

The Impact of E-Learning on Academic Performance

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Abstract: This paper focused on the impact of e-learning on academic performance. The study relates to a level one undergraduate module delivered using traditional lectures and e-learning based methods. E-learning has been revealed in this study not to have a positive impact on academic achievement contrary to the expectations. The paper also examines the data for the presence of interaction effects between e-learning study hours and socio-demographic characteristics. This is undertaken to identify whether or not personal-characteristic-related learning style differences influence the extent to which students benefit from e-learning.

Keywords: E-Learning, ICT, socio-demographic

I. INTRODUCTION

Education is a key factor for sustainable development. The significance of education, especially in developing countries, is increasing because of progressing pressure to catch up with the developed world regarding, for example, global competitiveness. Every year, more of the world's people become connected to the network, its bandwidth increases and its use becomes more integrated to all that happens in the globe. Connectivity to this network has become key to opportunity, success and fulfillment for individuals. Kenya has defined a national ICT policy with a view of creating an e-enabled and knowledge-based society by the year 2015. Just like the technology has changed the world, it is now changing the learning and teaching environment. A broad range of learning approaches exists already, for example, e-learning, blended learning, and distance learning which utilize information and communication technology (ICT). The use of ICT can benefit, for example, students in rural areas by having them attend classes as distance learners and motivating them to learn like the "Group Learning Sets" (GLS) initiative offers. Regarding this, the potential of e-learning seems very assuring, but because of gaps between developed and developing countries knowledge transfer is not only difficult but also costly. E-learning denotes the use of ICT by teachers and learners. E-learning consists of conventional training, such as courses, ad-hoc training, selected learning objects, formalization through document collections and community formation which can be achieved via social software. The growth of e-learning programs is driven by the need for and potential of providing education in less expensive ways, increased access to information, effective learning and greater flexibility[1][2][3].

In E-learning system, students are able to interact anytime from wherever with different instructional material (text, sound, pictures, video and so on) through Internet. In addition, learners can communicate with teachers and classmates both individually and as a group discussion with the use of message boards, instant message exchanges and video conferencing. E-learning system is used for an open, flexible, and diverse E-learning environment. Moreover E-learning system can be analyzed as an inventive approach for delivering, learner-centered, interactive, and facilitated learning environment to anyplace, anyone, anytime by utilizing the features and resources of different digital technologies along with other types of learning materials suited for an open, distributed, and flexible learning environment.

II. ROLE OF E-LEARNING ON ACADEMIC PERFORMANCE

Attitudes concerning e-learning, echoed by scholarly and academic reviews, range from neutral to positive. On one hand, it is noted that e-learning is at least as effective as traditional instructional strategies, and that there are no major differences in academic performance between the more traditional and more technology-oriented modes of instruction. On the other hand, many reviews go further, reflecting a principally positive attitude towards the impact of e-learning. The current piece sought to demystify e-learning by concentrating on how specific e-learning factors (socio-demographic characteristics, hours spent on-line and prior computer skills) influence individual academic performance. There is a considerable body of evidence to suggest that different teaching delivery styles can have different degrees of success; as measured in terms of academic results. In relation to online teaching, some studies indicate that this medium of delivery has a positive impact on performance, for example, however, find that greater online teaching has a negative impact on performance[4][5].

Benefits include offering a variety of new possibilities to learners, in addition to having a positive effect on students' achievement in different subject matter areas. Other benefits of electronic education include increases in enrollment or time in school as education programs reach underserved regions, broader educational opportunity for students who are unable to attend traditional schools, access to resources and instructors not locally available, and increases in student-teacher communication. Students in virtual schools showed greater improvement than their conventional school counterparts in critical thinking, researching, using computers, learning independently, problem-solving, creative thinking, decision-making, and time management. Academic advantages over traditional classroom instruction were demonstrated by students in Mexico's Telesecundaria program, who were "substantially more likely than other groups to pass a final 9th grade examination" administered by the state; by students taking a chemistry by satellite course; and by students learning reading and math via interactive radio instruction.

Electronic education is not the most effective choice in all situations. Students may feel isolated, parents may have concerns about children's social development, students with language difficulties may experience a disadvantage in a text-heavy online environment, and subjects requiring physical demonstrations of skill such as music, physical education, or foreign language may not be practical in a technology-mediated setting. Distance between tutor and learner in an online instrumental music program has negative effects on performance quality, student engagement, and development and refinement of skills and knowledge. Virtual school students show less improvement than those in conventional schools in listening and speaking skills. Highly technical subjects have also proven to be difficult to teach well online. The Alberta Online Consortium evaluated student performance on end-of-year exams among virtual school students across the province, and found that virtual school student scores in mathematics, and the sciences lagged significantly behind scores of non-virtual school students.

[6][7] Given instruction of equal quality, groups of students learning online generally achieve at levels equal to their peers in classrooms. Equality between the delivery systems has been well documented over decades for adult learners. Evidence to date convincingly demonstrates that when used appropriately, electronically delivered education—'e-learning'— can improve how students learn, can improve what students learn, and can deliver high-quality learning opportunities to all children".

A primary characteristic that sets successful distance learners apart from their classroom-based counterparts is their autonomy and greater student responsibility. A second characteristic that differentiates successful distance learners from unsuccessful ones is an internal locus of control, leading them to persist in the educational endeavor.

