



AMERICAN JOURNAL OF EDUCATION AND TECHNOLOGY (AJET)

ISSN: 2832-9481 (ONLINE)

VOLUME 2 ISSUE 3 (2023)



PUBLISHED BY
E-PALLI PUBLISHERS, DELAWARE, USA



Exploring Students' Satisfaction in Formative Assessment Tools in Online-Blended Learning Amidst the Covid-19 Pandemic

Salunoy Revelyn G.¹, Salda Cristine Joy P.¹, Arcenas Chianne C.¹, Diquito Tomas Jr A.^{1*}, Panerio Conrado Jr¹

Article Information

Received: June 27, 2023

Accepted: June 24, 2023

Published: July 30, 2023

Keywords

*Formative Assessment,
Learnings, Exploratory
Factor Analysis, Education in
Covid-19*

ABSTRACT

The global crisis brought on by the Covid-19 outbreak has affected students' approaches to education. The teaching and learning processes of teachers and students have also changed due to the crisis. Following the Exploratory Mixed Method design, an interview (qualitative) was employed first followed by a survey (quantitative). A total of fifteen (15) participants participated in the interview phase (qualitative), and four hundred twelve (412) respondents participated in the survey phase (quantitative). Content analysis is used in the analysis of qualitative data and the Kaiser-Meyer-Olkin test and Bartlett's Test of Sphericity analyses were used to determine the factor loading of the items. The result showed four (4) factors in the formative assessment tools in online-blended learning. These factors include feedback mechanism, satisfaction, internet and technology availability, and overall challenges. Based on the result of the study, a general recommendation is for future researchers to conduct a confirmatory factor analysis for further exploration and confirmation of the said factors of student satisfaction towards formative assessment tools in the online-blended modality of learning.

INTRODUCTION

The global education system has recently changed due to the COVID - 19 Pandemic. This crisis altered the appearance of schools and the teaching and learning process. Assessments in the new modality are becoming more intensive and influential in established and developing educational systems. One of the key elements that ensure the connection and harmony between education and upbringing is the regular evaluation of students' knowledge levels and their progress in understanding academic material. To apply this procedure successfully, formative assessment can be a useful technique. Shute (2008), as cited by Peimani & Kamalipour (2021), defines formative assessment as a useful tool that enables teachers to offer quick and continuous feedback to enhance student learning. Moreover, formative assessment can enhance the teaching-learning process and give students feedback on their development (Cosi, Voltas, Lázaro-Cantabrana, Morales, Calvo, Molina, & Quiroga 2020). Assessment can be used for a variety of reasons. The traditional method of assessing students, such as midterm and final exams, is well known to most instructors.

A formative assessment is where contents are integrated into a student's learning process and experience and can motivate and boost their satisfaction in responding to the given assessment by the teacher. Attard & Holmes (2020) stated that the COVID-19 outbreak caused many teachers worldwide to transfer from face-to-face to online instruction quickly. This change in practice has given us a chance to identify how using technology in education may be used to enhance student participation. Formative assessment, paper-based assessments, Kahoot, Quizizz, and Plickers were employed. These programs can be used

to construct multiple-choice tests for pupils. Students can access Kahoot and Quizizz programs through any computer, tablet, or mobile phone with internet access and respond to the questions in the test (Sahin, 2019). The COVID-19 Pandemic has affected academics, particularly in the effectiveness of student learning (Kerzic, Alex, Pamela, Bezerra, Cheraghi 2021). Globally, China was the first to respond to the shift by mandating a quarter of a billion full-time students to resume their studies online (OECD, 2020). According to She, Ma, Jan, Sharif Nia, & Rahmatpour (2021), online learning in China is encouraged to be more interactive. However, Xiao (2017), through classroom observations and interviews, the three classes in a Chinese high school data revealed that tests were shown to be employed to some extent to promote student learning through test follow-up procedures, as cited by Xie & Cui (2021).

On the other hand, in Southern Africa, the study was conducted, and Blackboard courses were gathered using a mixed-method formative assessment questionnaire with a primary focus on how formative assessment functions in online situations. Various formative evaluation methods and online resources like discussion boards and standardized examinations were employed. Baleni (2015), as cited by Bisht, Jasola, & Bisht (2020), the most well-known advantages included an increase in student commitment, quicker feedback, increased flexibility regarding the time and location of taking the assessment task, and importance in the method for both students and lecturers. Less marking time and administrative costs were also advantages for both parties (Baleni, 2015). Moreover, a study in Bahrain was also conducted, and results demonstrated that formative evaluation with Plickers

¹ University of Mindanao, Digos College, Philippines

* Corresponding author's e-mail: tomasdiquito@umindanao.edu.ph

is beneficial since it increases student participation, shortens the learning period, ensures that all students have an equal opportunity to participate, and fosters an enjoyable and stimulating learning environment. The results also encourage teachers to integrate technological tools like Plickers in their classrooms to help evaluate their teaching effectiveness and students' learning (Elmahdii, Al-Hattami, & Fawzi, 2018).

