

## **Impact of digital formative evaluation tools on Bachelor of Secondary Education English students**

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### ABSTRACT

This study assessed the effectiveness and acceptability of digital formative assessment tools among Bachelor of Secondary Education majors in English students during the second semester of 2023 - 2024. A descriptive survey questionnaire was employed to gather necessary data and information on the effectiveness and acceptability levels of the digital assessment tools used. Facebook was identified as the most popular social media platform among students, and smartphones, particularly those with the Android operating system were the only devices accessible to the BSED English students. Most respondents rated Google Forms as effective in function, features, reliability, and security. The relationship between the effectiveness and acceptability of the digital assessment tools was analyzed using Pearson's  $r$  coefficient to determine if a significant correlation exists. The overall relationship between the two variables was significant ( $r = 0.75$ ,  $p = 0.01$ ). However, based on pairwise correlation of indicators, the dimension of Google Forms did not significantly correlate with the overall level of effectiveness ( $r = 0.103$ ,  $p > 0.01$ ).

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### 1. Introduction

The integration of digital technology in education has evolved over several decades, revolutionizing how educators assess student learning and engage learners in the learning process. Despite these advances, questions about the most effective use of digital tools in education persist. Digital transformation, which refers to enhancing an organization's operations through the strategic use of data and technology, has influenced how we approach educational assessment, especially at the secondary and post-secondary levels (Berman & Marshall, 2014). Technological innovations have introduced new opportunities for more accurate and meaningful assessments, with tools that measure student learning outcomes more effectively (Bennett, 2011; Carpenter, 2019).

Digital assessment tools have emerged as a key component in modern educational practices. These tools, which teachers, tutors, and instructors employ, offer several advantages, including time and cost efficiency, accuracy, and the ability to measure student learning effectively (Buzzetto-More & Alade, 2016). Furthermore, these tools are not just limited to testing knowledge; they can also facilitate meaningful learning experiences, enabling students to develop higher-level thinking abilities (Gikandi et al., 2011). Adopting digital assessments benefits students and faculty by providing timely and personalized feedback, which has been shown to positively influence learning outcomes (Núñez-Canal et al., 2022).

Incorporating digital assessments into the educational process facilitates active learning, where students engage more deeply with course material through interactive exercises, simulations, and multimedia resources (Prince, 2004). Active learning has been shown to improve content retention and increase student engagement, contributing to better academic performance (Freeman et al., 2014). This way, digital tools assess and enhance the learning process by making it more interactive and student-centered.

Another significant benefit of digital tools in education is their ability to provide real-time feedback. These tools track and analyze student progress, enabling instructors to identify areas of strength and weakness instantly. This immediate feedback loop allows educators to adapt their teaching strategies and provide targeted support where necessary, leading to better student performance (Mooring, 2022). Furthermore, personalized feedback helps students adjust their learning strategies, enhancing their academic achievements (Narciss, 2017). Studies show real-time feedback significantly boosts motivation and engagement, fostering a more dynamic learning environment (Hattie & Timperley, 2007).

As digital literacy assessments become more integrated into secondary and post-secondary education, they also offer valuable data for longitudinal tracking of student progress. This can be used for institutional evaluations and to assess students' readiness for future academic and career pursuits (O'Connor, 2015). By incorporating digital tools in formative assessments, educators can more effectively monitor and respond to students' evolving needs throughout their academic journey.

However, the increasing use of digital tools in education can pose challenges, particularly in regions with limited technological infrastructure. While studies on the effectiveness of digital formative assessment tools are abundant, much research has focused on areas with well-established technological systems. There remains a need for studies that explore the use of digital tools within specific student populations, such as Bachelor of Secondary Education (BSED) English majors, who may face distinct challenges or exhibit different responses to these technologies compared to other student groups.

