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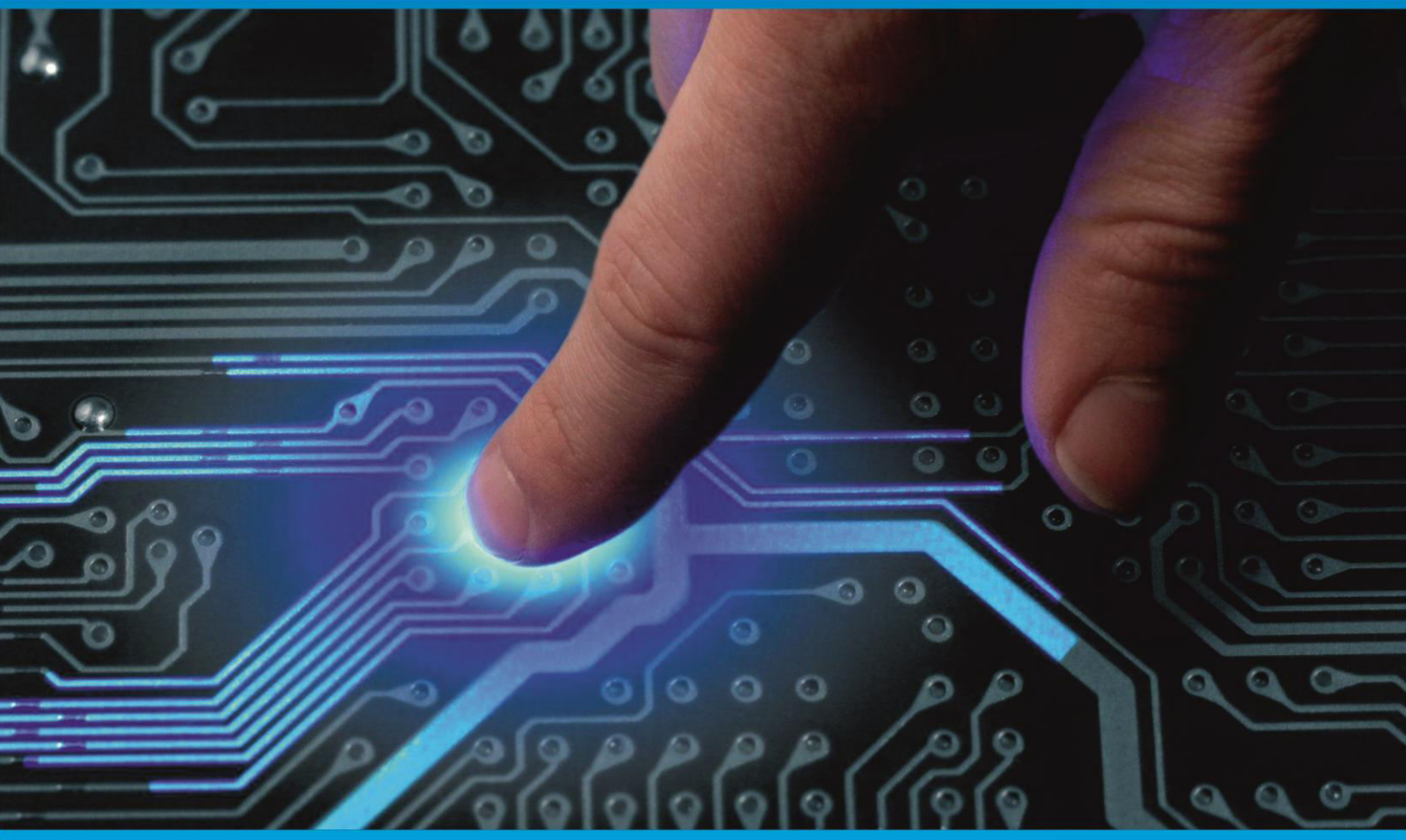

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Online Education Effect on Learning

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ABSTRACT: Online learning involves courses offered by primary institutions that are 100% virtual. Online learning, or virtual classes offered over the internet, is contrasted with traditional courses taken in a brick-and-mortar school building. It is a development in distance education that expanded in the 1990s with the spread of the commercial Internet and the World Wide Web. The learner experience is typically asynchronous but may also incorporate synchronous elements. The vast majority of institutions utilize a learning management system for the administration of online courses. As theories of distance education evolve, digital technologies to support learning and pedagogy continue to transform as well.