The Philippines' current educational status appears to be gloomy. According to data released by the Department of Education in July 2020, the initial enrolment is just over half of the 27.7 million students enrolled in 2019. As the coronavirus spread throughout the Philippines in March 2020, school districts were forced to close their doors, requiring an abrupt and practically universal switch to remote learning that was disturbing for teachers, students, and parents. However, formative evaluation is frequently applied in Philippine classrooms since formative evaluation is an important component of the educational process. To provide a continuous learning process, the educational system needs an 'adapt quickly' approach to the Pandemic's new normal in teaching and learning (Tanhucoco-Tumapon, 2020). Formative assessment is applied in the new normal setting as it assists the teachers in ensuring that students are learning and making academic progress. Additionally, it aids educators in selecting the subjects to emphasize and the skills to promote. Teachers also use formative assessment to determine their students' strengths and weaknesses. By using this knowledge, teachers can deliver specifically designed teaching to meet students' needs. According to the local study by Diez, Ebro, Dequito, and Diquito (2021), students from the UM Digos College institution have had trouble adjusting to the new normal environment primarily because of the slow internet connections and technical issues with the learning management system that may hinder them from using the formative assessment tools and doing the assessment task that was given to them. Furthermore, amidst this crisis, the educational system should be effective by generating policies to be followed to still provide quality education to the students.

This study would be beneficial to the teachers and students, as well as to the institution and future researchers. The

data gathered by the researchers will help the teachers identify if their students are satisfied with their teaching strategies so that they can conceptualize more effectively and improve their formative assessment in online-blended learning, to meet the satisfaction of the students in answering tasks and activities. The students also benefited from this study, particularly in releasing their sentiments about their teachers' formative assessment during this Pandemic. The university can also use the gathered data by the researchers to monitor their teaching staff in making effective formative assessment tools. Moreover, lastly, the future researcher can continue this study.

Research Objective

The following objective guided this study:

To determine the factor structure of formative assessment experiences among college students.

METHOD

Design and Procedure

This study follows an exploratory mixed-method design in exploring the indicators of student satisfaction towards formative assessment tools during the online-blended modality of learning. An exploratory mixed method design as Bagheri *et al.* (2019) mentioned, is a design used to develop and validate a culturally appropriate instrument in conducting quantitative analysis. Moreover, following the exploratory design, a qualitative approach was used first followed by the quantitative approach. Further, in order to carry out the objective of the study, the following procedures are done; (1) securing letters of approval from the program head of the Department of Teacher Education, Research and Publication Center, Office of the Dean of the University of Mindanao - Digos College; (2) a validation letter approved by the Research and Publication Center and panel of experts; (3) after the approval, the researchers proceeded with the qualitative phase by choosing the participants of the study based on the inclusion criteria; (a) currently enrolled in the University of Mindanao - Digos College S.Y. 2021-2022, (b) enrolled at least one semester in the institution, (c) currently taking a class in online-blended learning, and (d) is willing to participate in the study. Following the set

Table 1: The Distribution of the Participants in the Qualitative Phase

Code Name	Program	Department
Participant 1	Secondary Education Specializing in Social Studies	Department of Teacher Education (DTE)
Participant 2	Business Administration Specializing in Human Resource	Department of Business Admin. (DBA)
Participant 3	Management Accounting	Department of Accounting Education (DAE)
Participant 4	Tourism Management	Department of Business Admin. (DBA)
Participant 5	Physical Education	Department of Teacher Education (DTE)
Participant 6	Food Service Management	Department of Teacher Education (DTE)
Participant 7	Information Technology	Department of Technical Programs (DTP)
Participant 8	Secondary Education Specializing in English	Department of Teacher Education (DTE)
Participant 9	Secondary Education Specializing in Filipino	Department of Teacher Education (DTE)

Participant 10	Criminology	Department of Criminal Justice Educ. (DCJE)
Participant 11	Elementary Education	Department of Teacher Education (DTE)
Participant 12	Secondary Education Specializing in Science	Department of Teacher Education (DTE)
Participant 13	Computer Engineering	Department of Technical Programs (DTP)
Participant 14	Psychology	Department of Arts and Sciences (DAS)
Participant 15	Business Administration Specializing in Financial Mngmt	Department of Business Admin. (DBA)

criterion, fifteen (15) participants were included in the qualitative phase (see Table 1).