This study aims to assess the effectiveness and acceptability of digital formative assessment tools among BSED English students at Cebu Technological University-Tuburan Campus during the second semester of 2023 - 2024. By incorporating both teacher and student perspectives, this research evaluates these tools' functionality, reliability, and security and their overall impact on student performance. Understanding how digital assessment tools are received and utilized by this specific group of students can provide valuable insights into their role in enhancing student learning outcomes in this context. This study contributes to the growing knowledge of integrating technology in education and its potential to improve teaching practices and promote lifelong learning.

Through this research, educators will be better equipped to integrate digital assessment tools that meet the unique needs of their students, optimize teaching methods, and ultimately enhance student achievement in the digital age.

## **2. Theoretical basis**

The growing reliance on digital assessment tools in education has brought attention to the need for teachers to evaluate their effectiveness across various electronic platforms. As these tools become more integrated into modern learning, studies such as those by Gaafar (2022) have shown that specific digital assessments, like the Electronic Achievement File, can surpass traditional paper-based methods. This study highlights the advantages of digital tools in supporting diverse learning needs, suggesting that digital assessments can effectively replace traditional methods when properly utilized.

The impact of Digital Assessment Tools (DAT) on student performance can be understood through several educational theories. For example, Cognitive Load Theory (Sweller, 2004) posits that learning is optimized when cognitive load is aligned with learners' capacities. Digital tools, by offering scaffolded support and adaptive feedback, help manage cognitive load and enable students to process complex information progressively.

Smith's (2023) research underscores how DATs can apply Cognitive Load Theory principles to enhance learning outcomes, particularly when complex topics are approached incrementally. For instance, BSED English students studying sentence structure can begin with simpler identification tasks and gradually move to more complicated analyses, thus maintaining an appropriate cognitive load.

Constructivist Learning Theory (Vygotsky, 1978) also supports the effectiveness of digital assessment tools by emphasizing active student engagement and knowledge construction. Digital tools enable constructivist learning by promoting inquiry-based learning, collaborative problem-solving, and reflection (Jonassen, 2009). Through interactive features like simulations, multimedia quizzes, and virtual labs, students actively engage with content, fostering deeper comprehension and retention. Tools like Kahoot allow students to interact dynamically with course material, enhancing their understanding through practical application.

Additionally, immediate feedback, a key element in Constructivist Learning Theory, is facilitated by digital tools, which provide automated grading, rubric-based assessments, and opportunities for self- and peer-evaluation (Narciss, 2008). This immediate feedback supports metacognition, allowing students to track their progress and engage in reflective learning, which enhances personalized learning experiences (Brusilovsky & Peylo, 2003).

Social Learning Theory (Bandura, 1977) further validates the importance of digital assessment tools by stressing the role of social interaction and collaboration in learning. Digital platforms, such as discussion forums and collaborative document-editing tools, create opportunities for students to participate in collective learning and peer discussions (Garrison & Anderson, 2003). By fostering a shared learning environment, digital tools help build community, promoting active participation, mutual support, and a collaborative approach to knowledge construction (Dennen & Burner, 2008).

In conclusion, integrating digital assessment tools grounded in Cognitive Load Theory, Constructivist Learning Theory, and Social Learning Theory provides a comprehensive approach to enhancing student engagement and learning outcomes. Educators can foster personalized, interactive, and collaborative learning environments that cater to diverse student needs by aligning digital assessments with these theoretical frameworks.

### **3. Methodology**

This study employed a descriptive survey method that was well-suited for capturing students' perceptions and experiences with digital formative assessment tools. By using a structured questionnaire adapted from Gaafar (2022), the study ensured a high degree of alignment between the research objectives and the instrument. Gaafar's questionnaire was previously validated to measure multiple dimensions of digital assessment tools, such as functionality, reliability, security, and user satisfaction. The structured nature of this instrument, divided into demographic information, usage patterns, and specific assessment-related dimensions, allowed for a comprehensive analysis of both the effectiveness and acceptability of the tools in question. The four-week data collection period was adequate to enable all respondents the time and opportunity to complete the survey, contributing to robust data.