KEYWORDS: online education, learning, distance education, digital technologies, pedagogy, commercial internet, web

I. INTRODUCTION

Given the improvements in delivery methods, online learning environments provide a greater degree of flexibility than traditional classroom settings.[20][21] Online platforms can also offer more diverse representations of student populations as learners prepare for working in the twenty-first century.[22] The diversity comes from interacting with students outside of one's geographical location, possibly offering a variety of perspectives on course content.[22] Courses offered completely online are primarily delivered in an asynchronous learning or synchronous learning format.

Asynchronous learning environments are described as online spaces where work is supported through the use of digital platforms in such a way that participants are not required to be online at the same time.[23][24] Threaded discussions, e-mail, and telephone calls are options of asynchronous delivery.[25] This gives meaning to the anytime-anywhere appeal of online learning.[26] A benefit of asynchronous learning is the learner having more time to generate content-related responses to the instructor and peer postings; they have time to find facts to back their written statements.[23] The additional time provides an opportunity to increase the learner's ability to process information.[23] The spelling and grammar within postings of an asynchronous environment are like that found in formal academic writing.[27] On the other hand, one of the main limitations of this delivery method is the greater potential for a learner to feel removed from the learning environment. Asynchronous learning is viewed as less social in nature and can cause the learner to feel isolated.[23] Providing the student a feeling of belonging to the university or institution will assist with feelings of isolation; this can be done through ensuring links to university support systems and the library are accessible and operable.[25]

Synchronous learning environments most closely resemble face-to-face learning.[20][24] Synchronous learning takes place through digital platforms where the learners are utilizing the online media at the same time. When compared to asynchronous learning, synchronous online environments provide a greater sense of feeling supported, as the exchange of text or voice is immediate and feels more like a conversation.[20] If platforms such as web conferencing or video chat are used, learners are able to hear the tone of voice used by others which may allow for greater understanding of content.[22] As in a traditional classroom environment, online learners may feel a need to keep the conversation going, so there is a potential for focusing on the quantity of responses over the quality of content within the response.[23] However the synchronous environment, with real-time responses, can allow for students or instructors to provide clarity to what was said, or alleviate any possible misconceptions.[20]

Along these lines and applying the two dimensions of "time distance" and "number of participants", German marketing professor Andreas Kaplan has proposed a classification scheme that places online distance courses into four distinct groups:[28]

- MOOCs (massive open online courses): unlimited in the number of participants, enabling them to learn asynchronously at their own pace.
- SMOCs (synchronous massive online courses): unlimited in the number of participants, in which students participate synchronously and in real-time.

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- SPOCs (small private online courses) number of students is limited, learning takes place in an asynchronous manner.
- SSOCs (synchronous small online courses) number of students is limited, require participants to follow the lessons in real time.

Most online learning occurs through a college's or university's learning management system (LMS). A LMS is a software application for maintaining, delivering, and tracking educational resources. According to the Educause Center for Analysis and Research (ECAR) use of a LMS is nearly ubiquitous as 99% of colleges and universities report having one in place.[29] Among faculty, 87% report using a LMS and find them useful for "enhancing teaching (74%) and student learning (71%)" [29](p. 10). Similarly, 83% of students use an LMS for their learning, with the majority (56%) using them in most or all courses.

