



FOSTERING LEARNING BEYOND THE BUBBLE THROUGH APPLICATION-BASED ASSESSMENT

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RESEARCH ARTICLE



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Abstract

The 21st century envisions technology as a game changer that is quintessential in the educational process like, teaching, learning and assessment. The purpose of the study was to explore the experiences of the students on the application based formative assessment (Quizizz) in their learning process and to find out whether there is any significant mean difference in experiences with respect to gender. A cross-sectional survey study was conducted among 64 students of class 9th under West Bengal Board of Secondary Education (WBBSE). The students were exposed to a blended learning environment, i.e., the traditional classroom learning with online application-based formative assessment which was developed by the researcher and validated by the subject experts. After the blended teaching-learning phase for five days, an experience survey was conducted among the students to explore the learning experiences they gained through application-based assessment. The responses obtained were analyzed using descriptive statistics & t-test. From the study it was found that most of the students (92.18%) preferred to use application-based assessment in their learning process. The study identified various reasons for choosing application-based assessment by the students like, exciting, fun & challenging, attractive, flexible, quick feedback and interesting. The study also transpired various reasons for not preferring application-based assessment by the students like, dependency on internet and difficult to access. From this quasi-experimental study, it was reflected that students' level of learning experiences on application-based assessment was high (M= 4.16). The study also indicated that there was no significant mean difference in the experiences gained through application-based assessment with respect to gender thereby indorsing that application based formative assessment can leverage learning outcome coupled with joyful learning experience. It also hinted that a blend of offline and online learning elements in curricular components are potential to enhance learning experiences reducing cognitive load.

Keywords: Online assessment, Learning experience, Secondary students, Blended learning

Introduction

Nowadays, the development of information and communication technology provides a great impact on every level of education system. The move from offline education to online education has paved many studies to focus on student's satisfaction in this new learning environment. Most of the educational institutions in India still use conventional methods in teaching learning with traditional assessment method. The integration of web-based learning has benefited teachers and students by making teaching and learning more fruitful (Munuyandi et al. 2021). In the education assessment is one of the most important curricular elements that has a greater impact on successful teaching learning process (Pitoyo et al. 2019). The integration of ICT in assessment not only increases motivation and autonomy of the students but also allow students to self-access based on the feedback provided after immediate assessment (Chaiyo & Nokham 2017). Most of the time test anxiety makes students afraid of doing the test because they probably think that they will fail (Pitoyo et al. 2019). Test anxiety is a major problem for many students (Ergene, 2003). There are many ways to overcome the problems, to reduce the anxiety by using gamification in assessment in education world. Gamification in education is a process of adding game elements to education to increase motivation among students (Saleh & Sulaiman, 2019). Gamification is not like pure game it only uses the elements of games including badges, achievements, avatars, rewards, virtual goods and levels (Werbach et al. 2014). There are several types of assessment in educational institutions like formative assessment, summative assessment, group assignments etc. Formative assessment plays an important role in the continuous development of students' competencies and skills. This assessment can be obtained in many ways like offline test and application based online test (synchronous/ asynchronous).

One of the online platforms for assessment is Quizizz. Quizizz is a game-based application in education to conduct formative assessment for students. Students can use Quizizz through internet and it allows students to compete with each other and motivates them to learn because they can see their immediate ranking on the scoreboard (Handoko et al. 2020).

Several studies reflected that Quizizz application in the classroom promotes learning and increases student engagement, enjoyment, concentration, motivation and make them confident (Chaiyo & Nokham, 2017; Affin, 2021)). Many studies also found that students' perception and attitude towards game-based learning platform such as Kahoot and Quizizz are positive (Chaiyo & Nokham, 2017; Bicen & Kocakoyun, 2018; Dhamayanti, 2021). Based on the different related studies it was found that although there are some previous studies conducted on different aspects (perception, effectiveness, attitude, motivation) of application based assessment but there is no study in the context of West Bengal. Therefore, this research wants to explore the experiences of the students on application-based formative assessment in their learning process.

Delimitations of the Conducted Study

- **Assessment:** In this study only application based formative assessment was considered.
- **Application:** In this study Quizizz application (Instructor- Led- Live Quiz Session) was used for formative assessment of the students.
- **Secondary students:** In this study only 9th class students under WBBSE were considered.
- **Area:** Restricted to one school only.
- **Tool:** An experienced-based survey questionnaire was used.
- **Variable:** Application -based assessment and Gender (independent variables) and Experience (dependent variable) have been considered.

