2

Measuring the Awareness of Game-based Teaching Learning Approach among the Teacher Trainees

Adrija Chattopadhyay

Assistant Professor, Dr. B.R. Ambedkar Institute of Education

••

ABSTRACT

Education changes with the modernization and with it changes its methods or applications. Teaching learning process in a classroom has undergone a huge change. Games which were at once regarded as the recreational activity have become the integral part of modern education. The researcher in this particular study wanted to measure the awareness of B.Ed. teacher trainees about the game based teaching learning process. Total 80 teacher trainees from 4 B.Ed. colleges were taken as samples. A self made standardized questionnaire was used to collect the data. Through percentage analysis it was provedthat most of the teachers had poor level of awareness about game based teaching learning process. Mean Standard Deviation and t test proved that there was no significance difference in the level of awareness ofgame based teaching learning activity among the male and female teacher trainees. The Urban B.Ed. college teacher trainees were more aware of game based teaching learning process than the rural area trainee teachers. The teacher trainees of Government B.Ed. colleges had higher level of awareness than the private B.Ed. college trainee teachers.

Keywords: Measuring, Awareness, Game-based Teaching Learning Approach, Teacher Trainees

INTRODUCTION

Change is inevitable in every aspect of life. Education is not an exception. In previous days guru ashram was the one and only abode for learning strict discipline, compact morals etc. and values, hard works were regarded as the main pillars of education. Lecture method was one and only medium of transacting education. With the passage of time the ashrams transformed themselves into four walled institutions. With the flying time the institutions have developed with new infrastructure and management. Changed have come in the sector of teaching learning process. Demonstration, project work, discussion have taken the place of lecture method of teaching leaning process. Mobiles and laptops which were regarded as the instruments of fun and amusement have showed their immense priority in pandemic condition. Parents who had grudge against their children using mobiles have bought high-capacity digital device to their wards to continue the education. In this process of change game has come to the forefront. In previous days no one could think about the video-games, technological games and other physical games could be helpful in educational process. In 20th century holding the hands of Piaget and Vygotsky, game based teaching learning process was introduced in the university as pedagogical

approach. Nurturing in the hands of play therapists Huizinga and Caillois game has taken its important place in the field of education. Though the oldest 'African Board Game' was 5000 years old and ancient Roman and Greek Empire were well known for their amalgamation of playtheory with education, the full fledged implication of such games has been started in 21st century classroom. "If COVID-19 can shut down an entire nation, it's time to look at our African educational system again, especially for ways to engage students in their respective places-and that is the gamification way." (Ampong, 2021). 'As the JiJi demonstrates, a well designed game sits and waits, and waits. It does not care if that wearisome math problem takes you fifteen seconds or four hours. Do it again. Take all day. The game believes in you." (Toppo, G. 2019). With the distinction in our education system, our mindset also has changed. The society starts understanding the power of game based strategy which can make one fall in real problem, helps one to solve it out creatively and critically and the same time makes him/her learn to wait. It also adds fun and amusement in learning so that the most inattentive children want to attend the class.But it is the duty of all the caregivers and stakeholders associated with education system not to indulge too much in such gamified activity and if it happens it will be a bane instead of a boon.

