Online Learning in the 21st Century:

How to Properly Expand Current Systems

Steven Mills

Indiana University – Purdue University Indianapolis

Executive Summary

In response to the COVID-19 pandemic, nearly all educational institutions shifted to hybrid learning or virtual learning as the primary means of education. This drastic change forced schools worldwide to invest resources into their online learning programs in order to keep up with the demand. However, it is evident that this demand will not subside once traditional education resumes. Schools must self-evaluate their e-learning programs and invest in further developing their online infrastructure. Current e-learning infrastructure creates student frustration, whereas a correctly implemented system would allow for e-learning's numerous benefits to shine. An effectively implemented e-learning program lets students learn material autonomously, while increasing the number of educational resources available. Furthermore, research shows that, in a successful e-learning program, student performance remains equivalent to student performance in a traditional classroom. By following already established guidelines and best practices, it is possible to completely overhaul a school's online learning program. In addition, the cost-per-student in an online learning setting is comparatively lower than in a traditional learning environment. As student demographics and technology continue to change, educational institutions need to invest more resources into their e-learning programs. By correctly implementing new systems, schools can expect improved student satisfaction, equivalent student performance, and an overall savings in cost-per-student.

Introduction

In the modern era, technology evolves at an ever-increasing rate. As technology continues to grow, both educators and students utilize its benefits to further education. Additionally, a shift in student demographics has led to a rise in part-time students and fully online students. This shift in technology and demographics demands that educational institutions must keep up with the rest of society. With schools closing their doors due to the COVID-19 pandemic, educators had little time to port their classes to the virtual space. Muhammad Adnan (2020), a professor in the department of mass communication at National University of Sciences & Technology, Pakistan, foresees that virtual education will continue an extended period of time, "because nobody knows when this pandemic will disappear fully, educational institutions across the globe decided to use the already available technical resources to create online learning material" (p. 45). Students expressed many frustrations with the sudden shift to online learning. Because experts envision online learning becoming a staple for the foreseeable future, it is critical that schools properly expand their e-learning programs to accommodate the massive influx of users.

Problem and Scope

Due to rushed implementation, many online learning programs fail to provide students with an equivalent learning experience. When properly implemented and scaled, online learning provides a suitable alternative to the traditional classroom. However, due to the global pandemic, schools did not have the opportunity to appropriately implement and test their expanded online learning programs. This rushed implementation not only affected students but also the instructors as well. In his survey of faculty at Kurukshetra University, Kumar (2019) found that fifty percent of the staff "agree with lack of comfort with technology is a challenge in e-learning" (p. 19). Since the educators did not have enough time to explore possible alternatives, instructors defaulted to their current technology, hoping that the current systems would provide a suitable learning environment. Instead, schools discovered that their current systems were inadequate to handle a fully online learning environment. Instructors' lack of comfort with the learning technology also negatively affected the students. When surveying students, Emily Stark (2019), professor of psychology at Minnesota State University, reported, "students in online classes reported significantly lower levels of both intrinsic and extrinsic motivation compared to students in face-to-face courses" (p. 240). Many experts attribute students' increased frustration and lowered motivation due to a lack of interaction with their peers and instructors, citing "students also reported […] lack of interaction with the instructor […] and the absence of traditional classroom socialization […] is missing in distance learning mode" (Adnan, 2020, p. 49). It is evident that the current

online learning infrastructures do not serve as an adequate substitute for the classroom. An effective solution will highlight the strengths of e-learning while minimizing its disadvantages.

Objective

When correctly implemented, online learning provides students with numerous advantages over a traditional classroom. Students today often expect each of their classes to maintain some kind of e-learning portal for course content. Concannon et al. (2005) of the British Journal of Educational Technology concluded, "Students saw e-learning as an expected and integral part of the learning process within higher education. Major benefits noted included the ease of access to resources […] and the provision of a central area for students to access to find information" (p. 511). Often, the "central area" of a traditional classroom typically involves a cluttered binder or folder. Moving the central hub of learning to a virtual setting allows students to reduce clutter and utilize features unavailable in the traditional classroom. Furthermore, correctly implemented e-learning lets students learn at a self-dictated pace, rather than the constant pace set by the instructor. In his study, Murat Hismanoglu (2011), an associate professor of English Language Teaching at Usak University, discusses what he believes to be the greatest advantage to online learning: "Students can learn autonomously when they want and where they want. E-Learning is self-paced and the learning sessions are accessible every time" (p. 151). One of e-learning's greatest advantages, irrespective of implementation, is the constant availability of resources to the students and staff. With an online learning environment, students can go back and reference material at any time, rather than waiting for the next class or searching through their notes. Most importantly, the end objective of an online learning program is to provide students with an equivalent alternative to the traditional classroom. This paper will discuss how to appropriately compare and evaluate student success in a later section.