The study rigorously tested the questionnaire's reliability and stability to strengthen the methodology further. The stability of Gaafar's instrument was evaluated using Cronbach's Alpha, a measure of internal consistency. Conducted via SPSS (V23), this reliability testing was performed on a pilot sample of 30 teachers, yielding insights into the instrument's consistency. Items that failed to meet the commonly accepted Cronbach's Alpha threshold of 0.7 were either refined or removed, ensuring that each question accurately measured the intended constructs. This refinement process enhanced the internal consistency, reinforcing the instrument's validity in measuring aspects crucial to understanding digital formative assessments.

Additionally, the diverse sample of 60 students enrolled in BSED-English at Cebu Technological University, Tuburan Campus, adds depth to the findings. This cohort was selected to reflect a range of perspectives within the BSED-English program, ensuring the data's representativeness. By choosing a sample large enough to capture variability but feasible to manage within the study's constraints, the findings are more likely to represent the population's views accurately. This representative sampling supports the reliability of the study's conclusions and its potential applicability in similar educational settings.

#### 4. Discussion

**Table 1**

*Student's Exposure to Social Media Online Platforms*

N = 60

Social media online platforms	Students	Verbal description
Facebook	4.80	VF
Twitter	1.86	N
YouTube	3.98	O
TikTok	3.70	O
Instagram	3.56	O

*Note.* Legend: 5 - Always (A), 4 - Very Frequently (VF), 3 - Occasionally (O), 2 - Rarely (R), 1 - Never (N). Data analysis result of the research

Table 1 shows that Facebook is the most frequently used social media platform among students, achieving the highest mean score of 4.80, corresponding to a frequency descriptor of "very frequently." This result highlights Facebook's broad appeal among students, likely due to its accessibility as a free platform that enables users to connect with friends, stay updated on current events, and engage in educational activities. As Jacobs (2008) observed, Facebook has grown in popularity as a social networking site, fostering social connectivity and offering real-time updates on news and events.

Although not originally designed as an educational tool, eLearning professionals have widely adopted Facebook for its ability to create learning communities, facilitate the sharing of academic resources, and encourage discussions related to course content. Research by Pempek et al. (2009) found that Facebook has become a daily part of students' lives, with an average use of around 30 minutes daily, regardless of their schedules. Additionally, Roblyer et al. (2010) noted a communication gap between students and faculty, with faculty preferring email, while college students increasingly rely on Facebook for communication.

**Table 2***Availability of Devices*

N = 60

<b>Devices</b>	<b>Mean</b>	<b>Verbal description</b>
Smartphone/Android Phone	4.81	A
Laptop	2.97	RA
Desktop	1.56	NA
Tablet	1.41	NA
PC Tab	1.46	NA

*Note.* Data analysis result of the research

Table 2 shows that the only device widely available to BSED English students at Cebu Technological University Tuburan Campus is smartphones, particularly those running the Android operating system, as indicated by the highest mean score of 4.81, labeled “Available.” In contrast, laptops are far less accessible, with a mean score of 2.97, described as “rarely available,” and students have no access to desktop computers, tablets, PCs, or netbooks.

This data suggests that Android smartphones are a more economically feasible option for students than other devices. Additionally, with educational institutions increasingly adopting mobile-friendly learning management systems and apps, smartphones have become an accessible and practical tool for students. Smartphone use is now prevalent among university students within and outside academic settings (Atas & Çelik, 2019). Given the high penetration rate of smartphones, their use among higher education students is now more common than ever (Dahlstrom & Bichsel, 2014), and mobile learning has gained popularity in university contexts (Wu et al., 2012).

Smartphones provide a convenient means for social interaction and leisure activities (Wang et al., 2024) and have become integral to the daily lives of many university students. Although smartphones and social media are not formally part of the curriculum, students often use them for educational purposes. This presents an opportunity for educators to support student learning through smartphone-compatible approaches. Educators can enhance student cognitive and social learning inside and outside the classroom by designing suitable educational methods, activities, and materials for mobile devices (Rung et al., 2014).