Most institutions utilize LMSs by external vendors (77%), Blackboard currently dominates the LMS environment with an adoption rate of 31.9%, followed by Moodle at 19.1%, and Canvas at 15.3%.[30] However, in the last year Canvas, by Instructure, has gained an increasing amount of the market share

Reflecting these changes the ECAR reported that 15% of institutions are in the process of updating and/or replacing their LMS; the main reasons cited were the need to "upgrade functions (71%), replace legacy systems (44%), and reduce costs (18%)" [29]

ECAR's survey of institutions found that generally, both faculty and students are satisfied with the LMS; with three-quarters satisfied with the LMS for posting content (faculty) and accessing content (students).[29] In contrast, the lowest levels of satisfaction with the LMS reported by faculty were with features that allow for "meaningful" interaction between students and their instructor, students and other students, and for study groups or collaborating on projects (p. 12). Similarly, just under half of the students surveyed reported satisfaction of the LMS for "engaging in meaningful interactions with students"

While LMSs are largely being used as a repository for course materials (e.g. syllabus, learning content, etc.) and platforms for the assessment of learning, recent developments are making them more customizable through LTI standards.[29] According to a report by the Educause Learning Initiative the Next Generation Digital Learning Environment will be more responsive to students' needs creating a more customizable experience. The functional characteristics of the next generation of digital learning environments include: "interoperability and integration; personalization; analytics, advising, and learning assessments; collaboration; and, accessibility and universal design"[31]

II. DISCUSSION

Transformative learning or Transformative pedagogy "encourages students to critically examine their assumptions, grapple with social issues, and engage in social action" (p. 219[39]). Five suggestions for preparing the online environment for transformative pedagogy are: "(a) create a safe and inviting environment; (b) encourage students to think about their experiences, beliefs, and biases; (c) use teaching strategies that promote student engagement and participation; (d) pose real-world problems that address societal inequalities; and (e) help students implement action-oriented solutions" (p. 220[39]). There are four fundamental characteristics that may assist with the success of online instruction: (1) the learner should be actively engaged throughout the course; (2) group participation can assist with meeting course objectives; (3) frequent student-student and student-teacher interaction can alleviate the feelings of isolation; and (4) the course content should relate to the real world to enhance meaning for participants.[40] However, a student's attitude towards using technology and computers is led by the teacher's ability to impact a student's values and beliefs.[41]

Participation and interaction between participants and instructors involves significant and continuous preparation.[24] Online educators are often members of a larger team consisting of instructional and graphic designers and information technology specialists; being open to becoming a member of the team will assist in a smooth transition to online teaching.[24] There is a lack of support and training provided for teachers, hence instructors require training and support first before they can combine technology, content, and pedagogy to design courses.[42] Expectations of learners to be self-motivated, able to manage their time effectively, contribute to course discussions and have a willingness to teach others is not unlike what is expected in a traditional classroom. The instructor's role is to encourage learners to evaluate and analyze information, then connect the information to course content which may assist in learner success.[24] With the potential for learners to feel disconnected from peers within the course, the instructor will need to work to create spaces and encounters which promote socialization. A few recommendations are to create a "student

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lounge" as an informal space for socialization not related to coursework.[24] Also, incorporating team projects can help alleviate feelings of isolation.[24] Video and audio components enhance connection and communication with peers, as this supports learners to expand on their responses and engage in discussions.[42] Online instructors should be cognizant of where participants are physically located; when members of the course span two or more time zones, the timing of the course can become problematic.[25] Initial preparation of an online course is often more time-consuming than preparation for the classroom. The material must be prepared and posted, in its entirety, prior to the course start.[25] In addition to preparation, faculty experienced in online instruction spend about 30% more time on courses conducted online.[25] The mentoring of novice online educators from those with experience can assist with the transition from classroom to the virtual environment.[25]

Online credentials for learning are digital credentials that are offered in place of traditional paper credentials for a skill or educational achievement. Directly linked to the accelerated development of internet communication technologies, the development of digital badges, electronic passports and massive open online courses (MOOCs) have a very direct bearing on our understanding of learning, recognition and levels as they pose a direct challenge to the status quo. It is useful to distinguish between three forms of online credentials: Test-based credentials, online badges, and online certificates.[43]