REVIEW OF RELATED LITERATURE

Vandereruysee, et. al. (2012). in their research study wanted to find out the effects of game based teaching learning in educational arena. The researchers in this present study chose three areas of research reviews such as WEB OF SCIENCE, Psyc INFO Peer Reviewed Journal and Eric Peer Reviewed Journal. They counted through reviews how many researches were done in these three journals with the particular keywords. Different gaming elements like rules, fun for enjoy ability, feedback and outcome, challenges were known as the gaming elements resulting in motivation, creativity, academic excitement, stimulation etc. Interactivity, content, competition, music, background, display etc. were also the elements of the game. Gender, age, playtime, socio-economic status, prior knowledge, motivation were different variables and as learning outcome meta-cognition, attitudes, engagement, enjoyment, self-perception, behavior were the main outcome of game based teaching learning activity. Homer, B. & Kinzer, C. (2015). in their research study wanted to discuss various strategies of applying game based teaching learning strategies in educational perspectives. In this study the researchers first discussed what is game based learning, how play and cognitive developments are associated with each other, how player engagement, motivation, adaptively and graceful failure are associated with game based learning.Then the researchers discussed various strategies supporting game-based learning. After that the elements of designing games like visual aestheticism, game mechanics, narrative design, incentive system, musical score, content and skill were discussed. Motivational, affective and socio-cultural foundations of game based learning were discussed here in the present study through research reviews and secondary sources. The result revealed the fruitfulness of applying game based teaching learning method in the present education system. Markland, B. & Taylor, A. (2016). in their research wanted to find out the impacts and effects of educational games in channelizing a curriculum based on games. The study was done on two case studies with a classroom activity of amalgamating MinecraftEdu, a teacher made learning game to teach the class XII teachers. Through the result of this study, it was proved that a teacher had to play various roles in classroom and there were many constraints a teacher had to face in amalgamating

the game. Inventory, Implementation and Maintenance were the three main pillarsof the games. 17 game based classroom teaching learning processes were occurred in thisprocess to find out the possible problems faced by the teachers and possible solutions of such problems. Fortaris, P. & Wells, D. (2017). in their research study wanted to find out the conceptions about gamification of teaching learning process among the pre-service trainee teachers of computer service of East London. Games had inevitable parts in the development of mastery, resilience, problem, solving capacity because it can provide mystery, fun, exploration, abstract risk and helps in overcoming the barriers. Through research reviews based on secondary sources and also through interviews by open ended questionnaire research tools were used. The result revealed that the teacher trainees were very much interested to adopt, experiment and develop new pedagogies based on game based teaching learning process. Some challenges they met were discussed and how successfully they were solved were discussed here and thus this study will be helpful both for pre-service and in-service teacher trainees who liked amalgamatingvideo-games in their teaching learning process. Fujimoto, et. al. (2017). in this research paper wanted to find out the trend of education based on video games and also, they had to find out the areas of open education. With the advancement of technology these two trends have started developing in a large scale. 'Japan Society for Educational Technology' had launched a game based teaching learning prospect in the year 2014. The research revealed the advantages as well as disadvantages of game based learning. Motivation, Environment and Activity were playing as variables in such advantages and disadvantages. Practical studies related to open education, connection to higher education, lifelong learning, current adoptions, policies and elements of open education related to MOOC were discussed here. Gutirrez, R. & Lopez, J. (2017). in their research study wanted to find out the improvement of learning environment through MinecraftWdu game. The Social Science Pedagogy trainees of primary education were taken as samples. Quasi experimental research technique through descriptive data collection by sign test and Wilcoxon Test were done. Data Triangulation was also done. Four scales were used to understand the effects of gamification o learning such as initial training through game based learning, gamification in the context of education, active learning and fun. The result revealed that the game involved higher level of engagement and activity among the learners. Educational innovation and interest levels had positive values and showed significant improvement statistically. Karagiorgas, D. & Niemann, S. (2017). in their research study discussed about the effects of gamification on teaching learning process. With the advancement of society in 21st century, gamification has been used in a large scale to educate the learners. Two types of gamifications such as serious games without any entertainment and game like features to teach and learn with the aid of entertainment were discussed here. The effects of online games based on various or multi-players were also discussed in this study. Game based online role playing and its usage in teaching learning process was discussed here. The effects and usage of role play/ simulation based gamification of teaching learning process and different non-educational games were discussed through various reviews of literature and surveys. Stiller, K. &Schworm, S. (2019). in their research study wanted to find out the effects of game based learning on the function and structure of different body-cells through a foreign language. They wanted to measure the level of motivation, performance and cognitive load. Research has proved the effectiveness of English games on non-native speakers. The researchers conducted experimental research with experimental and control group with 39 students of Rosenberg University. Different variables like

