Effective Integration of Digital Games in Learning in Nepal during the COVID19 Pandemic

Nirmala Sharma[1]

[1] M.Sc. (ITM) Scholar, Lord Buddha Education Foundation, Kathmandu, Nepal

Abstract

Nowadays, Social Networking and Digital Gaming have become very popular globally along with our Nepalese Society. The social networking culture and involvement in digital games has widely spread, especially during the COVID-19 pandemic, in the context of Nepal. Currently, digital devices like computers, laptops, smart phones, tablets, gaming devices and internet have become a major part of many homes and families. The main motive of this research is to conduct a preliminary study of investigation to explore the integration of digital games in the educational sector of Nepal during the pandemic. This paper reflects on how the effective integration of digital games in the education system of Nepal can make learning activities more effective and interactive even during a worst situation like the current COVID-19 pandemic. The integration of digital games in education can be considered as a valuable method that utilizes the mechanisms and aesthetics of game to get students engaged, motivated and inspired towards interactive learning activities. Digital games with its simple features help the students to easily and quickly grasp the contents. The preliminary investigation of this research helped to show that the successful integration and implementation of digital games in educational sectors may result in a lot of positive changes and bring innovative ideas due to its attractive feature of interactive online environments to the modern students while learning in the online classes during the COVID-19 pandemic in Nepal.

Keywords: COVID-19, digital games, smart phones, computers, laptops

1   INTRODUCTION

The global pandemic COVID-19 has initiated new skills and knowledge transformation in the educational sectors and learning processes in Nepal, intervening the different alternative educational pedagogies for the proper solutions to settle down the pause and shutting of all academic institutions during the pandemic. Modern students these days constantly handle digital data or information and significantly get influenced into the digital era. Relative to the conventional methods of learning in education system, students nowadays are more attracted towards interactive, engaging, interesting and motivating learning experiences which is full of fun.

1.1 Digital Games or Gamification

Gamification has become increasingly popular these days due to its versatile nature. It is the practice of using game elements, techniques and mechanisms in a non-gaming situation or a framework. In order to enhance engagement in an online community it is important to motivate   the members or players to contribute in their session to improve their sustainability. So, the digital game for academics must be designed in a careful manner to enhance engagement of the user to achieve the benefits of gamification. (Sanat Kumar Bista, 2012). Digital Games in education are a type of game, which are software applications that has the characteristics of computer games that are engaged in education experiences developed with the aim of achieving specified learning goals. Some of the basic characteristics or components of a basic digital game involve the players, rules, goals, challenges, game environment, interactions and competitions. (J. Kostolny, 2017)

1.2 Alternative Pedagogical Approach Amidst COVID-19 Nepal

To mitigate the effect of COVID-19 on the educational sector, the Government of Nepal adopted different new strategies ranging from traditional technologies like radio, Television, landline phone to connect the students of outlying districts of Nepal to the modern mobile technologies and online classes through internet as an alternative source of education during the pandemic. The Ministry of Education launched the e-education portal with repository of e-books, course-wise lessons and other

essential educational teaching materials along with some private and public institutions like Online Teaching and Learning Systems (OLE) Nepal, Neema Education Foundations, etc. This involved the upgrade of service platforms to enable it to satisfy the required volume of demands of connectivity and technology throughout the country. (Saraswati Dawadi, 2020)

Lack of IT awareness among the students and teachers and lack of IT equipment, technologies and connectivity issues, band width issues are some of the challenges or barriers to integrate digital games in online education during the pandemic in the context of Nepal. Apart from the above challenges, geographical constraints, social background of the students and teachers and the resistance towards changing modality have also impacted the integration of Information and Communication Technology in education. (Dhanapati Subedi, 2020)

1.3 Integration of Digital Games in Education

Researchers, these days are increasingly attentive towards the effects and benefits of integrating digital games in learning and teaching processes. It is observed that most of the digital games satisfy the elementary requisites of learning environments and can benefit the process of teaching and learning. Research also shows that the teachers are also convinced with the fact that the effective use of digital games in teaching activities will add value to learning activities in students based on their experiences in the classrooms. (J.C. Huizenga, 2017)

