

Effectiveness of Game Based Learning to Enhance Student Learning

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Abstract

This research study has discussed the importance of game based learning. Game based learning is the technology based learning that helps to enhance student learning. In the present time, most countries have adopted game based learning to increase student learning capabilities. This study has conducted the secondary qualitative data collection method from previous online research paper. In this regard, from this secondary data, the researcher has chosen thematic analysis to find authentic results of this research. This study has concluded that game based learning enhances student learning capabilities. This learning approach has increase student self-confidence and social interaction.

Keywords

Game based learning, Traditional learning system, Video game.

INTRODUCTION

Student learning enhancement is the most important aspect to develop student capabilities. In the present time, technological implementation in the educational process has helped to improve the learning process. Some instructors of the educational sector have started to include the student in online platforms to enhance their learning capabilities. In this technological learning process, game based learning is one of the most effective learning systems that help to increase student interest and enhance student learning. In this game based learning process, the student gets the opportunity to play games in a learning context. However, game based learning is not an easy process, there are some difficulties. In this regard, effective cooperative technological learning can enhance student learning.

LITERATURE REVIEW

Overview of Game Based Learning

Game based learning is the active technology based learning system that helps to improve student learning. This learning system has promoted critical thinking and problem-solving skills for the student. In game based learning, the student has played games based on education. In this learning system, the student can enhance learning knowledge and skills. The core concept of game based learning is to motivate the students and fulfill the goals of the educational process [1]. In the educational system, the most significant reason for student failure is the lack of student's interest. In this regard, the education process needs to improve the learning process to increase students' interest. Game based learning is the easiest way that can increase student interest successfully. The game based learning has been planned and designed to affect the students significantly to improve learning capabilities.

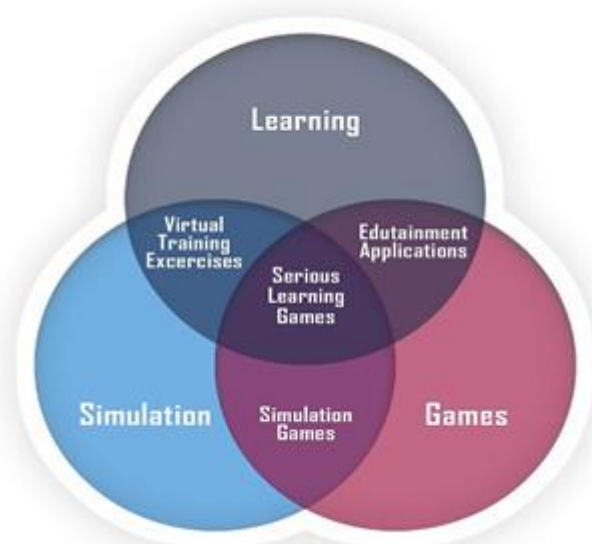


Figure 1: Concept of game based learning
(Source: [2])

Some video games are built on a learning context. In video games, the students start from a low level and according to their capabilities, they get the opportunity to reach the higher level. This concept helps the student to improve skills and capabilities [2]. The game based learning has made the student capable enough to face difficulties and overcome the issues. In game based learning, the student gets the chance to adapt to the learning difficulties and enhance learning skills.

Effect of Game Based Learning on Student

Game based learning is the most effective approach in the present educational process. The main focus of game based learning is to motivate and improve the attitude of students in the learning system. In the present time, various academic subjects have been included in the game based learning system. The significant effect of game based learning systems

is that advisors can provide students with particular subject based games to increase the interest of the students. In science based subjects, sometimes the students have faced several difficulties to understand this particular subject [3]. In this regard, game based learning has helped to understand the

subject and increase knowledge on this particular subject. In recent times, most schools have adopted game based learning to enhance student learning. In nutrition courses, game based learning has helped to increase students' effectiveness in this subject.

Table 1: Global revenue by learning type

Global revenue by learning type	2014 Revenues in USS Millions	2019 Revenues in USS Millions	Five-year CAGR 2014-2019
Simulation based learning	3823.29	8307.95	16.8%
Game-based learning	1841.41	4954.12	21.9%
Total	5664.70	13262.55	18.5%

(Source: [4])

The traditional learning system was not able to increase their interest in the learning system. In this traditional problem lack of technological implementation mainly creates issues to enhance student learning capabilities. In the present time, technological implementation has increased the efficiency of the learning process. The game based learning system is one of the effective systems that can improve students' interest successfully. The technological implementation has increased global revenue in the educational process. In the year 2014, the game based revenue was 1841.41 million but in the year 2019, this revenue increased by 4954.12 million [4]. From this data, it has cleared that game based learning has enhanced students' learning and revenue also.