Objectives: The objectives of the study were:

1. To find out the percentage of students preferred to use application-based assessment in their learning process.
2. To identify the reasons for choosing application-based assessment in learning process.
3. To identify the reasons for not preferring application-based assessment in learning process.
4. To explore the level of overall experiences of the students on application-based formative assessment in their learning process.
5. To find out whether there is any significant mean difference in experiences of the students on application-based formative assessment with respect to gender.

Hypothesis: To test the objective 5, the following research hypothesis was framed-

- **H₀₁:** There is no significant mean difference in experiences of the students on application-based formative assessment with respect to gender (male & female)

Methodology

- **Study type:** Quasi-experimental method
- **Population:** All the students of class 9 under West Bengal Board of Secondary Education (WBBSE).
- **Sample:** 64 students of class 9 of a particular school under WBBSE were selected through purposive sampling.
- **Variables:**
 - **Dependent Variable:** Experiences of students.
 - **Independent Variable:** Application-based assessment (Quizizz) & Gender (Male and Female).

- **Tool:**

A self constructed tool was developed for collecting information. Before constructing the tool, a thorough review of related contents and resources were carried out to select possible items which would reflect the responses desired to attain the objectives of the study. The tool had three sections-

- ✓ **Part-A** sought for general information,
- ✓ **Part- B** asked for preference on application-based assessment in learning process
- ✓ **Part-C** covered 16 items related to different aspects of application-based assessment. Each item had 5 responses (SA: Strongly Agree, A: Agree, N: Neutral, D: Disagree, SD: Strongly Disagree)

Content validation of the tool was done through expert domain opinions. To ensure this, four domain experts were requested to review the tool and assess each item based on 4 criteria of validity, viz., relevancy, clarity, simplicity and necessity.

- **Statistical Technique Used for Data Analysis:**

Mean, Standard Deviation (SD) and t- test have been applied to analyze the data. MS Excel & Statistical Package of Social Science (SPSS) version 20 were used for data analysis.

Study Design: This quasi-experimental study was carried out according to the schematic representation depicted below in Fig-1.

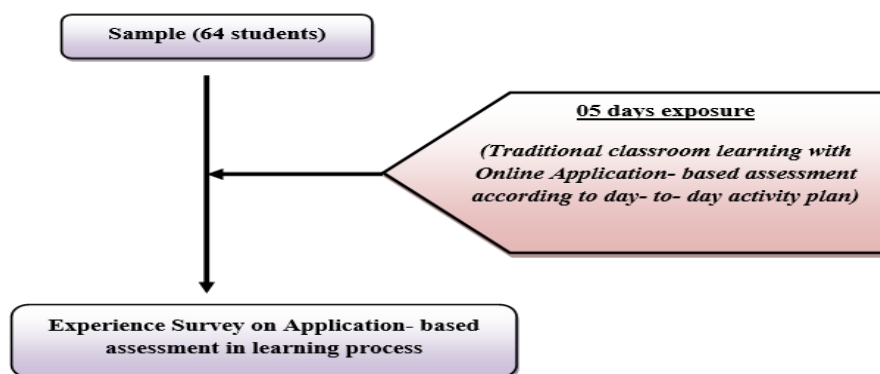


Fig-1: Study design

Activity Plan

In accordance with the blended plan described below in the Table-1, the activities of the study progressed in two phases as represented in the study design. The 64 students of class 9 were exposed to a blended learning environment, i.e., the traditional classroom learning with online application- based formative assessment which was developed by the researcher and validated by the subject experts. After the blended teaching-learning phase for five days, an experience survey was conducted among these 64 students with the experience survey tool to delineate and elucidate the learning experiences they gained through application-based assessment. The activity plan with items used for application- based assessment were developed by the researchers and validated by four subject experts.

Table-1: Activity Plan

Class: IX

Subject: Life Science

Unit: Levels of Organization of Life

Sub-Unit: Cell

DAY	TOPIC	Teaching- Learning Process		APPLICATION BASED ASSESSMENT			
		Mode	Time (Min.)	Type of Items	Mode	No. of Items	Time (Min.)
1	Cell wall	F2F	40	MCQ	Synchronous	10	5
	Cell Membrane						
2	Cytoplasm	F2F	40	MCQ	Synchronous	10	5
	Nucleus						
3	Mitochondria	F2F	40	MCQ	Synchronous	10	5
	Plastids						
4	Endoplasmic Reticulum	F2F	40	MCQ	Synchronous	10	5
	Golgi Bodies						
5	Lysosomes	F2F	40	MCQ	Synchronous	10	5
	Ribosomes						
Total						50	25