The integration of digital games in education must be initialized with the strong belief and assumptions that its utilization in learning will help the student or the player to exhibit persistence, cultivate risk taking skills, draw attention towards the details, improve problem solving skills and constructs active understanding. These are the basic skills or behaviors that are being nurtured in the schools in education. The digital games can be integrated while learning in various online classes in a very short time. Integrated Learning Systems (Rani, and Kautish, 2018, 2019) which are games with factual contents are curricular that attempts to learn the subject matter in an easier and simpler way which may look advanced through other educational materials like textbooks or lectures. In order to be interesting, the digital games must be more than the usual activities of answering just some multiple-choice questions, with added fun animations. (Wan Mohn Nazmee Wan Zainon, 2013)

1.4 Digital Game-Based Learning as a Pedagogical Approach

Generally, Digital game-based pedagogical approach can be used as an educational tool to enhance the students' self-esteem and well-being, improve their soft skills, develop critical thinking, problem-solving skills and decision-making along with maintaining a healthy psychological balance. (Theofylaktos Anastasiadis, 2018)

Games added to education will contribute to new technological solutions to many long-term problems. They play a vital role to provide mental development and reinforce learning due to its dependency on the psychological characteristics. Digital games when used as an instructional tool helps to bring positive results by its features like: Motivation to learn the course lessons, unrestricted free learning environment, improve psychomotor skillset, improve engagement and attention towards the subject, etc. (J. Kostolny, 2017)

1.5 Benefits of Integrating Digital Game-Based Learning in Education

Some basic reasons for integrating digital games in education are as follows:
- To create creativity in learning.
- To overcome the issue of non-engagement and non-involvement of the learner.
- To provide opportunities for deeper ideas and reflection.
- To bring positive behavioral changes.
- For genuine practice. (J. Kostolny, 2017)

Some of the benefits obtained through digital game-based learning approach are as follows:
- Improved problem-solving skills, critical thinking and decision-making skills
- Digital literacy and Intellectual growth
- Positive competitive environment
- Enhanced communication and collaboration environment.

- Progressive learning experiences
- Student-centered approach
- Feedback driven
- Induce feeling of achievement and progression through rewards. (Theofylaktos Anastasiadis, 2018)

2 LITERATURE REVIEW

Article	Reference (APA)	Objectives/Research Questions	Issues/Results	Relevance of the Paper	Remarks
1	(Gros, 2006)	How the integration of digital games in education is found useful? What are the foundations of digital game-based learning in educational institutions?	This paper focuses on the complete review on the integration and utilization of digital games in education. An analysis of the foundations of digital game-based learning in education sectors is also done.	Digital games would support learning as a tool and guidance to the teachers in developing different game-based learning activities by collaborating with group of learners or students having different levels, skills and competencies.	The paper did not analyze the challenges faced in improving the acceptance of digital games as an educational tool in the process of teaching and learning and in increasing their integration.
2	(Sanat Kumar Bista, 2012)	How to use Gamification model in motivating the participants to actively participate in the online communities with their positive and frequent engagement in the process.	This paper proposes a badges-based gamification model to enhance the engagement of the members and as a tool for monitoring and analysis in the online community.	This paper presents with a design of a gamification model and its implementation to improve the three aspects in the online community that includes bootstrapping, monitoring and sustainability.	The paper fails to portray the effectiveness of the digital gamification on the aspects like bootstrapping and sustainability of the online community.
3	(Wan Mohn Nazmee Wan Zainon, 2013)	What are the Uses of Digital Games in Teaching and Learning?	To explore the integration of digital games in learning. To analyze the various requirement of integration of	The paper proposes that the utilization of digital games in learning helps the student or the player to exhibit persistence,	

