Multimedia Instructions and Academic Performance of Students: An Empirical Study of a Developing Country

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ABSTRACT

This article assesses the effect of multimedia instructions on the academic performance of secondary and higher secondary school students in a developing country. The total sample size was 600, and the respondents were the secondary and higher secondary school students of Bangladesh. Data was collected through self-administered questionnaires. Finally, data analysis was performed using a two stage structural equations modelling approach. As per the study results, communicative and interactive class atmosphere (CIC), motivational teaching method (MTM), memorizable study materials (MSM), organized class lecture (OLC) of multimedia instruction have directly positive relationship with academic performance of secondary and higher secondary students. The findings of the current research applies to policy makers, school administrators, researchers, as well as academicians. This research presented a conceptual model which has been examined and validate of a developing country. The outcomes suggested both theoretical and practical implications.

KEYWORDS

Academic Performance, Multimedia Instructions, Partial Least Square Structural Equation Model, Secondary and Higher Secondary School

1. INTRODUCTION

Strong desire for achieving quality in all arena of life, man has introduced new innovations in all spheres of life (Kaur, Sharma, & Singh, 2015). The inevitable innovations in technology cause some opportunities and at the same time, challenges for educational institutions which take into consideration the adaptability of the learners. These opportunities are easy access to multimedia content, proper utilization of e-learning resources, expansion of smart phones and tablets that can connect to the internet anytime, the role of social networks for educational development, and the accelerating interest of using technological tools in the classroom that aids learning among the students. Access to smart technologies helps to develop digital literacy skills from the young age (Liubiniene & Kasperavičienė, 2018). On the other hand, rapid technological advances have brought multiple challenges in the education arena. Universities, colleges, and even schools continuously adapt to these innovations which enforce updating of their technological infrastructure and facilities, upgrading the curricula

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and creating faculty and staff development programs (Glomo-Narzoles, 2013). Enjoyable learning environment is not only crucial to effective education but also makes students able to gain knowledge, skills and attitudes (Dick & Reiser, 1989) To ensure effective learning, teachers need to create an enjoyable and lively learning scenario for which multimedia teaching method is more applicable. Digital technologies like multimodal composition facilitate effective communication, teaching and learning (Kauppinen, Kili, & Coiro, 2018). Nowadays multimedia tools as teaching aids are very common around the globe (Ghee & Heng, 2008). Keeping pace with the modern globe, the Bangladesh government has taken different steps so far since 2011 to introduce a technology-based digitized education system. As part of the programme, digital education equipment, including laptops, tripods, and projectors, were distributed in local schools, colleges, and madrasahs. To make the education system more enjoyable and effective, Access to Information (a2i) Programme of the Prime Minister’s Officer in its bid to remodel education had launched this venture. As the multimedia concept is new in our country, school teachers, especially in rural areas of our country, are not interested to use this technology due to inadequate IT knowledge, skills and lack of awareness about the benefits of modern technology for both the teachers and the students. In this study, attempts are therefore made to focus on the effectiveness of multimedia teaching tools on academic performance of secondary and higher secondary school students of Bangladesh and providing some suggestions for making the multimedia instruction more effective for the students. The next section of this paper provides the related literature review following theoretical framework, research methodology, empirical analysis, discussion, and findings. This study concludes with theoretical, practical implications and further research directions.

2. LITERATURE REVIEW

2.1 Multimedia

Multimedia is multisensory and interactive and integration of various digital contents acts by conveying information or message to the audience (Agnew, Kellerman, & Meyer, 1996). Ike, (1995) explained the media as vehicles which make the presentation of information possible. Okwo (2005) further explained instructional media as devices/materials that relay/hold information to be learned; or hardware-software configurations that facilitate communication and problem-solving in the learning process. Multimedia was defined as the combination of different media elements like audio, graphics, text, video etc. which represents an integrated whole resulting more advantages for the users than any other media tools can serve individually (Ackerman, 2005). Reisman (1994) viewed multimedia as an interactive communication system which presents graphic, textual, auditory and visual networks of information. Fetterman (1997) also defined multimedia as those media resources including image, audio, graphics, video and animation which are used for instruction. Johnson (2007) defined that multimedia is the capacity of the computer to integrate sound, images, graphics, video and texts in a simple presentation. This system gives room for creativeness and ingenuity of educators to derive new approaches to teaching and learning. Ubogu (2006) supports that multimedia contents help to access in all kinds of human knowledge in an effective and efficient way, anytime and anywhere around the world by using various internet connected devices. However, Babajide and Bolaji (2003) identified some types of multimedia instruction like computer software, computer hardware, overhead projectors, opaque projectors, slides, public address systems, audiotapes, cassette recorders, stream charts, time sequence, flip etc.

2.2 Multimedia and Education

Multimedia instruction is very effective to teach students a wide range of disciplines. A lecture, integration of images, audio or video helps individual to gather and retain information effectively. Interactive CD-ROMs can be fruitful in teaching a wide variety of subjects to students specially music and languages (Oshinaike & Adekunmisi, 2012). The invention of multimedia tools has changed
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