(3) A consent form is then sent to the selected participants indicating their approval to be part of the study. Once approved, interview schedules were then made (these interviews were done in the month of May 2022). (4) After the interview, the conversation is then transcribed and sent back to the participants for verification and approval. (5) Once done, the researchers then identify the significant statements from the conversation with the

participants. These significant statements are transformed into a questionnaire to be used in the quantitative phase of the study. A total of ninety-two (92) items were created from the statements of the participants. (6) The created questionnaires together with the five-point Likert scale (Likert, 1932) (see Table 2) are then submitted to the Research and Publication Office for final approval.

(7) once approved, the researchers then implemented the survey to the University of Mindanao - Digos College students (with consent form). The researchers used a

Table 2: Five-point Likert Scale

Numerical Scale	Verbal Description	Descriptive Meaning
5	Strong Agree	Students strongly agree with the claim concerning the tools utilized for formative assessment in online blended learning.
4	Agree	Students agree with the claim concerning the tools utilized for formative assessment in online blended learning.
3	Neutral	The student is neutral with the claim concerning the tools utilized for formative assessment in online blended learning.
2	Disagree	Students disagree with the claim concerning the tools utilized for formative assessment in online blended learning.
1	Strongly Disagree	Students strongly disagree with the claim concerning the tools utilized for formative assessment in online blended learning.

random sampling technique and identified four hundred and twelve (412) respondents who took the survey. According to Thomas (2020), the random sampling technique is a population subset chosen randomly. With this sampling technique, every person in the population has the same probability of getting chosen (see Table

2). The duration of the survey runs from the months of June to August 2022. (8) After the survey is done and the number of respondents is sufficient, data analysis and interpretation are then performed by the researchers.

Statistical Tool and Method of Analysis

For the qualitative phase, a content analysis was used to identify the significant statements in the transcribed data. As Krippendorff (2018) content analysis is a study method that allows researchers to draw conclusions that are reliable and valid from texts (or other significant material) in the context of their use. One of the most significant research methods in the social sciences may be content analysis. According to the content analyst, data must be examined with these purposes in mind because it represents words, images, and expressions rather than actual physical events and is intended to be viewed, read, understood, and used for their meanings. Content analysis differs from other research techniques by analysing texts in the context of their usage. Moreover, in the quantitative phase, the researchers used two statistical tool to analyze and tabulate the gathered data. First is the Kaiser-Meyer-Olkin test which helped to determine the initial correlation coefficient and assess the sampling size's appropriateness. Verifying the null hypothesis and

Table 3: The Distribution of Respondents in the Quantitative Phase

Year Level & Department	Frequency	%
First Year	63	15.3
Second Year	86	20.9
Third Year	168	40.8
Fourth year	95	23.1
Total	412	100%
DAE	34	8.3
DAS	29	7
DBA	67	16.3
DCJE	108	26.2
DTE	153	37.1
DTP	21	5.1
Total	412	100%

making sure the test's statistical significance was 0.05 or below, as shown by the p-value, were necessary in order to determine whether the initial correlation coefficient was an independent variable. In order to assess whether the correlation matrix was an identity matrix, which would indicate that there was no correlation between the variables, the researchers also utilised Bartlett's Test of Sphericity. KMO measurement and Bartlett's Test of Sphericity outcomes suggested that factor analysis might be used to the data.

RESULTS AND DISCUSSION

Factor Loadings of the Formative Assessment Experience among College Students.

After thoroughly interpreting and analyzing the data gathered from the students in the survey questionnaire, the researchers derived the factor loadings that may help identify the factors structure that might indicate their satisfaction with formative assessment tools. Table 4 shows the factor structure of student satisfaction in

formative assessment tools in online-blended learning amidst the COVID-19 Pandemic. Firstly, the assumption in conducting factor analysis is settled using the Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity. Netemeyer, Bearden, & Sharma (2003) claimed that a KMO connection beyond 0.60 to 0.70 is considered sufficient for examining the EFA output and Bartlett's Test of Sphericity must be significant ($p < .05$) because it demonstrates that the matrix is not an identity matrix (Hair, Anderson, Tatham, & Black, 1995; Tabachnick & Fidell, 2001) to make sure that the data is suitable for factor analysis. Thus, our data analysis revealed that the KMO is 0.944, and Bartlett's Test of Sphericity is significant $p = 0.000$, this means that the data is suitable for factor analysis.