			digital games in education along with its benefits in learning activities and its effect on the students.	cultivate risk taking skills, draw attention towards the details, improve problem solving skills and constructs active understanding.	
4	(J. Kostolny, 2017)	What are the positive effects of digital games on children and their possible utilization in the process of learning?	To propose a prototype of an educational portal that includes a module of educational games along with the utilization of modern technologies.	1.1.1 This paper focuses that the integration of digital games in education strongly motivates the pupils and makes the curriculum more attractive in an entertaining form which is easily understandable.	Only an adaptive solution is proposed in the paper with the chances of future integration of data mining techniques like neural networks to know the students and based on data collections can provide automatic adaptations of the module.
5	(Gyawali, 2020)	What is the Emergency teaching-learning pedagogy in the schools of Nepal during the COVID-19 global pandemic?	To find alternative learning pedagogy in Nepal to continue educational activities during the pandemic. Proposes three different models: Unidirectional model: using broadcasting media like radio,	This paper Proposes three different models to make a transformative pedagogical shift based on digital frameworks, infrastructures, resource availability, financial aspects, etc. It distinguishes their	The paper lacks further research regarding the challenges in technological capacity of Nepal, internet access facilities, ICT skills and experience of teacher.

			TV and telephones for teaching. e-participatory model: Involves computer-assisted and internet-based teaching/learning strategies. Mobile teaching model: promotes community-based teaching-learning practices involving teachers to form the community group.	appropriateness in different regions of Nepal (urban, rural and semi urban areas).	
6	(Zulkif Eser Sabirli, 2020)	How digital games in education effect the pupil's access to their lessons and attitudes? And How does it motivate the students towards their curriculum or lessons?	This paper investigates the effect of using digital games in education to achieve academic success, bring positive attitude and motivation in the school students.	The paper portrays that the digital games in learning was found to increase the student's access to their curriculum and lessons. Though integrating games in education was found to make difference in the motivation towards the lessons, no such difference was noticed in their attitudes towards their subjects.	The research study might have added a different perspective if the concept of the effect of digital games was not limited only to the literature part of the concept of access, attitude and motivation of the student.
7	(Saraswati Dawadi, 2020)	What are the impacts of COVID-19 on	This article presents an investigation on	This article presents the situational	This paper does not reflect on the challenges on

		the education system of Nepal?	the impact of COVID-19 on the Nepalese education structure focusing especially on the school education. A critical analysis is done on the various challenges and the opportunities presented by the pandemic to technofix the education systems in Nepal based on different reports, news and published documents with suggestions for the proper management of the impacts.	analysis of the educational state of Nepal during the COVID-19 closures of schools, colleges and universities. This article also suggests in enhancing educational service platforms, upgrading service Platforms and Mobilization of all service providers to mobile technologies by combination of all traditional technologies including radio, TV, phones, etc. to reach the students in the outlying parts of Nepal.	technological issues and assessment of the students by adopting the suggested e-learning strategies in the education system of Nepal amidst the pandemic
8	(J.C. Huizenga, 2017)	How does digital games impact on student's engagement, motivation and learning based on the perceptions of the teacher's practice of using digital games in classes?	The research study examines the perceptions of teachers about digital games and its positive effects based on their practice of using digital games in the classroom activities through interviews.	The research found that the actual use of digital games in classroom activities perceived the student's engagement and improved cognitive learning as an outcome from the teachers. But only few teachers or samples showed its impact on	The research was limited to only a smaller number of sample teachers taken in a moment. Apart from the perceptions of teachers about the students, the study might have added focus on the teacher's experiences to the adoption of new technologies and digital

				motivational features which may be due to limited samples.	gaming environment.
9	(Theofylaktos Anastasiadis, 2018)	What are the needs and requirements of the students to experience interactive and engaging learning experience and to reinforce the conventional learning procedures?	This study discusses about the modern requirements of the students for an engaging and interactive learning experiences. This also analyses on the approach of digital game-based learning and its benefits.	The study shows that the digital game-based learning is an effective educational tool and a best pedagogical approach that facilitates and enhances the learning activities with improved interaction, cooperation and communication. It also summarizes the potentials and major properties of digital game-based learning and serious games in educational activities.	The study is limited only with to the interactive and engaging learning experiences, but their motivational and psychological effects were not portrayed.
10	(Dahal, 2021)	What is the scenario of the availability of ICT resources and its usage by the students and teachers in the rural community schools in Nepal?	This study investigates the availability and utilization of ICT in learning and teaching processes in the rural community schools of Nepal.	The study shows that most of the rural community schools in Nepal had poor status of ICT facilities, poor bandwidth in internet and ineffective use of limited available IT resources. The students and teachers lacked basic awareness of ICT skills.	The study was limited to only one district of Nepal.
11	(Alok Kumar Yadav, 2020)	How does the game-based	This study investigates the	The paper presented that	The research was based on limited

