Chapter 10

The Impact of the Flipped Classroom on Students’ Academic Achievements in Secondary Schools

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ABSTRACT

The purpose of this study is to analyze the effects of flipped learning on students’ academic achievements in the subject of science at Bilim Innovation Lyceums (BIL) in Kazakhstan. For this purpose, pre and post surveys were conducted on 168 students who were divided into two groups; the experimental group consisting of 84 students who took part in flipped learning classes for seven weeks and the control group consisting of 84 students who experienced the traditional method of classroom instruction at the same period. To achieve the objectives of the study, a final placement test score was used before and after the introduction of the flipped classroom model. The results of the study are summarized as follows. There were a significant difference between the two groups in terms of academic achievement when it measured by test scores before and after the concerned semester. On the basis of these findings, several suggestions were made for the schools to utilize innovative instructional methods including flipped learning for sustainable education in the future.

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INTRODUCTION

Since 2000, various efforts have been undertaken to provide quality education to children, youth and adults around the world (UNESCO, 2008). UNESCO announced the ‘Incheon Declaration’ at the 2015 World Education Forum, proclaiming ‘Equal, and inclusive quality education for all, and improving lifelong learning opportunities’ by 2030 (UNESCO, 2015). Education Goal in Sustainable Development Goals (SDGs) is aimed at working towards quality. At this point, education institutions play an important role in society supporting sustainable development, and economic growth and education could be a strategic sector for development cooperation between countries in the Eurasian region. In the context of globalization, international cooperation partnerships between education institutions in the Eurasian region are becoming increasingly important for better responsiveness of the education to the changing needs of the labor market in this region (Asia Education, 2019).

Recent decades have witnessed huge technological progress in the education system, whereby technology has become one of the powerful tools due to its ability to increase efficiency and improve the quality of overall outcomes (Alamri, 2019). And the role of technology in reaching sustainable goals can play an important role. Huawei (2019) analyzed the correlation between SDGs and ICT and, SDG4 got 72%, which was the highest correlation with ICT (See Figure 1). The high correlation between SDG4 and ICT skills shows that a country’s overall education level is closely related to its ICT education and training level (Huawei, 2019).

There are several cases where access to quality education was made through implementing ICT in lots of developing countries. For example, the African countries are implementing various forms of education programs and initiatives using ICTs to improve access to educational resources through open educational resources (OERs) (Islam & Knezevic, 2019). Using ICT by implementing eLearning through OERs and online courses can be an alternative way of making education accessible and for providing scale for skill-based training at a minimum cost.

The Eurasian region is making efforts to digitalize the education system and pays lots of attention to implement ICTs in education (Avetisyan et al., 2015). The educational use of ICT is a theme that the international community is paying attention to as a key mechanism for expanding educational opportunities, providing quality education, and promoting lifelong learning societies (UNESCO, 2015). But UNESCO IITE (2012) pointed out that despite significant progress in recent years regarding the gaps in ICT development among Eurasian countries, ICT access and use by their populations is relatively low.

Analyzing the successful cases of ICT implementation into K-12, FC could be an efficient way to accelerate sustainability in education in the Eurasian regions. The use of FC as an alternative to the traditional classroom has been attracting the attention of educators. The latest advancements in technological tools such as interactive videos, video conference systems make a way to spread the use of FC (Cabi, 2018). Recent researches stated that FC is the best model for using technology in education (Hamdan et al., 2013). Also, Fabrega et al. (2019) suggested FC as an active learning methodology in sustainable development curricula.
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