In the sample size of 412 respondents, to consider the items to be significant, the factor loadings must be 0.5 and above (Hair, Black, Babin, & Anderson, 2010). Thus, 34 items missed to meet the requirement and are subject to deletion, including the "I found formative assessment

Table 4: Factor Loadings

	F1	F2	F3	F4
89.) Formative assessment tools are used to give the students an activities that should be answered to assess if the students are learning.	0.517	.	.	.
59.) Sometimes I am confident of what I have learned.	0.56	.	.	.
27.) Formative assessment tools have a big contribution on our learning.	0.562	.	.	.
37.) Those formative assessment tools helps me to identify my strengths and weaknesses.	0.568	.	.	.
38.) It helps me to develop my skills and the range of my effective learning strategies.	0.574	.	.	.
77.) It provides correct feedback on our wrong answers and in confusing questions.	0.575	.	.	.
61.) Formative assessment tools helps me to communicate easily with my instructor and classmates with my concerns regarding to the assessment.	0.586	.	.	.
18.) In formative assessment tools I can assess my learning when my scores on our activities or quizzes are posted.	0.589	.	.	.
67.) Formative assessment tools give details ahead of time.	0.59	.	.	.
32.) Those formative assessment tools are helpful.	0.605	.	.	.
52.) Formative assessment tools makes the class more effective and engaging.	0.615	.	.	.
92.) Formative assessment tools are convenient to use.	0.619	.	.	.
57.) Quipper is very helpful for me in terms of written quizzes and exams.	0.62	.	.	.
4.) Formative assessment tools is entertaining.	0.622	.	.	.
81.) I am very happy that not only our answers will be secured but also our personal information and I am confident.	0.633	.	.	.
88.) Formative assessment tools are important to assess our learnings.	0.637	.	.	.
53.) It is a more activating way for us the students	0.638	.	.	.
12.) With the help of formative assessment tools, the teacher can address where the lacking part is or where the part that needs improvement is.	0.645	.	.	.
42.) It also identifies my weaknesses that needs improvement.	0.646	.	.	.
71.) It is helpful in monitoring the students.	0.648	.	.	.
80.) It helps to consider our status as students in this online class.	0.648	.	.	.
10.) Formative assessment tools tested our knowledge about a certain thing	0.651	.	.	.
8.) Formative assessment tools helps me to attain the desired learning outcomes of our course.	0.657	.	.	.