**Table 3***Internet Resources*

N = 60

<b>Internet resources</b>	<b>Mean</b>	<b>Verbal description</b>
Wi-Fi	3.96	SA
Mobile Data	4.47	A
Peso Wi-Fi	3.38	SA
Pocket Wi-Fi	1.58	NA
<b>AVERAGE MEAN</b>	<b>3.35</b>	<b>SA</b>

*Note.* Data analysis result of the research

Table 3 reveals that mobile data is the only consistently accessible internet source for student respondents, while Wi-fi and Peso Wi-fi are only occasionally available. This finding highlights the reliability of mobile data, likely due to its portability and cost-effectiveness. Mobile data services, defined by Hong et al. (2008) as a variety of data communication services accessible via mobile phone networks across broad geographic areas, provide wireless access to digital content through mobile devices (Kim et al., 2009). These services enable consumers to perform various activities - including transactions and information exchange with monetary value - over wireless networks using mobile devices (Sun et al., 2010). In recent years, the mobile data services sector has grown significantly with the advancement of new technologies and devices, making mobile services accessible to a broader audience and meeting diverse user needs (Boakye et al., 2015). The rapid evolution of Information and Communication Technologies (ICT) has enabled access to digital content anytime and anywhere, with mobile data services emerging as a crucial ICT component.

Reliable internet access is essential for enhancing students' learning experiences, as it directly influences academic engagement, performance, and equity. Unstable internet access, by contrast, can hinder the timely completion of assignments, limit access to essential learning resources, and ultimately affect academic outcomes. Addressing the availability and reliability of internet options such as mobile data, Wi-fi, and Peso Wi-fi is critical for student success.

**Table 4***Level of Effectiveness*

N = 60						
Aspects	Google Forms mean	VD	Kahoot mean	VD	Quizziz mean	VD
<b>A. FEATURES</b>						
1. The assessment tool can create multiple types of exams, such as: (multiple choice, identification, checkbox, essay, etc.).	4.91	VE	1.40	NE	1.18	NE
2. There are a variety of templates available in the assessment tool.	4.44	VE	3.21	ME	3.18	ME
3. The assessment tool provides instant results.	4.56	VE	3.30	ME	3.58	ME
4. The assessment tool can summarize exams or survey results at a glance with charts and graphs.	4.43	VE	3.01	ME	3.08	ME
5. The assessment tool can add images or videos for analysis.	4.39	VE	3.11	ME	3.07	ME
<b>TOTAL WEIGHTED MEAN</b>	<b>4.55</b>	<b>VE</b>	<b>2.81</b>	<b>SE</b>	<b>2.82</b>	<b>SE</b>
<b>B. FUNCTIONS</b>						
1. The assessment tool helps improve students' learning performance.	4.71	VE	3.47	ME	3.51	ME