learning environment experiments, educational games experiment, subjective knowledge, English text comprehension, interest in subjects were different variables. Through simple random sampling the samples were distributed between two books. After one hour of education through game based activity through pre-test and post-test method it was proved that though there was a development in learning the cognitive load, performance leveland motivation were developed in experimental group than control group. This proved the effectiveness of game-based learning in the development of various learning and cognitiveactivities. Liu, et. al. (2020). in their research study wanted to find out the effect of game based teaching learning strategy on the development of motivation and learning efficacy of the students. As in present society needs 21st century skills along with the help of technological and social skills, the journey of the digital skills has started from primary to higher educational institutions. Some behavioural and psychological changes and also some practical changes occurred in every aspect of teaching learning method. Through this paper the researcher wanted to do an experimental study with study group and control group to find out the positive and negative effects of video game based teaching learning strategy. Different level of games and simple gaming methods were used to teach the control group. The study group consisted of 82 students received no such treatment. The result revealed that the students were very much interested in game based learning activities. The result revealed after pre-test and post-test through standardized questionnaire that the control group developed higher level of skills, motivation, knowledge than the study group. Chan, S. & Lo, N. (2022). in their research study wanted to measure the attitude, perception, motivation, interest, psychological response in the application of various gaming tools in virtual and physical classrooms in the place of Hong Kongduring and before the pandemic. There was a co-relation in between game based learning and engagement and participation in remote and face to face learning. The institutional support to develop learners' and educators' training and literacy was discussed here. To switch over to a new teaching and learning mode, future redesigning of course and restructuring of assessment should be done. In future how this technology can be used in various other subjects were discussed here in this study.

STATEMENT OF THE PROBLEM

The problem of the following study was stated below:

Measuring the Awareness of Game-based Teaching Learning Approach among the Teacher Trainees

OBJECTIVES OF THE STUDY

1. To understand the presence of awareness of Game-based teaching learning approach among the teacher trainees.
2. To find out the differences in the existence of Game-based teaching learning approach in between the male and female teacher trainees.
3. To observe the differences in the presence of Game-based teaching learning approach in between the urban and rural teacher trainees.

4. To find out the differences in the existence of Game-based teaching learning approach in between the Government college and Private College teacher trainees.

HYPOTHESIS OF THE STUDY

1. There was scanty level of awareness about Game-based teaching learning approach among the teacher trainees.
2. No significant difference would have been observed in the existence of awareness of Game-based teaching learning approach in between the male and female teacher trainees.
3. There would have been no significant difference in the presence of awareness of Game-based teaching learning approach in between the urban and rural trainee teachers.
4. No differences would have been observed in the existence of awareness of Game-based teaching learning approach in between the Government college and Private College teacher trainees.

OPERATIONAL DEFINITION OF THE TERMS

Measuring:

Here measuring means indicating a device which is used to denote the amount, degree or size of something. Here the consciousness of the teacher trainees about the game based teaching learning approach was to be measured because if the teacher trainees are not aware of this approach they cannot use this new technique in their real life classroom situation.

Awareness:

Awareness generally refers to have idea about something. It refers to a perception or knowledge about certain facts. When consciousness about a particular incident comes to the forefront, the word awareness gets its meaning. Here in this particular study the researcher wanted to measure how much the teacher trainees had consciousness about the game based teaching learning approach.

Game-based Teaching Learning Approach:

In 21st century the concept of teaching learning process has undergone a huge transformation. Computer, mobile phone, which were at once regarded as the amusement of human beings, have become the most important instrument of education. The world education system would become standstill on the time of COVID-19 if digitalization was not there. Game based learning though had its seed in the Montessori and play way method has nowadays acquired a very high value in teaching learning process. Nowadays various online digitalized or video games are developed and used in a real educational world to engage the learners in a playful and dynamic way so teachers should be aware of using this gaming approach in teaching as well as learning.

Teacher Trainees:

Here through the word trainee teachers, they would be teachers who were undergoing their B.Ed. course from various Government and private B.Ed. colleges under WBUTTEPA were mentioned.

DELIMITATIONS OF THE STUDY

1. Only the presence of awareness of Game-based teaching learning approach was discussed here.

2. The initiatives to develop the awareness of Game-based teaching learning approach were not the main concern here in this study.
3. Only 80 trainee teachers from four teacher training colleges were taken here.
4. The study was conducted in Kolkata and Howrah region.
5. Colleges affiliated to WBUTTEPA were taken here for data collection.