44.) It motivates me to learn more because our instructor is also motivated to teach us.	0.664	.	.	.
60.) It motivates me to learn because the opportunity is already on us unlike to others.	0.672	.	.	.
62.) Asking my instructor and classmates with regards to the assessment makes my life comfortable and to fulfill my task.	0.674	.	.	.
41.) Formative assessment tools helps me to build my confidence, skills, and develop my thinking skills.	0.675	.	.	.
66.) Formative assessment tools really helps me to achieve the desires of learning outcomes through providing intact information.	0.676	.	.	.
70.) Formative assessment tools can build a relationship in teaching and learning process.	0.678	.	.	.
79.) It is helpful because it is flexible in terms of availability.	0.683	.	.	.
58.) It is good to used quipper as formative assessment tool.	0.685	.	.	.
63.) Formative assessment tools are helping the students to answer the task, assignment and so whatever, unlike we compare it before and that makes it very unique.	0.692	.	.	.
13.) Formative assessment tools motivates me somehow.	0.7	.	.	.
78.) Helps to review and expand my knowledge.	0.705	.	.	.
9.) The formative assessment tools that is being used by our teacher is effective.	0.717	.	.	.
43.) Helps us to be motivated and build up our learning strategies.	0.724	.	.	.
15.) Formative assessment tools is really hard.	.	0.552	.	.
16.) I was exhausted because there is no one that I could asked about our topic.	.	0.601	.	.
20.) I am not confident in answering the activities provided in formative assessment tools.	.	0.572	.	.
21.) I am not satisfied with the response of my friends when I asked them.	.	0.551	.	.
23.) I determined that quipper does not have a data privacy because most of the teachers can access your account and see your performance.	.	0.616	.	.
28.) I do have difficulties in using those formative assessment tools because it is new to us and we are not that much aware on the particular tool.	.	0.534	.	.
29.) One of the reason why I want to quit is the internet connection.	.	0.589	.	.
34.) Formative assessment tools are not hundred percent helpful.	.	0.618	.	.
45.) The multiple choice item assessment is not suited to our course because we are more in building our skills.	.	0.594	.	.
46.) It is not that effective for me because we can only gain few knowledge or learnings.	.	0.679	.	.
47.) It is hard to manage the time in online setting.	.	0.579	.	.
64.) There is something wrong with the formative assessment tools.	.	0.6	.	.
90.) I think it does not help because the other students are unmotivated now.	.	0.593	.	.
91.) It gives me panic if the internet connection is unstable during the assessment.	.	.	0.622	.
68.) Sometimes the internet connection cannot give some notification that can cause delays or problems.	.	.	0.601	.
73.) I received late notifications because of the internet connection.	.	.	0.515	.
83.) One of our challenges is the availability of gadgets.	.	.	0.585	.
84.) I had experience lag when the application we used is not updated.	.	.	0.646	.
85.) Applications that is not updated will affect our answers in assessment specifically in essay questions.	.	.	0.559	.
24.) The loss of power electricity and internet connection makes me feel frustrated.	.	.	.	0.612
25.) Formative assessment tools in online-blended learning is prone on cheating.	.	.	.	0.613
26.) There are ups and downs in using those formative assessment tools.	.	.	.	0.618
Eigenvalues	27.257	6.812	4.657	2.899
% of Variance	29.627	7.404	5.061	3.152
Cronbach`s Alpha per Item	0.966	0.882	0.824	0.778
Cronbach`s Alpha (Overall)	0.957			
KMO	0.944			
Bartlett`s Test of Sphericity	22904.347, p=0.000			

tools engaging and fun.” “Formative assessment tools are hard when you have an unstable internet connection.” “I am determined to answer compared to the traditional tools used.” “Formative assessment tools are challenging” “I am confident in answering.” and 29 furthermore.

Since the data is subject to factor analysis, Eigenvalue is used to identify the factor and retain the items with a value greater than one (1) (Catell,1996) with Cronbach’s Alpha to test the reliability. We obtained four (4) factors for many consecutive runs using the dimension reduction technique. According to Nunnally (1978), Cronbach’s Alpha is commonly regarded as having an acceptable range of 0.70 or higher. Based on our research, during the conduct of thematic analysis, we found out that the satisfaction of the students in the conduct of formative assessment in the new normal is measured using the four (4) factors and these are; (1) Feedbacking Mechanism, (2) Satisfaction, (3) Internet and Technology Availability, and (4) Overall Challenges. The first factor has 36 items consisting of SSFAT_89, SSFAT_59, SSFAT_27, SSFAT_37, SSFAT_38, SSFAT_77, SSFAT_61, SSFAT_18, SSFAAT_67, SSFAT_32, SSFAT_52, SSFAT_92, SSFAT_57, SSFAT_4, SSFAT_81, SSFAT_88, SSFAT_53, SSFAT_12, SSFAT_42, SSFAT_71, SSFAT_80, SSFAT_10, SSFAT_8, SSFAT_44, SSFAT_60, SSFAT_62, SSFAT_41, SSFAT_66, SSFAT_70, SSFAT_79, SSFAT_58, SSFAT_63,

SSFAT_13, SSFAT_78, SSFAT_9, and SSFAT_43 with 27.257 eigenvalue and 0.966 Cronbach’s alpha per item which implies a high level of reliability and has a high level of importance as explained by 29.627% of Variance in the SSFAT.

The second factor has a 7.404% of Variance in the SSFAT, and it has 13 items consisting of SSFAT_15, SSFAT_16, SSFAT_20, SSFAT_21, SSFAT_23, SSFAT_28, SSFAT_29, SSFAT_34, SSFAT_45, SSFAT_46, SSFAT_47, SSFAT_64, and SSFAT_90 with an eigenvalue of 6.812 and a 0.882 Cronbach’s alpha per item. On the other hand, the third factor has a 5.061% variance in the SSFAT and has six items consisting of SSFAT_91, SSFAT_68, SSFAT_73, SSFAT_83, SSFAT_84, and SSFAT_85 with an eigenvalue of 4.657 and a 0.824 Cronbach’s alpha per item. The fourth and last factor has a 3.152% variance in the SSFAT with an eigenvalue of 2.899 and a 0.778 Cronbach’s alpha per item. Overall, Cronbach’s alpha of reliability value for the entire four factors is 0.957, considered highly consistent and reliable.