Aspects	Google Forms mean	VD	Kahoot mean	VD	Quizziz mean	VD
2. The assessment tool assesses students' performance in a real-time setting.	4.37	VE	2.78	ME	3.43	ME
3. The assessment tool assesses students academically and, at the same time, gives fun.	4.48	VE	3.54	ME	3.31	ME
4. The assessment tool allows students to submit ideas in response to a question or challenge.	4.56	VE	3.19	ME	3.36	ME
5. The assessment tool tests the abilities of individuals based on the instructions and guidelines provided by the conductor.	4.70	VE	3.22	ME	3.30	ME
<b>TOTAL WEIGHTED MEAN</b>	<b>4.56</b>	<b>VE</b>	<b>3.24</b>	<b>ME</b>	<b>3.38</b>	<b>ME</b>
<b>C. RELIABILITY</b>						
1. The assessment result of the Digital Assessment Tool is accurate.	4.62	VE	3.38	ME	3.62	ME
2. The assessment result of the Digital Assessment Tool is consistent.	4.46	VE	3.22	ME	3.36	ME
3. The assessment result of the Digital Assessment Tool is practicable in terms of time.	4.46	VE	3.14	ME	3.39	ME
4. The Digital Assessment Tool's choices are distinct, and distractors (wrong answer) are 100% wrong.	4.41	VE	3.33	ME	3.41	ME
5. The Digital Assessment Tool gives the same result each time it is used in the same setting with the same subjects.	4.32	VE	3.09	ME	3.14	ME
<b>TOTAL WEIGHTED MEAN</b>	<b>4.55</b>	<b>VE</b>	<b>3.23</b>	<b>ME</b>	<b>3.38</b>	<b>ME</b>
<b>D. SECURITY</b>						
1. The email accounts and personal data of students are strictly confidential.	4.86	VE	3.27	ME	3.40	ME
2. The assessment results are not visible to classmates or other assessment takers.	4.59	VE	3.11	ME	3.16	ME

Aspects	Google Forms mean	VD	Kahoot mean	VD	Quizziz mean	VD
3. Other conductors can't plagiarize the Digital Assessment tool questionnaire.	4.29	VE	2.90	SE	3.00	ME
4. Only the assessment owner or conductor can view the assessment results.	4.54	VE	3.16	ME	3.10	ME
5. The assessment answers are restorable and automatically saved in drafts whenever a technical problem arises.	4.63	VE	3.22	ME	3.04	ME
<b>TOTAL WEIGHTED MEAN</b>	<b>4.58</b>	<b>VE</b>	<b>3.13</b>	<b>ME</b>	<b>3.14</b>	<b>ME</b>

Note. Legend:

- 5 - Extremely Effective (EF)
- 4 - Very Effective (VE)
- 3 - Moderately Effective (ME)
- 2 - Slightly Effective (SE)
- 1 - Not Effective (NE)

Data analysis result of the research

Table 4 summarizes the mean value and index percentage for each indicator. The table shows that most respondents rated Google Forms as very effective regarding function, features, reliability, and security, with weighted means of 4.55, 4.56, 4.55, and 4.58. This implies that Google Forms is the most preferred and used Digital Assessment Tool in the institution because the respondents rated it adequate in teaching and learning. Google Classroom is considered one of the best platforms for improving lecturer workflow. This application provides advanced features that make it the ideal tool for use with students. This application helps teachers save time, organize classes, and improve student communication. It can be used for learning and increasing the productivity of lecturers and students (Negara, 2018). For instance, a study by Jeya and Brandford (2019) shows that Google Classroom positively impacts the usage of the pedagogical process. They also found that students are interested in using Google Classroom as mobile learning, which is more flexible. Another study by Heggart and Yoo (2018) also shows that Google Classroom can increase student participation in education and improve classroom dynamics. Meanwhile, according to Ramadhani et al. (2019), the students felt passionate, motivated, and eager to take part in learning using Google Classroom. The results from the study indicate that Google Classroom serves as a new experience for them to take part in a lesson both in class and outside the classroom.

The Kahoot data result shows the least practical assessment, with weighted mean scores of 2.81, 3.24, 3.23, and 3.13 regarding features, functions, reliability, and security, and a verbal description of "slightly effective." This strengthens the statement made by Bitner and Bitner (2002) that technology applications cannot provide learners with the overall experience of good feedback practice. In addition, the Kahoot assessment has several flaws, such as students' inability to discuss answers with educators, and the test's objective seems vague, as it only depends on learners' ability to achieve a higher ranking (Susilowati, 2017).

While Kahoot and Quizizz can be engaging and fun tools for classroom activities, their effectiveness may be limited. Kahoot and Quizizz often emphasize quick recall rather than deeper, critical thinking or analytical questions. This can lead to superficial understanding among students (Ryan et al., 2000). Students may enjoy the game-like environment but might not retain the information long-term. In addition, these tools typically offer limited insights into student understanding beyond simple scores, making it difficult for educators to assess overall comprehension or skill mastery Licorish et al. (2018). Educators should consider these factors and possibly complement these tools with other teaching methods that promote deeper understanding and collaboration to enhance overall effectiveness in the classroom.

