

# Attitude of Prospective Teachers towards Digital Game-Based Learning (DGBL)

Pratima Singh<sup>1\*</sup> and Sapna Suman<sup>2</sup>

<sup>1</sup>Assistant Professor, Islamia Teacher Training (B.Ed.) College, Patna, Patliputra University, Patna, Bihar, India

<sup>2</sup>Assistant Professor, St. Xavier's College of Education (Autonomous) Patna, Aryabhata Knowledge University, Patna, Bihar, India

\*Corresponding author: pratimasingh618@gmail.com

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## ABSTRACT

Education at the global level has seen revolutionary changes in recent times. This is mainly due to the digital revolution that took place around the world. This digital revolution has spread its tentacles in the field of education as well. The latest form of digital revolution in education is "Digital Game-Based Learning". The main focus of the present paper is to study the attitude of prospective teachers towards the use of Digital Game-Based Learning (DGBL). The study used descriptive survey method to collect data from 202 prospective teachers from teacher education institutes of Patna, State of Bihar, India. A self constructed DGBL attitude scale was used as the tool of the study. The results of the study showed a consistent pattern in the attitude of the prospective teachers toward DGBL exhibiting a favorable attitude. Also, no significant difference was found in the attitude of the prospective teachers toward DGBL on the basis of gender and academic discipline. However significant difference was found in the attitude of the prospective teachers toward DGBL with respect to their residential area.

**Keywords:** Digital Game-Based Learning, Attitude, Teacher Education, Prospective Teachers, Academic Discipline

In the 21<sup>st</sup> century, research is being carried out in various sub-sectors of education, in which "Digital Game-Based Learning" (DGBL) method is an innovative emerging and propagating field. The Digital Game-Based Learning (DGBL) method is a learning strategy or approach, in which the tools of digital games or computer games such as role based games, real games, strategy games, shooting games, adventure games, puzzle games etc. are often seen as a learning outcome and which is a developing trend in e-learning (Prensky, 2001).

Digital games are a new innovative interactive technique in the field of multimedia learning environment, which makes learning effective and interesting for young learners. When digital games are used in the context of education, they are referred to as educational games.

Digital game-based learning combines academic

content with computer and video games in creating creative theories in the field of education and use it in all kinds of subjects and skills. In the context of digital game-based learning, it can be argued that it provides learners with opportunities to learn in an interactively intuitive environment and prepares them for participation in the global technological society of the 21<sup>st</sup> century (Coffey, 2009). This type of learning approach aims to adopt innovative methods to ICT-based instructional design as well as provide learners with the potential to acquire skills and competencies.

Hence, it is important to study the perception

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of teachers towards this innovative method of learning as it is the teachers who play a vital role in designing the classroom learning environment and also motivate the learners in adopting any new and improvised methodology.

### **Review of Literature**

Rastogi (2019) explored the benefits of digitization of education and its adverse impact on the students and society of over-reliance on digital methods of education based on the adoption of ICT tools. The study found that digitization has extended to all walks of life, from traditional chalk and talk based learning to virtual learning environments. Teachers are providing online tutorials through many online learning applications.

Li (2017) conducted this short study on the attitude of 76 female teachers towards the use of digital game-based learning in teaching English subject in primary schools in China. Based on the analysis it was concluded that majority of teachers' attitude towards digital Game-Based Learning was meaningful.

Rudat and Saunders (2017) found that the perception of first-year students of commerce faculty of Cape Town towards digital game-based learning was positive

### **Operational Definitions**

**Digital Game-Based Learning:** Digital Game-Based Learning (DGBL) is an instructional application used to create an engaging and comprehensive learning experience based on the features of video and computer games.

**Attitude:** The general meaning of attitude is the presence of positive or negative attitude towards a psychological subject. Attitude in this study refers to the special attitude of future teachers in the context of digital game based learning.

**Teacher Education Program:** The teacher-education program is designed for prospective teachers or candidates who wish to acquire in-depth knowledge and skills in the field of pedagogy so as to prepare skilled teachers for different levels of education in the future.

**Prospective teachers:** Students pursuing Bachelor of Education course from teacher education institutes who will become future teachers in schools.

### **Significance of the study**

There are several aspects to the significance of this study. One of the major objectives of the Teacher Education Program at the present time is to prepare prospective teachers who can develop new technologies and media as tools that can be used in the educational context. The study seeks to expand the scope of research work on the subjects by examining the attitude of prospective teachers, their gaming experience, self-efficacy and perceived challenges and barriers in the use of digital game-based learning (DGBL) in the classroom, simplifying and engaging lessons and adopting digital game-based learning (DGBL) as an interesting learning method.

### **Research Objectives**

1. To study the level of attitude of prospective teachers towards the use of Digital Game-Based Learning (DGBL).
2. To find the significant difference in the attitude of prospective teachers towards the use of Digital Game-Based Learning (DGBL) on the basis of gender.
3. To find the significant difference in the attitude of prospective teachers towards the use of Digital Game-Based Learning (DGBL) with respect to residential area.
4. To find the significance difference in attitude of prospective teachers towards the use of Digital Game-Based Learning (DGBL) with respect to academic discipline.

### **Null Hypotheses**

1. There is no significant difference in the attitude of female and male prospective teachers towards the use of Digital Game-Based Learning (DGBL).
2. There is no significant difference in the attitude of prospective teachers of rural and urban areas towards the use of Digital Game-Based Learning (DGBL).
3. There is no significant difference in the attitude of prospective teachers belonging to arts, science and commerce disciplines towards the use of Digital Game-Based Learning (DGBL).