Factors Experienced in using the Formative Assessment Tools

Table 5 shows the identified factor structure experienced among college students in using the formative assessment tools during online-blended learning.

Table 5: Factor Structure

	Factor 1	Factor 2	Factor 3	Factor 4
Factors Experienced in using the Formative Assessment Tools	Feedbacking Mechanism	Satisfaction	Internet and Technology Availability	Overall Challenges

Feedbacking Mechanism

The goal of the feedbacking mechanisms, also known as homeostasis, is to bring the body back to its normal internal state. It is a physiological regulation system found in living things. This mechanism helps the students improve their performance and promote personal growth that they needed to accomplish their academic goals. In educational settings, feedback is information given to a learner in order to close the performance gap between present performance and desired objectives (Sadler, 1989). Formative assessment research has highlighted the significance of feedback as a key connector between the teacher’s assessment and the student’s subsequent learning (Black & William, 1998; Sadler, 1998). Students’ knowledge and abilities are molded into a more developed stage than they were before implementing of the specific feedback intervention as the result of feedback’s formative effect on learning (Hargreaves, McCallum, & Gipps, 2000).

Satisfaction

The positive emotion you experience when you get what you wanted, complete a task you set out to complete, or are in the middle of one, is called satisfaction. In the field of education, student satisfaction is characterized

as a mindset that emerges from an assessment of the services and resources offered by the institution to the students and their educational experience. The alignment of the student’s expectations for these dimensions with their overarching academic and personal objectives for enrolling in the course is necessary condition for student satisfaction (Landrum, Bannister, Garza, & Rhame, 2021). Navikov (2020) stated that both students and teachers may lack the abilities for using various online learning technologies, which may cause students to become demotivated and depressed. These barriers would contribute to student satisfaction.

Internet and Technology Availability

In the new modality of learning, students who do not have an internet and technology may find it hard to continue their studies. Internet and technology are important factors to be utilized in conducting online-blended learning amidst the Pandemic. These two will help the students do their tasks in the given formative assessment tools in the online classroom, without these two factor, students may have difficulties as they take their studies in an online setting. In the study (Novikov, 2020), 78% of the respondents named their internet connection as a significant factor that have a detrimental

effect on their ability to learn. Similarly, Owusu-Fordjour, Thomson, & Hanson (2020) reported that students in Ghana faced difficulties using the e-learning platform because of inadequate internet access and a lack of technical expertise. In addition, the availability of internet connection is also a barrier in conducting home-based experimentation (Gapasin *et al.*, 2022). Owusu-Fordjour *et al.* (2020) suggested that parents could not help their children access online learning. While, Demuyakor (2020) emphasized the high expense of online learning participation.

Overall Challenges

The overall challenges encountered by the students in the new modality of learning, particularly in utilizing the formative assessment tools, could affect the student's satisfaction with learning. Suryaman, Cahyono, Muliensyah, Bustani, Suryani, Fahlevi, & Munthe (2020) stated that students encountered numerous challenges when learning at home, including limited socializing opportunities, expensive internet access, and a lack of technological proficiency. In addition, Kapasia, Paul, Roy, Saha, Zaveri, Mallick, & Chouhan (2022) studied how the Pandemic lockdown affected the student's performance and learning. They found out that there were considerable disturbances to the learning process. The student are also mentioned some difficulties with online classes, such as depression, slow internet, anxiety, and an unfavorable learning environment at home. These difficulties were made worse for marginalized students from remote areas.

CONCLUSION

This study aims to determine the factor structure of formative assessment experiences among college students in UM Digos College used by instructors during online-blended learning. In connection with the research objective of this study, the findings identified a 4-factor structure of the student's satisfaction towards formative assessment tools in online, blended learning. This factor structure includes feedback mechanisms, satisfaction, internet and technology availability, and overall challenges. This implies that the formative assessment tools used by the instructors provide various experiences among college students during the online-blended modality of learning.

RECOMMENDATIONS

The relevance of the researchers' conclusions is likely constrained by how they interpret the data, and these limitations must be acknowledged. Following are some recommendations based on the preliminary finding and conclusions:

1. The researchers recommend using the scale of this study once the model fit indices are confirmed and accepted.
2. The future researcher can conduct a confirmatory factor analysis for further exploration and confirmation that would broaden and diversify the field of study into learner satisfaction using formative assessment tools.