**Table 5***Level of Acceptability*

N = 60

Aspects	Google Forms mean	VD	Kahoot mean	VD	Quizizz mean	VD
<b>A. PERCEIVED USEFULNESS</b>						
1. I find the Digital Assessment Tool useful.	3.92	A	2.98	N	2.93	N
2. The Digital Assessment Tools promote the independent learning process.	3.71	A	2.69	N	2.93	N
3. I find the Digital Assessment Tool more helpful in tracking learning progress efficiently.	3.61	A	2.74	N	2.63	N
4. The Digital Assessment Tool provides authentic student performance results.	3.56	A	2.58	N	2.86	N
<b>TOTAL WEIGHTED MEAN</b>	<b>3.70</b>	<b>A</b>	<b>2.75</b>	<b>N</b>	<b>2.84</b>	<b>N</b>
<b>B. PERCEIVED EASE OF USE</b>						
1. The Digital Assessment Tool is simple and easy to use.	3.93	A	2.90	N	3.50	A
2. I find the Digital Assessment Tool functions smoothly and well-integrated.	3.50	A	2.72	N	3.30	A
3. I find the Digital Assessment supports fun for learning and more interactive.	3.40	A	2.74	N	2.60	N
4. I need technical support to use Digital Assessment Tools.	3.52	A	2.61	N	2.70	N
<b>TOTAL WEIGHTED MEAN</b>	<b>3.59</b>	<b>A</b>	<b>2.74</b>	<b>N</b>	<b>3.30</b>	<b>A</b>

Aspects	Google Forms mean	VD	Kahoot mean	VD	Quizziz mean	VD
<b>C. BEHAVIORAL INTENTION TO USE</b>						
1. The digital Assessment Tool is more entertaining and helpful in learning.	3.48	A	2.77	N	2.89	N
2. I am comfortable using Digital Assessment Tools to enhance my study interest.	3.49	A	2.57	N	2.87	N
3. students and teachers have learned these Digital Assessment Tools and find them enjoyable.	3.54	A	2.80	N	2.69	N
4. I find the graphics of the Digital Assessment Tools more attractive and stimulating.	3.54	A	2.74	N	2.90	N
<b>TOTAL WEIGHTED MEAN</b>	<b>3.51</b>	<b>A</b>	<b>2.72</b>	<b>N</b>	<b>2.93</b>	<b>N</b>
<b>D. ACTUAL USAGE</b>						
1. I do not find Digital Assessment Tools to be time-consuming.	3.64	A	2.69	N	3.30	N
2. I think there are a few things to learn before I can use the Digital Assessment Tool.	3.58	A	2.63	N	3.00	N
3. I think there are no irregularities in the Digital Assessment Tool.	3.28	A	2.43	N	2.90	N
4. I find the Digital Assessment Tool fun and exciting to use.	3.29	A	2.77	N	2.80	N
<b>TOTAL WEIGHTED MEAN</b>	<b>3.45</b>	<b>A</b>	<b>2.63</b>	<b>N</b>	<b>3.00</b>	<b>N</b>

Note. Legend:

4 - Very Acceptable (VA)

3 - Acceptable (A)

2 - Neutral (N)

1 - Unacceptable (U)

Data analysis result of the research

Table 5 shows the acceptability of utilizing digital assessment tools such as Google Forms, Kahoot, and Quizziz. Regarding perceived usefulness, Google Forms has a weighted mean of 3.70. Regarding ease of use, it has a weighted mean of 3.59. It has a weighted mean of 3.51 for behavioral intention to use, and for its actual usage, it has 3.45. Google Forms received the highest weighted mean.

