methods of teaching-narrative and episodic, which were identified for fulfilling pedagogical roles based on previous literature.

Narrative and episodic are two contrasting modes of thoughts which can be used as two distinctive teaching and learning methods in education [43] and two distinctive teaching methods in online discussions [44].

Narrative has a Latin root that suggests close connection with knowledge or skillful practice [45]. The essence of narrative is its approach of building knowledge through interactive dialogue. This method helps the learners construct their knowledge via engaging them in interactive dialogue with the content as well as the teacher. A number of studies [46,47] developed interactive activities for learners, allowed them to learn the subject through dialogue, and encouraged them to construct meaning through reflecting on and revising their understanding of the subject. Robertson suggested that narrative teachers engaged in dialog with learners provide a more effective method of teaching than non-narrative or episodic teachers with a low degree of involvement in dialogue with the learners. Narrative teachers participate explicitly in online dialogue and build a common framework with students in which all further interactions grow. Knowledge is built in the narrative method by dialog in online discussions and authority and influence is established by asking questions and proposing ideas throughout the dialogue.

There is widespread interest in studying and using the narrative method as a way of knowing, learning and teaching in a variety of disciplines such as literacy criticism, philosophy [2,48] ,cognitive psychology, anthropology, research methodology [45,49] postmodernism teaching, learning, and curriculum [43], and interactive media in education [46,50,51] and online courses [52,53]. Despite such interests, as Hazel suggested, the definition and characteristics of the narrative teaching method are

vague, specifically in online education.

Discussion Initiation - The main functions of discussion initiation are proposing goals, forming prompts for discussion, making group discussions, and setting norms and agenda (25, 26). Narrative is a transformative teaching mode which constructs knowledge while episodic is a mode of transmission in which knowledge is received.

Narrative instructors encourage learners to learn by creating and exploring the meaning on the basis of their own experiences, whereas episodic instructors allow students to receive prepared and lectured subjects. Narrative instructors provide a flexible syllabus and try to modify it based on student preferences during the course, while episodic instructors use a preplanned and fixed syllabus during the course.

Discussion Maintenance- The main functions of the maintenance of discussions include controlling and monitoring the discussion [54] and guiding, coordinating, energizing, and perpetuating discussion by seeking opinion and information. In addition, facilitating debate, commenting on posts, controlling engagement and changing the conversation speed are defined as management of the debate.

Discussion Assessment- The duties of the instructors include roles to improve the level of conversation by providing input and creating a critical cycle between learners and instructors.

The aim of narrative mode assessment is to help learners achieve a higher learning order while in episodic mode it is to calculate how often learners obtain a particular body of knowledge. Narrative instructors provide formative feedback during the course of the discussion that encourage students to improve their understanding while episodic instructors provide summative feedback at the end of the course.

Episodic Teaching

In the episodic method, knowledge is transmitted to students in online discussions and authority and control is imposed by applying rules such as setting required numbers and lengths of postings in discussion. Episodic instructors provide more space for students to collaborate and rely on each other to develop their understanding of the topic at hand [55].

The key difference between the two teaching methods is that analytical teaching is explanatory while narrative is interpretative. The analytical method suggested by Doll is very similar to the episodic method suggested by Robertson. In both methods, teachers are lecturers who are outside the learning process and explain the subjects so the learners receive the material. In episodic teaching, context is separated, knowledge is transmitted and received as well. The control is external [56]. Episodic instructions require summative feedback at the end of the course.

Chickering's Seven Principles

Principle 1: Encourage Contact Between Students and Faculty

Blignaut and Trollip [57] and Young [58] indicate that most online students desire routine interaction with instructors and that they perceive themselves as learning more as a result of increased interaction. Students have also reported feeling less isolated when they have more interaction with the instructor [59]. The faculty and administrators also indicate that the presence of teachers in the course is one of the most important success factors. Finally, increased interaction between the instructor and the student was not only considered important by students and faculty, but the increased interaction resulted in better academic performance.

Principle 2: Develop a Reciprocity and Cooperation Among Students

Many studies indicate that students are more satisfied with online courses when they have a high level of interaction with other students [60]. Studies also indicate that students perceive themselves as having learned more when they had high levels of interaction with other students and they felt more prepared to complete their assignments as a result of their interaction with other students [61].

Principle 3: Encourage Active Learning

They indicate that students need to relate the material to their own lives. This requires that students talk about what they are learning and write about it, not just memorize the material for tests. This type of pedagogy

is within the constructivist realm. It is learner-centered rather than teacher driven. Niederhauser, Bigley, Hale, & Harper [62] noted that their online students had improved in their ability to be self-directed and do independent research.

Principle 4: Give Prompt Feedback

Feedback can be an essential tool in order to focus on future learning efforts. Chickering and Gamson [63] state that students should also be given frequent suggestions for improvement. Research suggests many online faculty agree on the importance of transparent and prompt grading among online instructors as a highly valued competency. Young also found that students support the principle of prompt feedback. In regard to giving feedback, Wang and Newlin [64] found that they could use feedback after the first week of class in order to encourage non-participating students to become more involved in the course.

Principle 5: Emphasize Time on Tasks

Many research studies suggest that more time is spent on learning tasks through internet courses. Bachman and Panzarine compared a traditional class to a class that had traditional and web components. The students with the components on the web spent more time interacting with other students and doing the course research. Other studies have found that students in online courses went beyond the assignment requirements, spending extra time on the course [65].