SIGNIFICANCE OF THE STUDY

With the development of education system our teaching learning process has undergone severe changes. Game based activity is a new trend in education system where learning without burden (NCF 2005) is not a myth rather has become a reality. But as this is a newly emerged concept, the teachers of present days should be much aware of this process. Though they have not gone through such teaching learning system, to make education enjoyable and attractive tothe future generation and after all to retain in such a competitive world a teacher should have the knowledge of game based teaching learning process. They should have ideas about not only physical games at the same time they should be aware of digital games and about its implications in real classroom situations. So the researcher wanted to measure if the trainee teachers had any awareness about game based teaching learning process. Otherwise some suggestions were given by the researcher to make them understand its proper usage and also to develop them as game savvy in educational process.

METHODOLOGY OF THE STUDY

The research was done based on Descriptive Quantitative Method. Descriptive survey was used for collecting the data. A standardized questionnaire was used to collect the data from the sample. Content Validity of the questionnaire was checked. Reliability was checked through Test-retest Method (.89).

VARIABLES:

In this present study awareness of Game based teaching learning activity was known as Dependent Variable and gender, location and types of colleges related to teacher trainees were known as Independent Variables.

POPULATION:

All the teacher trainees of West Bengal were the population in this study.

SAMPLE:

80 teacher trainees from four B.Ed. colleges of urban and rural areas of Kolkata and Howrah were known as the samples of the study. Teacher trainees from 4 B.Ed. colleges were taken by 20 from each by simple random sampling. The sample distribution was shown below-

Name of the District	Area	Number of Samples
Howrah	Bally	20
Howrah	Howrah Maidan	20
Kolkata	Saltlake	20
Kolkata	Garia	20

Area	Number male trainee teachers	Number of female trainee teachers
Bally	11	9
Howrah Maidan	12	8
Saltlake	10	10
Garia	12	8

Area	Number of urban Trainee Teachers	Number of rural Trainee Teachers	Number of Trainee Teachers of Government Colleges	Number of Trainee Teachers of Private Colleges
Bally	11	9	10	10
Howrah Maidan	9	11	13	7
Saltlake	12	8	11	9
Garia	13	7	8	12

RESEARCH DESIGN

The research was done via quantitative method as per the demand of the situation. Descriptive survey was used for collecting the data. A standardized questionnaire was used to collect the data from the sample. Content Validity of the questionnaire was checked by five experts. Reliability was checked through Test Retest Method (.89). The questionnaire consisted of 20 questions related to the awareness of game based teaching learning process in five point Likert Scale (Always, Sometimes, Undecided, Rarely, Never) was distributed to the samples and the responses were analyzed for finding result. Question Number 1,4,6,8,11,13,14,17,19 and 20 were done in a positive manner and 2,3,5,7,9,10,12,15,16,18 were done in a negative manner. In the positive statement the marking scheme was 5,4,3,2,1 but in the negative statement the numbering system was just the opposite.

ANALYSIS AND INTERPRETATION

HYPOTHESIS: 1
There was scanty level of awareness about Game-based teaching learning approach among the teacher trainees.

Awareness Level	Percentage
High	27.89%
Medium	24.86%
Low	47.25%

The above result showed that most of the teacher trainees (47.25%) had basically low level of awareness about the usage of game based teaching learning process. Near about 45 teacher trainees were not so much aware of the teaching learning process through game based activity. The rest 27.89% and 24.86% had high and medium level of awareness about game based teaching learning activities.

HYPOTHESIS: 2

No significant difference would have been observed in the existence of awareness of Game-based teaching learning Approach in between the male and female teacher trainees.

Male		Female		
Mean	**SD**	**Mean**	**SD**	**t value**
35.86	20.25	32.19	22.85	.7601

The mean gained score of male teacher trainees was higher than the mean gained score of female teacher trainees. The t value .7601 was lower than the table t value 1.98 at 78 degrees of freedom at 0.05 level of significance. Hence the hypothesis was accepted. So it was proved that there was no significant difference in the level of awareness of using game based teaching learning activities in between the male and female teacher trainees.