III. ROLE OF PRIOR COMPUTER SKILLS ON PERFORMANCE IN E-LEARNING SETUP

Some learners are better prepared than others to use e-learning technologies to facilitate their educational progress; individual “readiness” seems to be a crucial factor in accounting for the success of e-learning applications in education. Digital divide for Canadian youth, remarked that access to, and experience with, computer technology determines “computer competency”, and that this competency is generally associated with urban residents of higher economic status. Differences between students who are highly gifted in the internet usage and those who have had little opportunity to develop their experience with networking tools. Adult learners’ learning styles can predict the pattern of their participation in online courses [8].

It is interesting to note however, that a key learning-style related factor may in fact be the student’s familiarity with the technology. A number of studies have shown that computing experience is a strong predictor of attitudes towards, and also use of, computers and the internet. In effect, the student’s learning style may adapt and improve as familiarity with the e-learning medium increases.

IV. ROLE OF SOCIO-DEMOGRAPHIC CHARACTERISTICS ON ACADEMIC ACHIEVEMENT

There have been numerous studies on the relationship between socio-demographic characteristics and academic performance. Some studies focused on specific socio-demographic Variables and e-learners’ academic performance, characteristics or areas such as gender and learning styles, ethnicity and learning styles, academic performance and learning styles in both Information Technology (IT) and non- Information Technology (non-IT) subject areas and in distance and contact courses, level of educational attainment, number of children in the family, full-time work experience, family income level, age, marital status, employment status, number of hour employed per week, distance traveled to study centre, learners’ previous educational level[9][10].

Studies above established divergent findings. For example, for first year programming courses, there was a relationship between student learning style and academic performance. The previous educational level, gender, age and occupation were associated with persistence and academic performance. That educational level, age, gender, employment status and number of children in the family were not significant predictors of distance learners’ academic performance. Based on the findings from above studies on the relationship between socio-demographic characteristics and academic performance, it appears the issue remains inconclusive.

Several individual characteristics that may determine the outcomes of technological interventions: motivation, computer skills, literacy skills, communication skills, and learning styles. “Quasi-open computer-mediated environments are not safe places for students unsure of their writing skills and knowledge, online learning might not be appropriate for all students”. Canadian high school students indicated that females demonstrated less interest (and less confidence) in achieving computer competency. “Gender-differentiated participation” in British Columbia schools; they noted that the percentage of girls enrolled in technology-intensive courses remains extremely low, while performance data indicate that those female students who participate in these courses do better, on average, than male students in these courses.

Female students tend to initiate conversations, while male students are more likely to enter the dialogue at later stages and respond to previous discussions. Individual metacognitive factors are also implicated in student success as the relevance of self-direction and self-regulation in university students, concluding, “The main difficulty encountered by students seemed to be their lack of autonomy or the trouble they had in learning by themselves, in managing their own learning”[11].

V. STUDENT ENGAGEMENT

Research suggests that student academic performance may be affected by both engagement effects and learning-style effects. Although in general, the relationship between engagement and performance is complex, engagement is positively correlated with student performance. Their conclusion is supported by a number of empirical studies: ‘effort’ (or engagement) levels were highly significant in determining student examination performance. Online engagement had no statistically-significant impact on examination performance. Additional studies in this area have examined the issue of what determines the amount of time that a student spends on e-learning. The student’s attitude to the perceived usefulness, and also the ease of use, of this delivery medium. It is suggested that students who spend more time on internet-based courses tend to be the ones who take more ownership of the learning process, and as a consequence receive the greatest learning benefit (good performance as measured by grades). From this it can be inferred that we might expect to find a significant, and positive, relationship between the level of e-learning engagement and academic performance[12].

The ability to effectively manage learning time is an important element in of electronic learner success. Web-based course can require two to three times the amount of time investment than in a face-to-face course. Students who have difficulty managing time are more likely to achieve less in a distance course or drop out altogether. A key construct relating to distance learners’ persistence is their self-efficacy for learning at a distance and that personal perceptions of competence (self-efficacy) are related to learners’ perceptions of their ability to manage time effectively[13][14].

Students who use their time efficiently are more likely to learn and/or perform better than students who do not have good time management skills. Self-regulated learners know how to manage their time because they are aware of deadlines and how long it will take to complete each assignment. They prioritize learning tasks, evaluating more difficult from easier tasks in terms of the time required to complete them. They are aware of the need to evaluate how their study time is spent and to reprioritize as necessary.

The other key performance-influencing issue relates to differences in student learning styles. These may result in differences in the effectiveness of e-learning delivery methods for individual sub-groups within the student body. Within the learning-styles literature the notion that different learners have different cognitive styles. In addition to be general indication, there is a considerable support in the literatures for the suggestion that there are identifiable variations in the learning styles of sub-groups within the student population.

VI. CONCLUSION

This short study highlights the impact of electronic learning on academic performance of students. Many students are not well prepared to take the challenge of studying through e-learning, because of the unexpected complexities of the application of IT as a learning tool that requires commitment as there is no strict rules on the learning times.

The perception is that the world has become smaller as a result of the immense progress made in the field of information and communication technologies. IT is accessible to all across the continents and the oceans through the satellites, cables, and other such devices that have made man more independent and have increased his mobility by making distances shorter and communication faster.

As the analysis of data gathered on a small sample of a hundred people, has shown that, there are still many issues that need to be closely considered before we can safely state that e-learning and other related learning methods have contributed to the enhancement of the performance of students at the higher levels of our education system, irrespective of individual differences due to heredity and/or environment. It can be confidently said that there is still a long way to go before we can make the whole world harvest the benefits from the progress of science and technology.

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