Principle 6: Communicate High Expectations

Suzanne Young found that online students thought teachers were more effective when they motivated students to perform at their best. Therefore, many students appear to want to be challenged to work hard. In addition, Niederhuaser found that their online students felt challenged and empowered to learn within the online forum. Finally, it has been shown that the constructivist approach employed in many online learning classes imposes high standards on learners [66] and has led to positive outcomes.

Principle 7: Respect Diverse Talents and Ways of Learning

Research indicates that most instructors agree that a range of learning opportunities should be offered, but that most instructors still do not incorporate a variety of learning tasks [67]. To allow them to integrate a range of learning activities, Smith and Valentine recommend further instruction for both conventional and online teachers. One way to make the courses more successful is by discussing a range of learning styles. For example, Suen [68] found that her students taking an online epidemiology class were demonstrating a variety of learning style preferences. Therefore, she effectively addressed these preferences using various options for learning such as small group discussions, telephone contact with other students, and email. Other teachers advocate using case studies, powerpoint presentations, and video conferencing.

EFFICIENCY AND EFFECTIVENESS

Learning is a social activity that is strengthened when instruction is carefully facilitated by an instructor. The instructor's role and responsibilities in an online course involve carefully designed, primarily written communication with the learners. An effective instructor can provide corrective feedback and encouragement, motivating the students to stay on task and to achieve the learning goals. Online learning should not be an isolated, independent activity but rather one in which students and instructors are partners in learning. Effective communication is one of the most important elements of a successful online course. The demands of communicating in an online course can be overwhelming; the volume of e-mail messages alone can quickly become a huge burden. Hara and Kling [69] advise students and instructors to be realistic regarding their expectations and to learn to manage their involvement in the course so that it does not become problematic.

Flexibility is one of the most often cited advantages of online courses, according to both students and instructors. Students in Northrup's [70] study reported that flexibility was one of the most important factors in choosing to learn online, even though most of the students reported that they could have taken a campus-based course.

Providing meaningful examples for students helps them to make important connections with the course content. In a traditional classroom, students can easily ask an instructor to clarify fuzzy concepts. In an online

classroom, answers to those important questions are delayed, sometimes causing frustration and reducing motivation to learn.

Students in the current study reported that the best courses are the ones in which instructors demand high-quality work from the students. Marsh [71] addressed one of the myths related to effective teaching: Teachers who give students less work, fewer challenges, a slower pace, and higher grades are rewarded with higher evaluations for their teaching by the students. In fact, Marsh found that when teachers give more work that demands high quality, those teachers in turn are seen as more effective by students.

An online instructor must design the course in advance, preparing materials, schedules, assessments, and even discussion topics. Once the course begins, an effective teacher must give considerable attention to facilitating the course. The instructor is fully absorbed with communication, including e-mail, threaded discussions, and chats, and must work hard to meet the varied needs and demands of the students. This includes providing a structured yet comfortable classroom environment and communicating with students in a consistent, thoughtful, and personal way.

DIGITAL TEACHING METHODS

The future of higher education is likely to be driven by the willingness to adapt and grow with the use of technologies in teaching, learning, and research. Google Apps for Education (GAFE) is a powerful cloud-computing solution that works for students regardless of their location, time, or the type of device being used. GAFE is used by thousands of schools and universities worldwide to make effective use of collaboration tools for students and faculties, with the primary objective of enhancing teaching and learning [72]. In particular, GAFE tools enable users to work together virtually on documents, presentations, and projects in the cloud. GAFE is used to develop course websites, as a complement to traditional classroom instruction, with the aim of delivering coursework to students. For this research study, a group of computer science students from the University of Ghana were surveyed to understand the impact of GAFE use on their performance and satisfaction. The study was conducted after in-class deployment of GAFE during the fall 2013 semester. When asked if using the GAFE-based course website improved their performance, over 84% answered "yes." Additionally, about 91% of the participants indicated that they were more satisfied with the courses using GAFE than those using traditional methods of instruction with no or moderate use of technology, where the least proportion of content is delivered online; the remaining 9% noted that they were moderately satisfied. Overall, the respondents were satisfied to some degree.

Other methods include creating videos, animations and other websites. Memorising information becomes less important with the web available [73]. This improves quality learning instead of just memorising. Sharing customised apps, providing feedback, proposing design proposals, keeping online design journals can also be useful [74]. Hybrid courses that are a combination of online and face to face meetings is gaining popularity and are more readily available in higher education. Some frequently used online applications include Google Classrooms, Zoom Cloud, Google Hangouts, Webinars. However, the allover problem in digital methods of education is the low persistence rate of students in online classes.

LIMITATIONS

There is a low persistence rate of online students in research methods, classes which raises the question whether online teaching should be equally effective in a different course. There are limited resources, which include time and expertise, which may limit the opportunities for interaction. Some educational programs do not fit into an online setting. For such courses online teaching may not suffice.

FUTURE SCOPE

Instructions can leverage online interactions with peer experts, course content and assessment. Enquiring students and faculty will give better insights. This can be done by conducting surveys which have a considerable large sample size in order to have a significant result. It will help in assisting campus leaders in changing policies that will lead to improvement of teaching and learning conditions if necessary. Advancement of technology might be helpful in development of a user friendly successful app which could bring a revolutionary change in online teaching.

Conclusion

Online teaching varies in a variety of ways from conventional courses including instructor and student positions, connectivity, interaction and versatility. However, little work has been carried out to explore student opinions on the features of successful online teachers.

It seems that, for expanding E-learning, a combination of online and face to face guidance can possibly have an acceptable effectiveness. Meanwhile, for archiving such combined methods, the appropriate ground, containing related hardware and software must be provided in universities.

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