The results of the weighted mean indicate “acceptable.” Empirical data have verified that blended or hybrid learning methods with the help of Google Classroom constructively enhance thinking skills (Sulisworo et al., 2020), student satisfaction (Almusharraf & Khahro,

2020), student engagement (Abazi-Bexheti et al., 2018), self-efficacy (Noornadiah & Khoo, 2021), and student attitude towards the subject (Wan Nazari et al., 2019). Instructors can support their face-to-face classes with online learning through Google Classroom (Halverson et al., 2017). Google Classroom is known for its ease of use (Janzen, 2014), ease of organizing work, and time savings (Northey et al., 2018); it can be accessed easily from laptops, PCs, and mobiles. This shows that Google Classroom is highly recommended by the educational community (Northey et al., 2018). In addition, it provides flexibility in scheduling, eliminates travel expenses, and can reach out to anyone with access to it.

Conversely, Kahoot obtained the lowest mean of 2.75, suggesting a “neutral” perception. Kohnke and Moorhouse (2021) argue Kahoot is a game-based technology solution for beginners in e-learning to promote engagement and active learning in the classroom. This indicates that Kahoot is primarily beneficial for beginners and not for advanced learners. Kahoot and Quizizz often focus on quick recall and multiple-choice questions, which may not adequately assess higher-order thinking skills. This limitation can lead to dissatisfaction among educators who seek to promote deeper understanding and critical thinking in their students. Additionally, While Kahoot and Quizizz are initially engaging due to their gamified elements, the novelty can wear off over time, reducing their long-term effectiveness and acceptability. This phenomenon is often called the “wear-out effect” (Plump & LaRosa, 2017).

This suggests that Google Forms is valuable and practical for monitoring students’ progress and performance. Google Forms is highly effective for tracking students’ progress and performance due to its user-friendly interface, accessibility, customizability, efficient data collection and analysis capabilities, automated grading, and secure environment. These features make it an invaluable tool for educators to enhance their assessment practices and support student learning (Mafi & Etedali, 2020).

**Table 6**

*Significant Relationship between the Level of Effectiveness and Level of Acceptability of the Utilized Digital Assessment Tools*

N = 60

	Google Forms LOE	Kahoot LOE	Quizizz LOE	Overall LOE	Google Forms LOA	Kahoot LOA	Quizizz LOA	Overall LOA
<b>Google Forms LOE</b>	1							
<b>Kahoot LOE</b>	0.088	1						
<b>Quizizz LOE</b>	-.237*	.729**	1					
<b>Overall LOE</b>	.220*	.933**	.842**	1				
<b>Google Forms LOA</b>	.690**	0.064	-.257**	0.103	1			
<b>Kahoot LOA</b>	.211*	.777**	.563**	.766**	.232*	1		
<b>Quizizz LOA</b>	-.244*	.646**	.846**	.714**	-0.124	.705**	1	
<b>Overall LOA</b>	.276**	.709**	.563**	.752**	.472**	.916**	.760**	1

Note. \*. Correlation is significant at the 0.05 level (2-tailed)

\*\* . Correlation is significant at the 0.01 level (2-tailed)

Data analysis result of the research

Table 6 shows the result of zero-ordered correlation via the Pearson  $r$  coefficient to test whether the level of effectiveness significantly correlates with the level of acceptability of the utilized digital assessment tools. The overall relationship between the two variables is significant ( $r = 0.75$ ,  $p = 0.01$ ).

However, based on pairwise correlation of indicators, only the dimension of Google Forms was found to not significantly correlate with the overall level of effectiveness ( $r = 0.103$ ,  $p > 0.01$ ). When the indicators of the two levels of acceptability of the digital assessment tools used, Kahoot ( $r = 0.766$ ,  $p < 0.01$ ) and Quizziz ( $r = 0.714$ ,  $p < 0.01$ ), were compared, there were significant relationships with the level of effectiveness. Google Forms ( $r = 0.276$ ,  $p < 0.01$ ), Kahoot ( $r = 0.709$ ,  $p < 0.01$ ), and Quizziz ( $r = 0.563$ ,  $p < 0.01$ ) significantly correlate with the level of acceptability of the utilized digital assessment tools. Hence, the null hypothesis is rejected by the significant correlation between the two levels of effectiveness of the utilized digital assessment tools, Kahoot and Quizziz, and the level of acceptability and the overall mean of the level of effectiveness.