HYPOTHESIS: 3

There would have been no significant difference in the presence of awareness of Game-based teaching learning Approach in between the urban and rural trainee teachers.

Urban		Rural		
Mean	**SD**	**Mean**	**SD**	**t value**
2.0584	33.45	25	23.27	17.20

From the above score it was proved that the urban teacher trainees gained mean score was higher than the gained mean score of the rural trainee teachers. The t value 2.0584 was higher than the table t value 1.98 at 78 degrees of freedom at 0.05 level of significance. Hence the hypothesis was rejected and it was proved that there was difference in the level of awareness of game based teaching learning activity in between the urban and rural teacher trainees.

HYPOTHESIS: 4
No differences would have been observed in the existence of awareness of Game-based teaching learning approach in between the Government college and Private College teacher trainees.

Government College		Private College		
Mean	**SD**	**Mean**	**SD**	**t value**
31.25	19.25	22.35	14.25	2.3299

From the above score it was proved that the mean gained score of the teacher trainees of the government B.Ed. College was higher than the mean gained score of the teacher trainees of the private B.Ed. College. The table t value 2.3299 was higher than the table t value 1.98 at 78 degrees of freedom at 0.05 level of significance. Hence the hypothesis was rejected. So it was proved that there was a significant difference in the level of awareness of game based teaching learning activity in between the teacher trainees of government and private B.Ed. colleges.

FINDINGS
From the above study the findings were written below-

1. Most of the teacher trainees 47.25% had lower level of awareness about game based teaching learning activities.
2. Only 27.89% and 24.86% teacher trainees had medium or higher level of awareness about game based teaching learning process.
3. There was no significant difference in the level of awareness about game based teaching learning process in between the male and female teacher trainees.
4. A significant difference was observed in the level of awareness of game based teaching learning process in between the urban and rural teacher trainees. Urban teacher trainees possessed higher level of awareness about game based teaching learning activity than the rural teacher trainees.
5. Government B.Ed. college teacher trainees possessed higher level of awareness about game based teaching learning activities more than the teacher trainees of private B.Ed. colleges.
6. Rural female teacher trainees had lesser level of awareness than the urban female teacher trainees.
7. The lower level of awareness in the case of rural female teacher trainees can happen as there are restrictions in rural areas in the case of female teacher trainees. They may not access college more regularly due to the family condition, monetary problems and distance of colleges.
8. The rural female teacher trainees had poor attendance in the workshops, seminars organized by any government or private organization.

9. The rural people were not so much accustomed with using the technology oriented teaching learning process. So sometimes playing games in class using technology possess problem.

10. The traditional methods of teaching learning process, absence of faculty development program based on game based activity were the main hindrance in the case of lower level of awareness among the trainee teachers.

11. Poor attendance in private B.Ed. colleges, disinterest of teacher educators of private B.Ed. colleges due to the poor level of salary, inappropriate infrastructure of private B.Ed. colleges were the main issues for such lower level of awareness in game based teaching learning activity.

CONCLUSION

With the innovations in various fields of our existence, education system also has gone through and is still now going through various changes. With the progress in technological advances, education system has observed multiple progresses and changes. Technology has taken its place in the present education system. With technology, game based learning activity also gains its popularity. 'Play' or 'Game' is not a part of educational curriculum. It has got its part in extra-curricular activity. But with the passage of time, it has taken its place in the curriculum. 'Game' has an immense impact on the minds of students. If this strategy can be usedin teaching learning in class it can develop motivation and interest within the students. So the teacher trainees and the teacher educators should be aware of using the process in present teaching learning situation. As much the teacher educators will be aware of the process, so much the development of teacher trainees will be. As the present teaching learning scenario haschanged a lot and has become student centric in its approach, the traditional lecture method has lost its value and innovative teaching learning strategies have taken its place. Game based teaching learning strategy is one of the innovative process that can help a child to think creatively, understand collaboratively and critically, discover ardently with fun, motivation,interest and enthusiasm. So the need of the 21st century is to make the teacher educators as wellas teacher trainees to aware of the process to teach effectively so that education will not becomea burden for the 21st century learners.