REFERENCES

- Algharabat, R. (2007). The role of the stimulus-organism-response (sor) model in explaining effects of image interactivity technology (IIT) on consumer responses. In *Brunel University Journal*, PhD Doctoral Symposium 2007.
- Attard, C., & Holmes, K. (2020). An exploration of teacher and student perceptions of blended learning in four secondary mathematics classrooms. *Mathematics Education Research Journal*, 1-22. <https://doi.org/10.1007/s13394-020-00359-2>
- Baleni, Z. G. (2015). Online Formative Assessment in Higher Education: Its Pros and Cons. *Electronic Journal of e-Learning*, 13(4), 228-236.
- Bagheri, F., Merghati Khoei, E., Barati, M., Soltanian, A., Sharma, M., Khadivi, R., Ghaleiha, A., Nahar, V. K., & Moeini, B. (2019). An Exploratory Mixed Method Study for Developing and Psychometric Properties of the Sexual Information, Motivation and Behavioral Skills Scale (SIMBS) in Iranian Couples. *Journal of research in health sciences*, 19(2), e00447.
- Bisht, R. K., Jasola, S., & Bisht, I. P. (2020). Acceptability and challenges of online higher education in the era of COVID-19: a study of students' perspective. *Asian Education and Development Studies*. <https://doi.org/10.1108/AEDS-05-2020-0119>
- Cosi, A., Voltas, N., Lázaro-Cantabrana, J. L., Morales, P., Calvo, M., Molina, S., & Quiroga, M. Á. (2020). Formative assessment at university through digital technology tools. *Profesorado, revista de currículum y formación del profesorado*, 24(1), 164-183. <https://doi.org/10.30827/profesorado.v24i1.9314>
- Demuyakor, J. (2020). Coronavirus (COVID-19) and online learning in higher institutions of education: A survey of the perceptions of Ghanaian international students in China. *Online Journal of Communication and Media Technologies*, 10(3), e202018. <https://doi.org/10.29333/ojcm/8286>
- Deterding, N. M., & Waters, M. C. (2021). Flexible coding of in-depth interviews: A twenty-first-century approach. *Sociological methods & research*, 50(2), 708-739. <https://doi.org/10.1177/0049124118799377>
- Diez, J. J., Ebro, E. M., Dequito, R. J. C., & Tomas Jr, A. D. (2021). Uncovering learner's experiences to new normal education: implications of asynchronous instruction in ge 5: Science, technology, and society course teaching. *European Journal of Education Studies*, 8(10). <https://doi.org/10.46827/ejes.v8i10.3937>
- Dilova, N. G. (2021). Formative assessment of students' knowledge—as a means of improving the quality of education. *Scientific reports of Bukhara State University*, 5(3), 144-155. <https://doi.org/10.52297/2181-1466/2021/5/3/13>
- Elmahdi, I., Al-Hattami, A., & Fawzi, H. (2018). Using Technology for Formative Assessment to Improve Students' Learning. *Turkish Online Journal of Educational Technology – TOJET*, 17(2), 182-188.
- Gapasin, L.S., Manongsong, J.B., Tukuran, A.E.,