Data Analysis & Interpretation

Objective-wise analysis of the responses collected vis a vis their interpretations are presented in sequence-

Objective 1: To find out the percentage of students preferred to use application-based assessment in their learning process:

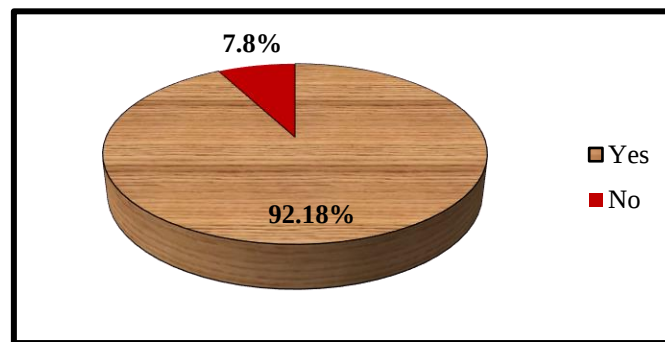


Fig-2: Pie Chart showing percentage of students' preference

From the above figure it was certain that most of the students, i.e., 59 out of 64 (92.18%) preferred to use application-based assessment in their learning process.

Objective 2: To identify the reasons for preferring application- based assessment in learning process:

From the feedback of the students' varied reasons were identified and mapped in Fig 3.

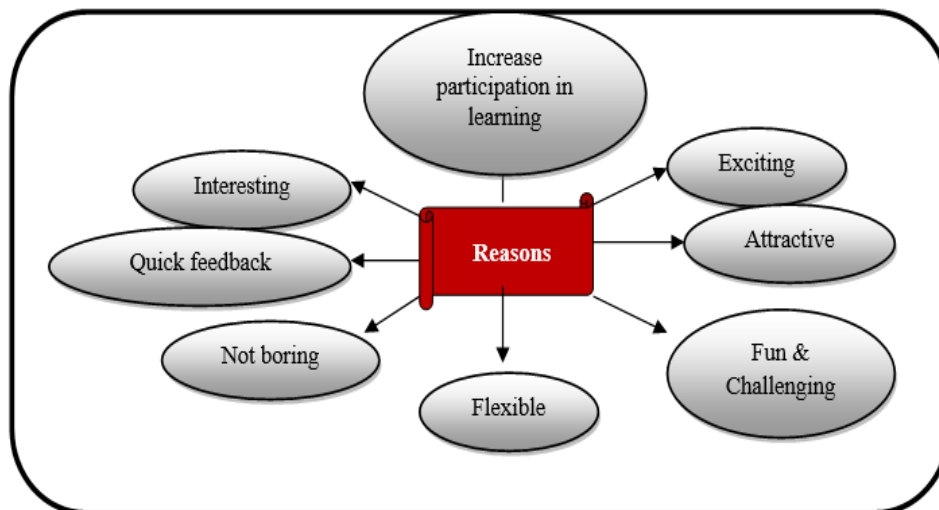


Fig-3: Students' favorable feedback on Application-based assessment (Quizizz)

Objective 3: To identify the reasons for not preferring application- based assessment in learning process:

From the feedback of the students' different reasons were identified and represented in Fig 4.

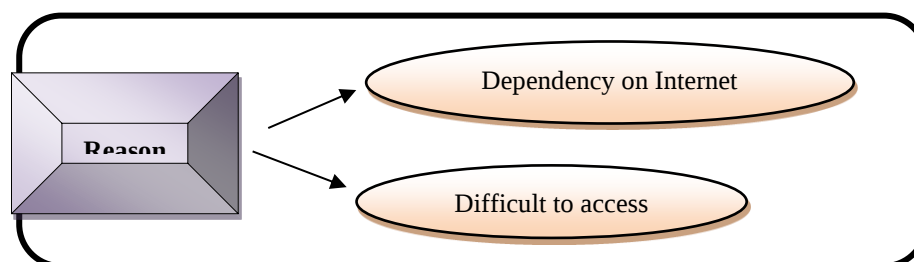


Fig-4: Students' unfavorable feedback on Application-based assessment (Quizizz)

Objective 4: To explore the level of overall experiences of the students on application based formative assessment in their learning process:

In view of ascertaining the overall experiences of the 64 students on application based formative assessment (Quizizz), the table-2 below reflects the detailed description.