METHODOLOGY

In the research study, the methodology is the most effective aspect that helps to get authentic results of the study. In the methodological part, data collection and data analysis are the two most effective techniques that increase the significance of the study. In the data collection method, the researcher has gathered important information and data about the research topic to find realistic result. In the research study, the data collection method is divided into two parts one is primary data collection and another is secondary data collection method. This research study has adopted a secondary data collection method [5]. The secondary data collection method has two types; one is quantitative data collection and qualitative data collection method. This research study has selected the *secondary qualitative data collection method* to complete this research study successfully. The research to analyze this research topic in the global context has chosen the secondary qualitative data collection method [6]. The researcher has collected the secondary qualitative data from online sources such as online previous research articles, journals, books, and authentic websites that were published five years ago.

In this research study, the researcher has collected important information about this research topic from the

previous research paper. The researcher has conducted the *thematic analysis* to understand the realistic result of this research study. The thematic analysis has helped to understand the present situation of the research topic. Moreover, the thematic analysis has helped to compare the research topic between past and present situations. This research study has chosen positivism philosophy to find the authentic result of this study [6]. In this research study, the researcher has followed the descriptive research design to describe the research topic. The descriptive research design has helped to understand the importance of this research to others. The validity and relevance of research study have assured that this research study has selected appropriate data collection and data analysis methods to complete this research study. Moreover, it depicts that the collected data and information would not be shared with others.

ANALYSIS AND DISCUSSION

Thematic Analysis

Theme 1: Role of Game Based Learning

In the present century, the game has been used as a learning tool to enhance student capabilities. In the modern teaching system, technological implementation is one of the most important aspects that help to enhance student learning. In the present time, game based learning has been included in the learning process to increase student capabilities. This game based learning system has created a more flexible environment in the learning system. The game based learning system has increased student interest successfully and it has improved the student academic results [7]. In the learning system, the teachers have faced different difficulties to teach a large group of students. In the learning system, the teacher teaches a giant group of students at one time. Every student has different capabilities and experiences. In this respect, the teacher needs to handle individual students as per their understanding. The game based learning has helped in this segment to increase the interest of particular students and improve their learning capabilities.



Figure 2: Role of game based learning
(Source: [8])

The traditional learning system has faced several issues for lack of student interest. In this regard, the learning process needs to find a new method to attract the student's attention towards the learning system. In this respect, the game based learning system is one of the most effective ways that can grab the student's attention successfully. This learning system has affected positively student teacher interaction and student attitude. In student motivational context, the game based learning plays the most significant role [8]. This learning system has motivated the students to improve their academic performance and improve results. This learning system has collected feedback from the student to improve the learning structure. Social cohesion is another most important aspect of game based learning. In this learning system, the learner can play games with others, for this reason, this game based learning has increased social cohesion and interaction.

Theme 2: Application of Game Based Learning to Enhance Student Learning

Application of game based learning has helped to improve the students learning capabilities in the marketplace. This game based learning has helped the student to increase their knowledge in a particular subject. The game based learning has sharpened the memory of the child. Visual learning is the most effective way [9]. In the video game based learning system, the students can grab the information faster than the

traditional learning process. In game based learning, the child gets the chance to enhance real world skills. In the present time, learning games are based on the real world. In this context, the child can enhance their real-world skill through game based learning.

The application of game based learning has increased the engagement of the students in the learning process. Moreover, this learning system has included different types of learning techniques to enhance the student's performance. In this game based learning the student has got the chance to practice the learning different subject game to increase their learning knowledge about this particular subject [10]. One of the most significant benefits of game learning is visualization. In the learning process, the visual teaching system has helped the student to grab the information successfully. In this regard, the video game based learning application has provided the students' different concepts about the learning.

Theme 3: Benefits of Game Based Learning to Enhance Student Learning

Technological implementation is the most effective aspect that helps to enhance students' learning. This technology based learning process has provided benefits to the kids. The most effective benefits of game based learning are to boost self-confidence. In the present time, competition in the

learning process has increased and that creates problems for the children. In this regard, the game based learning system has helped the child to enhance technological knowledge. Moreover, this learning process has helped to boost self-confidence. In the other words, another most effective benefit of game based learning is better conceptual knowledge. Globally, 11% of children have increased their conceptual knowledge through game based learning [11]. In this game based learning process, interactive gaming has helped to enhance student conceptual knowledge.