III. RESULTS

E-learning literature identifies an ecology of concepts, from a bibliometric study were identified the most used concepts associated with the use of computers in learning contexts, e.g. computer assisted instruction (CAI), computer assisted learning (CAL), computer-based education (CBE), e-learning, learning management systems (LMS), self-directed learning (SDL), and massive open online courses (MOOC). All these concepts have two aspects in common: learning and computers; except the SDL concept, which derives from psychology, and does not necessarily apply to computer usage. These concepts are yet to be studied in scientific research, and stand in contrast to MOOCs. Nowadays, e-learning can also mean massive distribution of content and global classes for all the Internet users. E-learning studies can be focused on three principal dimensions: users, technology, and services.[70]

As alluded to at the beginning of this section, the discussion of whether to use virtual or physical learning environments is unlikely to yield an answer in the current format. First, the efficacy of the learning environment may depend on the concept being taught.[71] Additionally, comparisons provide differences in learning theories as explanations for the differences between virtual and physical environments as a post-mortem explanation.[72] When virtual and physical environments were designed so that the same learning theories were employed by the students, (Physical Engagement, Cognitive Load, Embodied Encoding, Embodied Schemas, and Conceptual Salience), differences in post-test performance did not lie between physical vs. virtual, but instead in how the environment was designed to support the particular learning theory.[73]

These findings suggest that as long as virtual learning environments are well designed[74] and able to emulate the most important aspects of the physical environment that they are intended to replicate or enhance, research that has been previously applied to physical models or environments can also be applied to virtual ones.[75][76] This means that it's possible to apply a wealth of research from physical learning theory to virtual environments. These virtual learning environments – once developed – can present cost effective solutions to learning, with respect to time invested in set up, use, and iterative use.[77] Additionally, due to the relatively low cost, students are able to perform advanced analytical techniques without the cost of lab supplies.[78] Many even believe that when considering the appropriate affordances of each (virtual or physical) representation, a blend that uses both can further enhance student learning.[79]

Computing technology was not created by teachers. There has been little consultation between those who promote its use in schools and those who teach with it. Decisions to purchase technology for education are very often political decisions. Most staff using these technologies did not grow up with them.[80] Training teachers to use computer technology did improve their confidence in its use, but there was considerable dissatisfaction with training content and style of delivery.[81] The communication element, in particular, was highlighted as the least satisfactory part of the training, by which many teachers meant the use of a VLE and discussion forums to deliver online training (Leask 2002). Technical support for online learning, lack of access to hardware, poor monitoring of teacher progress and a lack of support by online tutors were just some of the issues raised by the asynchronous online delivery of training (Davies 2004).

Newer generation web 2.0 services provide customizable, inexpensive platforms for authoring and disseminating multimedia-rich e-learning courses, and do not need specialised information technology (IT) support.[82]

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Pedagogical theory may have application in encouraging and assessing online participation.[83] Assessment methods for on-line participation have reviewed.[83]

IV. CONCLUSIONS

An online school (virtual school, e-school, or cyber-school) teaches students entirely or primarily online or through the Internet. It has been defined as "education that uses one or more technologies to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between the students.[1] Online education exists all around the world and is used for all levels of education (K-12 High school/secondary school, college, or graduate school). This type of learning enables the individuals to earn transferable credits, take recognized examinations, and advance to the next level of education over the Internet. Virtual education is most commonly used in high school and college. 30-year-old students or older tend to study online programs at higher rates. This group represents 41% of the online education population, while 35.5% of students ages 24–29 and 24.5% of students ages 15–23 participate in virtual education.

Virtual education is becoming increasingly used worldwide. There are currently more than 4,700 colleges and universities that provide online courses to their students.[2] In 2015, more than 6 million students were taking at least one course online, this number grew by 3.9% from the previous year. 29.7% of all higher education students are taking at least one distance course. The total number of students studying on a campus exclusively dropped by 931,317 people between the years 2012 and 2015.[1] Experts say that because the number of students studying at the college level is growing, there will also be an increase in the number of students enrolled in distance learning.[3]

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