Table 2: Item-wise Mean value with Standard Deviation (SD)

Items	Mean	SD
1. Application based assessment makes me more active in learning process	4.25	0.87
2. Application based assessment makes the learning environment joyful	4.12	0.95
3. Application based assessment helps us to overcome the test anxiety	4.21	0.86
4. Application based assessment increase motivation to learn more	4.21	0.86
5. Application based assessment provides opportunities for frequent feedback	3.78	0.98
6. Application based assessment is easy to use	4.29	0.92
7. Application based assessment is very annoying	4.26	0.87
8. I would like to have the application based assessment in all subject	4.06	0.75
9. Application based assessment is very attractive and interesting	4.31	1.03
10. Application based assessment creates a gamified learning environment	4.10	0.73
11. Application based assessment provides reinforcement to learn further	4.37	0.76
12. Application based assessment distracts attention in learning	4.07	0.71
13. I am not tech-savvy in appearing for Application based assessment	4.20	0.71
14. Application based assessment is very effective for quick learning	4.09	0.84
15. My parents do not allow to participate in Application based assessment	4.23	0.85
16. My teacher facilitates if I find difficulties in finishing Application based assessment	4.04	0.85
Total	4.16	0.85

From the Table: 2 it was clear that students' overall experience on application-based assessment (Quizizz) was high (M= 4.16).

Objective 5: To find out whether there is any significant mean difference in experiences of the students on application- based formative assessment with respect to gender:

The results are explicitly chartered in Table-3 (below).

Table 3: Result of independent t- test

Group	N	Mean	SD	df	t- stat.	t- crit.	Remarks
Female	41	67.12	9.18	62	0.52	1.99	Non significant at 0.05 level
Male	23	65.86	9.30				

From the table 3 it was found that t- statistical value (0.52) was less the t- critical value (1.99), so null hypothesis is accepted. So, there is no significant mean difference in experiences of the students on application- based formative assessment with respect to gender (male & female).

Discussion

The current study was high in hopes in exploring and investigating the level of experiences on application based formative assessment (Quizizz) in the learning process among the 9th grade students under WBBSE. The study further attempted in indicating that most of the students preferred to use application-based assessment (Quizizz) in their learning process. This was supported by their favorable responses like attractive, fun & challenging, interesting, quick feedback etc. The result corroborates to the result of the previous studies where this has been documented those students showed their positive responses towards the use of Quizizz application as e- learning media and they argued that Quizizz application is very easy to use, results can be quickly known, challenged and more (Wibawa et al. 2019; Irwansyah & Izzati, 2021; Pitoyo et al. 2019; Handoko et al. 2020). Elmahdi et. al. (2018) also focused that the immediate feedback in an assessment lead to improved learning process. On a realistic note, the study drew some of the responses which evoked obstacles faced by the students while using application- based assessment like, dependency on internet service and difficulties to access such application. Therefore, there is a seemingly a need of hand-on training of using such applications before integrating into the curriculum. The study also echoed that students' level of overall experience on application based formative assessment was high. Which were very much inclined to the findings of several studies (Bicen & Kocakoyun, 2018; Licorish et al. 2018; Elmahdi et al. 2018; Pitoyo, 2019; Mulyani, 2020) which too indicated a positive attitude towards the use of application based assessment and also referred application based assessment in reducing test anxiety.

As a formative assessment tool, Quizizz application is very helpful for the teachers to convey through the quiz method that makes students feel relaxed and enthusiastic during the teaching-learning culminating into joyful experiences. This is again backed by

a similar investigation conducted by Pahamzah et al. 2019. However another study by Antonio & Tamban (2022) indicated that gamification does not have significant influences in improving the attitude of the students.

The study did not quiver to purport that gender of the students had no significant effect on their experiences on application-based formative assessment in the learning process and that most of the students were in favor of application based formative assessment due to persisting advantages of the application-based assessment in sustaining a joyful and outcome-oriented learning experiences.

However, this quasi-experimental study was only limited to the effect after the students were exposed on application-based formative assessment (Quizizz) in learning process on a five days duration. Further research needs to identify the obstacles faced by the students as well as by the teachers after fruitful execution in the journey of a learning process. In this study the researchers only used Quizizz application for five days duration but there are also many others platforms with different characteristics that can be used for long duration to find out the most effective and efficient platforms to maximum learning outcomes.

Conclusion

Application based assessments have a great impact on students learning experiences. Before the exposure of the students to the application-based learning environment they had no idea about this, but after the blended exposure the students were very enthused and to have Quizizz due to its attributes-attractive, interesting and quick feedback features after each lesson, making in one of the wonderful applications towards creating a joyful and sustainable blended learning in school education.

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