**Research Method:** In the present research study, the investigator has used descriptive survey method.

**Population:** Population of the study consists of prospective teachers pursuing bachelor of education course in teacher education institutes of Patna, Bihar.

**Sample:** The investigator has selected 202 prospective teachers studying in eight teacher education institutes of Patna as the sample of the study.

**Research Tools**

**Personal Data Sheet :** For collecting the personal information from the prospective teachers, personal information data sheet was used. It consisted of items such as : Gender, Institute, Educational Qualification, Academic Discipline, Locality of the institute.

**DGBL Attitude Scale :** For studying the attitude of the prospective teachers towards Digital Game-Based Learning (DGBL), a self-constructed tool “DGBL Attitude Scale” was used. This scale consists of 26 statements out of which 16 statements were positive and 10 statements were negative, the answer to which was to be given by selecting one of the five categories (Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree). The reliability of this scale was found to be 0.85 by Cronbach’s Coefficient Alpha method.

**Statistical method used :** For analysing the data statistical techniques like Mean, Standard deviation, t-test were used.

**RESULTS AND DISCUSSION**

**Table 1:** Level of attitude of prospective teachers towards the use of Digital Game-Based Learning

Variable	High	Moderate	Low	Total
Attitude	27 (13.37%)	156 (77.23%)	19 (9.4%)	202

It is clear from Table 1 that 13.37% of prospective teachers have high, 77.23% have moderate and 9.4% have low attitude towards the use of Digital Game-Based Learning (DGBL).

**Null Hypothesis 1:** There is no significant difference in the attitude of female and male prospective teachers towards the use of Digital Game-Based Learning (DGBL).

**Table 2:** t-ratio of prospective teachers’ attitude towards the use of DGBL on the basis of gender

Variable	Type	N	Mean	SD	t-ratio	Remarks
Gender	Female	122	91.14	10.88	-0.63	Not Significant
	Male	80	92.27	13.60		

(The table value of the t-ratio at the 0.05 significance level at df = 200 is 1.97).

It is clear from Table 2 that the value of t-ratio of attitudes towards the use of Digital Game-Based Learning (DGBL) in female and male prospective teachers is 0.63, which is less than the table value (1.97), so the null hypothesis is accepted. Hence it can be said that there is no significant difference in attitude towards the use of digital game-based learning on the basis of gender.

**Null Hypothesis 2:** There is no significant difference in the attitude of prospective teachers of rural and urban areas towards the use of Digital Game-Based Learning (DGBL).

**Table 3:** t-ratio of prospective teachers’ attitude towards the use of DGBL on the basis of Residential Area

Variable	Type	N	Mean	S.D	t-ratio	Remark
Residential Area	Rural	67	90.50	11.9	-2.19	Significant
	Urban	135	94.29	10.92		

(The table value of the t-ratio at the 0.05 significance level at df=200 is 1.97).

Table 3 shows that the value of the t-ratio of attitudes towards the use of Digital Game-Based Learning (DGBL) among prospective teachers in rural and urban areas is 2.19, which is more than the table value (1.97). Hence the null hypothesis is rejected and it can be said that there is a significant difference in the attitude of the prospective teachers towards the use of digital game-based learning on the basis of residential area.

**Null Hypothesis 3:** There is no significant difference in the attitude of prospective teachers of various faculties, such as: arts, science and commerce towards the use of Digital Game-Based Learning (DGBL).

It is clear from table 4 that the t-ratio of attitudes of prospective teachers of the stream of Arts and Science towards the use of Digital Game-Based Learning (DGBL) is 0.34, the t-ratio of attitudes of prospective teachers of the stream of Arts and

**Table 4:** t-ratio of attitude of prospective teachers towards DGBL on the basis of Academic Discipline

Variable	Type	N	Mean	SD	T-ratio	Remark
Academic Discipline	Arts	85	92.41	11.30	0.34	Not Significant
	Science	86	91.79	12.37		
	Arts	85	92.41	11.30	1.39	Not Significant
	Commerce	31	88.77	12.88		
	Science	86	91.79	12.37	1.13	Not Significant
	Commerce	31	88.77	12.88		

(The table value of the t-ratio at the 0.05 significance level at df=200 is 1.97).

Commerce is 1.39 and the t-ratio of the attitudes of the prospective teachers of the stream of Science and Commerce is 1.13. Therefore, it can be said that there is no significant difference in attitude towards the use of digital game-based learning between prospective teachers on the basis of academic discipline.

### CONCLUSION

A new generation of learner is entering the existing educational institutions better known as Net generation as they have evolved using a wide range of digital technologies (roodt & saunders, 2017). The result of the study concludes that majority of the prospective teachers have a positive attitude towards the use of Digital Game Based Learning (DGBL) and that there is no significant difference in their attitude towards DGBL with respect to their gender and academic discipline. The difference in the attitude of prospective teachers towards the use of Digital Game Based Learning (DGBL) was observed with respect to their residential area. The prospective teachers belonging to urban area were found to possess a better attitude towards DGBL in comparison to the teachers belonging to rural area.

### Education Implication

- ❑ Digital Game-Based learning methodology should be integrated in school curriculum especially in rural areas where the majority of the population of India lives and where innovative approaches to education are still lacking.
- ❑ Use of Digital Game-Based learning process will enhance the effectiveness of teaching learning process at all levels.
- ❑ Teachers can make the process of evaluation

effective by using various educational application based on DGBL.

- ❑ Teacher education programs should emphasis on Digital Game-Based learning process while training the teachers.
- ❑ With the help of Digital Game-Based Learning, research should be promoted in higher institutions, so that new innovations in the field of education can be discovered.

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