SUGGESTIONS AND RECOMMENDATIONS

1. Workshops, seminars, symposiums should be organized by government to aware the teacher trainees as well as teacher educators about game based teaching learning activity.

2. Government and private colleges and universities should organize faculty development program about game based teaching learning activities.

3. In curriculum game based teaching learning activities and its importance should beincluded in B.Ed. and M.Ed. courses.

4. Some issues related to rural female teacher trainees like family and social restrictions should be marked and should tried to be demolished.

5. The parents of the students should be made understood about the importance of game based teaching learning process as they may pose some issues in this innovative strategy.

6. Technological issues in rural areas should tried to be minimized.
7. You tube, googe, EdApp, Gametize, Hoopla, Proprofs should be used in making the teacher trainees understand the importance of teaching learning activities.
8. Collaborative method of game based teaching learning activities among the teachertrainees should be encouraged.
9. There should be healthy competition among the teacher trainees in designing and developing various game based teaching learning activities.
10. Demo or practice session should be organized in near about schools for the teacher trainees by using game based teaching learning activities.
11. There should be encouragement from the end of teacher educators for using games while teaching in the class.
12. Trial and Error method of experimentation, creative thinking and design thinking should be encouraged.

REFERENCES

- Lai, et. al. (2012). *A Research on Applying Game-Based Learning to Enhance the Participation of Student.* Lecture Notes in Electrical engineering Book Series (LNEE, volume 181).

- Vandereruysee, et. al. (2012). *Game- Based Learning: A Review on the Effectiveness of Educational Games.* pp. 628-647.

- Homer, B. & Kinzer, C. (2015). *Foundations of Game Based Learning.* Educational Psychologist. Routledge, Taylor and Francis Group. ISSN 0046-1520. pp. 258-283.

- Markland, B. & Taylor, A. (2016). *Educational Games in Practice: The Challenges Involved in Conducting a Game-based Curriculum*. The Electronic Journal of e learning. Vol. 14. Issue. 2. pp. 122-135. ISSN: 1479-439X.

- Fortaris, P. & Wells, D. (2017). *Game-Based Learning in Schools: Trainee Teacher Perceptions in Implementing Gamified Approaches*. 11th European Conference on Game Based Learning.

- Fujimoto, et. al. (2017). *The Research Trends in Game-Based Learning and Open Education.* Educ. Technol. Res. 39(1). pp. 15-23.

- Gutirrez, R. & Lopez, J. (2017). *Game based Learning and Gamification in InitialTeacher Training in the Social Sciences: an Experiment with MinecraftEdu*. InternationalJournal of Educational Technology in Higher education.

- Karagiorgas, D. & Niemann, S. (2017). Journal of Educational Technology Systems. 45 (4):499-519.

- Pratama, L. &Setyaningrum, W. (2018). *Game-Based Learning: The Effects on Student Cognitive and Affective Aspects.* Journal of Physics: Conference Series, Vol. 1097.

- Stiller, K. &Schworm, S. (2019). *Game-Based Learning of the Structure and Functioning of Bodycells in a Foreign Language: Effects on Motivation, Cognitive Load and Performance.* Frontiers Journal.

-
- Liu, et. Al. (2020). *Using the Concept of Game-Based Learning in Education.* International Journal of Emerging Technologies in Learning.15 (14):53. Vol. 15. No. 14. pp. 53-64.
- Ahmed, et. al. (2022).*Investigating the Effect of Using Game-Based Learning on EFL Learners' Motivation and anxiety.* Education Research International.
- Chan, S. & Lo, N. (2022). *Teachers' and Students' Perception of Gamification in Online Tertiary Education Classrooms During the Pandemic.* SN. Computer Science 3, 215.
- https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching- tips/educational-technolgies/all/gamification-and-game-based-learning
- https://www.prodigygame.com/in-en/blog/game-based-learning/
- https://tophat.com/glossary/g/game-based-learning/