Game-based Learning by Region***	2012 Revenues In \$US Millions	2017 Revenues In \$US Millions	Five Year CAGR 2012-2017
North America	\$359.18	\$582.00	10.1%
Latin America	\$26.94	\$71.59	21.6%
Western Europe	\$96.98	\$113.49	3.2%
Eastern Europe	\$13.65	\$29.10	16.3%
Asia	\$1,029.43	\$1,475.01	7.5%
The Middle East	\$4.31	\$9.89	18.1%
Africa	\$17.96	\$28.52	9.7%
Total	\$1,548.44	\$2,309.60	8.3%

Figure 3: Global revenue of Game based learning
(Source: [12])

In the present time, game based learning is used in most of countries. North America has used the game based learning most effectively and also got revenue from this learning system. In the year 2012, revenue was 3.59 .18 million. In other word, in 2017, revenue of this country was encased in 582.00 million. From the year 2012 to 2017 this country has got 10.1% more revenue from game based learning [12]. Africa got the revenue in the year 2012 17.96 million and the year 2017 that revenue increased 9.7%. From these data, it has been clear that game based learning has enhanced student learning.

CONCLUSION

After all these discussions it can be concluded that the game based learning system has helped the student to enhance their knowledge. The game based learning has motivated the student to increase their learning performance. In this learning system, the student can enhance their knowledge in a particular subject. Moreover, this game based learning has helped to increase social cohesion and social interaction. This technology based learning system is now used in most of the countries in the world. In this regard, most of the countries have increased their revenue through this game based learning system.

REFERENCE

[1] Karagiorgas, D.N. and Niemann, S., 2017. Gamification and game-based learning. *Journal of Educational Technology Systems*, 45(4), pp.499-519.

[2] Troussas, C., Krouska, A. and Sgouropoulou, C., 2020. Collaboration and fuzzy-modeled personalization for mobile game-based learning in higher education. *Computers & Education*, 144, p.103698.

[3] Khan, A., Ahmad, F.H. and Malik, M.M., 2017. Use of digital game based learning and gamification in secondary school science: The effect on student engagement, learning and gender difference. *Education and Information Technologies*, 22(6), pp.2767-2804.

[4] Hardian, R., 2019. Pengembangan Mobile Edugame Matematika Untuk Meningkatkan Kemampuan Aritmatika Dasar Siswa Sd Kelas 4 Dan 5. *Jurnal Bahasa Rupa*, 2(2), pp.98-108.

[5] Mohajan, H.K., 2018. Qualitative research methodology in social sciences and related subjects. *Journal of Economic Development, Environment and People*, 7(1), pp.23-48.

[6] Basias, N. and Pollalis, Y., 2018. Quantitative and qualitative research in business & technology: Justifying a suitable research methodology. *Review of Integrative Business and Economics Research*, 7, pp.91-105.

[7] Chang, C.Y. and Hwang, G.J., 2019. Trends in digital game-based learning in the mobile era: a systematic review of journal publications from 2007 to 2016. *International Journal of Mobile Learning and Organisation*, 13(1), pp.68-90.

[8] Anastasiadis, T., Lampropoulos, G. and Siakas, K., 2018. Digital game-based learning and serious games in education. *International Journal of Advances in Scientific Research and Engineering (ijasre)*, 4(12), pp.139-144.

[9] Fotaris, P., Pellas, N., Kazanidis, I. and Smith, P., 2017, October. A systematic review of Augmented Reality game-based applications in primary education. In *Memorias del XI Congreso Europeo en Aprendizaje Basado en el Juego Graz* (pp. 181-191).

[10] Lin, C.J., Hwang, G.J., Fu, Q.K. and Chen, J.F., 2018. A flipped contextual game-based learning approach to enhancing EFL students' English business writing performance and reflective behaviors. *Journal of Educational Technology & Society*, 21(3), pp.117-131.

[11] Pellas, N., Fotaris, P., Kazanidis, I. and Wells, D., 2019. Augmenting the learning experience in primary and secondary school education: A systematic review of recent trends in augmented reality game-based learning. *Virtual Reality*, 23(4), pp.329-346.

[12] Tobar-Muñoz, H., Baldiris, S. and Fabregat, R., 2017. Augmented reality game-based learning: Enriching students' experience during reading comprehension activities. *Journal of Educational Computing Research*, 55(7), pp.901-936.