Google Forms is often used for formative assessments, which may not fully capture students' comprehensive understanding and mastery of subjects. This limitation might make it less effective in providing a complete picture of student performance. While effective for quizzes and surveys, Google Forms might not be as suitable for high-stakes assessments, impacting its perceived overall effectiveness (Koros, 2020). While Google Forms is a valuable tool for specific assessments, its limited interaction and engagement features, narrow assessment scope, simplistic question design, technical and usability issues, and perceived lack of innovation can contribute to its lower correlation with overall effectiveness. Educators might find that while Google Forms serves specific purposes well, it does not fully meet the comprehensive needs of all classroom assessment scenarios.

Despite high ratings in other attributes, the lack of significant correlation between Google Forms and overall effectiveness suggests that while students found Google Forms acceptable or helpful in certain aspects, it did not necessarily enhance their learning or engagement to the same extent as Kahoot and Quizziz. Google Forms is primarily used to collect responses through traditional quiz formats or surveys. This tool typically lacks interactive, real-time feedback mechanisms, which might limit its impact on student engagement and, therefore, overall effectiveness. In contrast, Kahoot and Quizziz use gamified, live-response formats that actively engage students and promote dynamic learning, which can lead to greater perceptions of effectiveness.

## **5. Conclusions and recommendations**

Today's learners and educational methods have evolved to incorporate online integration and interaction. Technology-mediated instruction now relies on Digital Assessment Tools to facilitate and enhance learning experiences. Among students, Facebook stands out as the most favored online platform, and their primary digital tool is an Android phone, with mobile data being their preferred internet connection. The level of acceptance regarding perceived usefulness, ease of use, intention to use, and actual usage is high among students when assessing their performance. The study can have the following important conclusions:

**Positive Impact on Student Performance:** The study indicates that digital evaluation tools significantly enhance student performance. Students using these tools showed improved grades and a better understanding of the subject matter than those who relied solely on traditional assessment methods.

**Increased Engagement and Motivation:** Digital evaluation tools have increased student engagement and motivation. Interactive features, instant feedback, and gamified elements help maintain students' interest and encourage active participation in their learning process.

**Enhanced Feedback Mechanisms:** The immediacy and detailed nature of feedback provided by digital tools allows students to identify their strengths and weaknesses promptly. This timely feedback supports a more personalized learning experience and enables students to focus on areas needing improvement.

**Efficiency in Assessment:** Digital tools streamline the assessment process, making it more efficient for educators and students. Automated grading and data analysis reduces the administrative burden on teachers, allowing them to devote more time to instructional activities.

**Challenges and Limitations:** Despite the benefits, the study acknowledges challenges such as the digital divide, where unequal access to technology can disadvantage some students. Additionally, a learning curve is associated with adopting new technologies, which may require additional training for students and educators.

By implementing these recommendations, educational institutions can maximize the benefits of digital evaluation tools, ultimately leading to improved student performance and a more engaging learning experience.

## **SCIENTIFIC CONTRIBUTION**

The manuscript clearly identifies a research gap; the manuscript opens new directions for further research.

## **AUTHOR CONTRIBUTIONS**

**CRedit:** **Angen May Fabro Charos:** Conceptualization, Methodology, Writing - Original Draft, Writing - Review & Editing, Software, Investigation, Formal Analysis, Supervision, Validation, Visualization.

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## **NO CONFLICT OF INTEREST STATEMENT**

The author declares that there's no conflict of interest.

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