- Rodriguez, L.C.S., Alquizar, J.C., Manial, N.S., Amba, Z.A., Bolaños, J.G., Mahinay, H.M. (2022). Home-Based Learning Interventions of Science Teachers in the Absence of Laboratory Experiments. *American Journal of Education and Technology*, 1(2), 95–98. <https://doi.org/10.54536/ajet.v1i2.593>
- Hadi, S., Rahardjanto, A., Budiyanto, M., Krisno, A., & Husamah, H. (2020). Multidimensional Analysis of Environmental Literacy (Sensitivity, Knowledge, Belief, and Behavior of Environment) of Prospective Teachers. *Prisma Sains: Jurnal Pengkajian Ilmu dan Pembelajaran Matematika dan IPA IKIP Mataram*, 8(2). <https://doi.org/10.33394/j-ps.v8i2.3281>
- Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). *Multivariate data analysis: A global perspective*, 7.
- Kapasia, N., Paul, P., Roy, A., Das, P., Ghosh, T., & Chouhan, P. (2022). Perceived academic satisfaction level, psychological stress and academic risk among Indian students amidst COVID-19 pandemic. *Heliyon*, e09440. <https://doi.org/10.1016/j.heliyon.2022.e09440>
- Keržič D, Alex JK, Pamela Balbontín Alvarado R, Bezerra DdS, Cheraghi M, et al. (2021) Academic student satisfaction and perceived performance in the e-learning environment during the COVID-19 pandemic: Evidence across ten countries. *PLOS ONE*, 16(10), e0258807.
- Krippendorff, K. (2018). Content analysis: An introduction to its methodology. Sage publications.
- Landrum, B., Bannister, J., Garza, G., & Rhame, S. (2021). A class of one: Students' satisfaction with online learning. *Journal of Education for Business*, 96(2), 82-88. <https://doi.org/10.1080/08832323.2020.1757592>
- McCallum, B., Hargreaves, E., & Gipps, C. (2000). Learning: The pupil's voice. *Cambridge Journal of Education*, 30(2), 275-289. <https://doi.org/10.1080/713657145>
- Netemeyer, R. G., Bearden, W. O., & Sharma, S. (2003). Scaling procedures: Issues and applications. *sage publications*. <https://doi.org/10.4135/9781412985772>
- Njoroge, R., & Kibaru, F. (2012, June). "Implementing Quality E-learning: Which Way for Higher Education Institutions in Kenya?". In *EdMedia + Innovate Learning*, pp. 1707-1712. Association for the Advancement of Computing in Education (AACE), 2012.
- Nunnally, J.C. (1978). An Overview of Psychological Measurement. In: Wolman, B.B. (eds) *Clinical Diagnosis of Mental Disorders*. Springer, Boston, MA. https://doi.org/10.1007/978-1-4684-2490-4_4
- Owusu-Fordjour, C., Koomson, C. K., & Hanson, D. (2020). The impact of Covid-19 on learning- the perspective of the Ghanaian student. *European Journal of Education Studies*. <https://doi.org/10.5281/zenodo.3753586>
- Peimani, N., & Kamalipour, H. (2021). Online education and the COVID-19 outbreak: A case study of online teaching during lockdown. *Education Sciences*, 11(2), 72. <https://doi.org/10.3390/educsci11020072>
- Rutakumwa, R., Mugisha, J. O., Bernays, S., Kabunga, E., Tumwekwase, G., Mbonye, M., & Seeley, J. (2020). Conducting in-depth interviews with and without voice recorders: a comparative analysis. *Qualitative Research*, 20(5), 565-581. <https://doi.org/10.1177/1468794119884806>
- Sadler, D. R. (1989). Formative assessment and the design of instructional systems. *Instructional science*, 18(2), 119-144. <https://doi.org/10.12691/education-2-10-6>
- Salama, R., Uzunboylu, H., & El Muti, M. A. (2020). Implementing online questionnaires and surveys by using mobile applications. *New Trends and Issues Proceedings on Humanities and Social Sciences*, 7(2). <https://doi.org/10.18844/prosoc.v7i2.5016>
- She L, Ma L, Jan A, Sharif Nia H and Rahmatpour P (2021) Online Learning Satisfaction During COVID-19 Pandemic Among Chinese University Students: *The Serial Mediation Model*. *Front. Psychol*, 12, 743936. <https://doi.org/10.3389/fpsyg.2021.743936>
- Shute, V. J. (2008). *Focus on formative feedback*. *Review of educational research*, 78(1), 153-189. <https://doi.org/10.3102/0034654307313795>
- Singh, R., & Soumya, A. (2020). Updated comparative analysis on video conferencing platforms- Zoom, Google Meet, Microsoft Teams, WebEx Teams, and GoToMeeting. *EasyChair: The World for Scientists*, 1–9. <https://easychair.org/publications/preprint/Fq7T>
- Suryaman, M., Cahyono, Y., Muliandyah, D., Bustani, O., Suryani, P., Fahlevi, M., & Munthe, A. P. (2020). COVID-19 pandemic and home online learning system: Does it affect the quality of pharmacy school learning. *Systematic Reviews in Pharmacy*, 11(8), 524-530.
- Thomas, L. (2020). Simple Random Sampling | Definition, Steps & Examples.
- Xiao, Y. (2017). Formative assessment in a test-dominated context: How test practice can become more productive. *Language Assessment Quarterly*, 14(4), 295-311. <https://doi.org/10.1080/15434303.2017.1347789>
- Xie, Q., & Cui, Y. (2021). Preservice teachers' implementation of formative assessment in English writing class: Mentoring matters. *Studies in Educational Evaluation*, 70, 101019. <https://doi.org/10.1016/j.stueduc.2021.101019>