Solution

A single, unified online learning system is unrealistic, and educational institutions should self-evaluate their current programs to identify deficiencies. However, an effective solution will contain many common elements. Stark also comments on certain elements key to the success of any online learning program. She states, "[a]s the popularity of online courses and programs continues to rise, more attention should be paid to both the ways in which students approach and experience these courses and how student characteristics […] relate to their success" (Stark, 2019, p. 246). Stark believes that schools should design online courses in a way such that students can reap the benefits e-learning can provide. One contributing factor to a positive student experience is mimicking the socialization aspect of a traditional classroom. Peter Shea et al., members of the Department of Education at various

New York universities, hypothesized that mimicking the social aspect of a traditional classroom is related to the perceived teaching presence of an instructor. In their study, Peter et al. found that "a strong and active presence on the part of the instructor—one in which she or he actively guides the discourse—is related to the students' sense of both connectedness and learning" (Shea et al., 2019, p. 70-71). Overall, students demonstrate lower frustration and perform better when the learning environment closely replicates a traditional classroom, and a successful e-learning program requires that educators adjust their course delivery. One cannot provide a blanket solution for all educational institutions, as every scenario is different. It is best if individual schools and departments survey their students and staff to see where their deficiencies lie. The following section will discuss the best practices implemented by schools with successful programs along with the most common metrics for evaluating success.

Implementation and Methodology

To ensure a successful e-learning program, educational institutions must implement their systems in a way that maximizes the program's effectiveness. Before an instructor can design and deliver a course, all parties should be familiar with the required technologies. Verawardina et al. (2020), affiliated with multiple Pacific universities, support this claim explaining, "online learning requires participants to be fully trained with current technology. This is because online learning uses the development of sophisticated and contemporary technology" (p. 389). Both students and instructors want to utilize the best technology that is easily accessible. However, when schools upgrade their existing e-learning systems, they fail to provide a sufficient amount of training for effective implementation. Provided that a school provides sufficient resources and training, course design is also critical in successful e-learning programs. While instructors cannot apply the same design to all courses, Verawardina et al. suggest some best practices for designing courses: "[Instructors should make] learning instructions clear, especially regarding their online learning schedule, […]. The role of the teacher must also be able to [facilitate] and monitor students" (Verawardina et al., 2020, p. 389-390). The authors suggest that online courses must have equal or better structure than a traditional course. This claim supports the consensus that the "role of the instructor" is essential in creating a healthy learning environment.

Evaluating student performance and satisfaction in online learning environments is an important, often-overlooked step when implementing an online learning system. Schools must assess whether their students, regardless of class performance, are satisfied with the structure of the e-learning program. Susan Jennings and Marsha Bayless (2003), business professors at Stephen F. Austin State University, found that "though the measures of student success (test grades, non-test grades, and

final grade averages) were virtually the same, considerable adjustments in teaching style and teaching aids were necessary for the two online courses" (p. 188). Although the students performed equally, the online sections of the course required further aid to increase student satisfaction. To properly build an e-learning program, educational institutions must inquire into student satisfaction with online courses more than with traditional courses. This allows for students to give feedback and for course designers to make appropriate modifications to the curriculum. With some of the best practices in consideration, schools should also self-evaluate in order to properly create and implement a new e-learning program.

Budget

A successful e-learning program requires the allocation of sufficient resources and training. The typical cost-analysis metric used is cost-per-pupil, which evaluates a program's total cost against the scale of the program. In her analysis, J.K. Rice (2012), dean and professor at Cornell University, writes, "the study estimates that the per-pupil costs of both virtual and blended models of online learning are lower than the $10,000 average per-pupil costs of traditional brick-and-mortar schools the U.S." (p. 1). This cost reduction is due to a few factors; however, the largest contributing factor is that virtual schooling drastically reduces one of the largest expenses for a school—staff and school operations. Although Rice reports that virtual school models spend nearly double the funds on technology as traditional school models, the net savings still favors virtual school models (Rice, 2012, p. 1-2). Given the lower cost of operations, a school can invest more resources into developing an e-learning program without exceeding the cost of their traditional classrooms. With nearly all learning taking place virtually or using a hybrid style due to the current pandemic, schools can confidently invest unused funds to further develop their e-learning programs.

Conclusion

As technology continues to grow alongside society, educators must strive to develop larger, higher quality e-learning programs. In addition, current government restrictions dictate that most learning takes place virtually. It is unclear how long virtual education will remain as the primary source of education; therefore, educational institutions must invest in their future. When correctly implemented, e-learning provides a myriad of benefits not possible in the traditional classroom. Furthermore, research shows that student performance shows no significant drop off between the two learning mediums. Educators must begin by self-evaluating their current virtual learning systems. After understanding where their deficiencies and strengths lie, schools should request approval for additional resources to further develop their e-learning programs. If done properly, schools can expect an increase

in student satisfaction and a decrease in overall operating costs, while guaranteeing the future success of their institutions.

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