		learning mobile application 'Bagh Learn' effect the students of higher education in Computer faculty of Nepal?	views of students of higher education in IT faculties on the productive usage of game-based learning app 'Bagh Learn' in Nepal.	the learning app 'Bagh Learn' proved to be effective and supportive to the IT students in learning the programming and algorithmic skills and improved their engagement, interaction and learning satisfaction.	participants size which may undermine the findings. The research could be in detail with added features like assignments, feedbacks and knowledge sharing and the testing of application with different groups of students not limiting to a single group.
12	(Dhanapati Subedi, 2020)	What are the experiences of School administrators, students, teachers and parents of Kathmandu Valley in utilizing ICT as a tool for self-learning during the pandemic?	This study investigates the experiences of using ICT as a self-learning tool with the concerned persons of a school in Kathmandu by interview techniques and analysis was made on the findings.	This paper shows that the effective utilization of ICT helped to cope the stress and anxiety and developed resilience during the pandemic for the continuation of learning activities to the students, parents and school administrators of the schools in Kathmandu.	The research has not covered on the insecurities and stress among different stakeholders, and how thoughtful use of ICTs may help with that.
13	(Sumitra Pokhrel, 2021)	What are the impacts of COVID-19 pandemic on the process of online teaching and learning?	The research examines and makes analysis of the impacts of COVID 19 in online learning process in countries throughout the world and their	The research study portrays that the COVID 19 pandemic has taught a lesson that the teachers and students must be aware of the usage of different online learning	The research has limitations and has not covered on the study of using online classes as a creative, innovative and interactive tools by integrating

			challenges.	tools.	digital games in learning.
14	(Larysa Nadolny, 2020)	What are the required design features in developing a digital game-based learning atmosphere and their challenges?	This paper examines the design features of game-based learning environments by content analysis through literature review of previous researches.	The research presents a discussion about the primary and secondary characteristics of digital game-based learning along with suggestions and future scope of research.	The study was not very clear about the description of the game environment.
15	(Anissa All, 2021)	How much is the feasibility of experimental design components for Digital Game Based Learning is effective?	The study focuses on the feasibility studies to show the effectiveness of Digital Game Based Learning in formal, health and corporate education.	The research presented the testing of feasibility of DGBL in three sectors and found to be effective as per the previous best practices presented in the earlier research studies.	The research has limited study to show the impact of motivational and efficiency dimensions of DGBL.

3 Conclusion

Preliminary investigation of the research was done by conducting literature reviews of previous conducted researches where fifteen journal papers were analyzed presenting different effects and challenges of integrating digital game-based learning in education in Nepal amidst the global COVID-19 pandemic.

Educational activities should not be limited and stuck in the conventional methods but must get reformed by using and introducing technologies and contemporary methods to satisfy the student's requirements and to reinforce the learning procedures.

Integration of digital games in learning will allow in the interactive presentation of facts within a certain context as a replacement for learning isolated facts. The Upgrading of mobile service and internet service platforms along with required technologies and devices must be enabled to meet the demands required to integrate digital games in learning activities to reach the students who stay in the outlying parts of Nepal. The state and National level service providers must be actively mobilized to provide better access to the service platforms even to the most disadvantaged parts of the population in the country.

The future research must no longer focus on the integration of digital games in learning and teaching activities but may focus more on the prioritization and development of interactive digital games for learning and teaching that will upgrade the educational system of Nepal by nurturing creative learning in the future citizens of the country that may lead the nation towards technologically advanced and open doors for innovations.

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