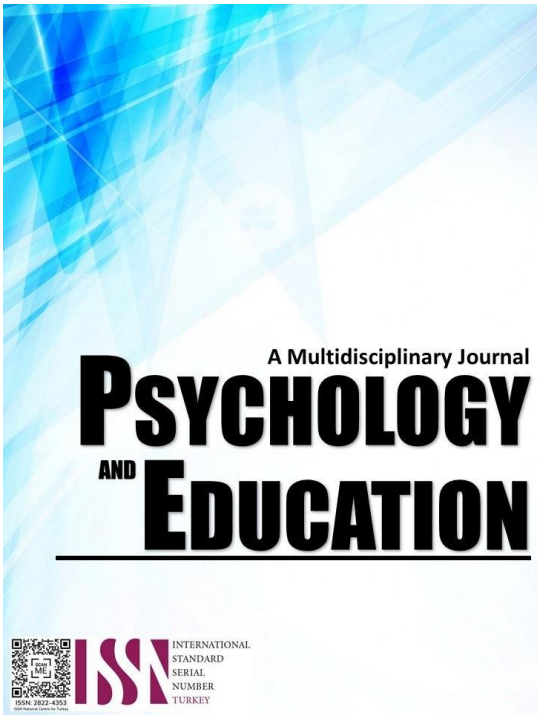
TRANSFORMATION OF 21ST CENTURY EDUCATIONAL E-ASSESSMENT INTEGRATED BY SECONDARY TEACHERS OF BAGACAY NATIONAL HIGH SCHOOL: A DESCRIPTIVE STUDY ON OPPORTUNITIES AND CHALLENGES OF NEW CURRICULUM



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Research Article

Transformation of 21st Century Educational E-Assessment Integrated by Secondary Teachers of Bagacay National High School: A Descriptive Study on Opportunities and Challenges of New Curriculum

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Abstract

The integration of 21st-century educational e-assessment methods by secondary teachers holds immense potential for transforming teaching and learning practices. Prior to the pandemic and new curriculum, traditional assessment methods faced challenges, such as the need to maintain social and physical distancing and conduct in-person tests and examinations. Consequently, the popularity and utilization of electronic assessments surged. As the world transitions post-COVID-19, there is ongoing debate regarding the merits of returning to traditional assessment approaches versus integrating online assessment methods. Thus, this descriptive study aims to describe the opportunities and challenges associated with the utilization of e-assessment in the context of a public secondary high school. With a focus on practicality, authenticity, consistency, and transparency, the study examines the perspectives of 30 secondary teachers actively engaged in utilizing digital assessment tools. Through a meticulously designed questionnaire based on the Alternative Digital Assessment Theory and prACT framework, the study gathers insights into the perceived opportunities and challenges faced by teachers in integrating e-assessment into their pedagogical practices. The findings reveal a generally positive outlook among teachers towards the opportunities presented by e-assessment, particularly in terms of transparency and consistency. Teachers strongly agree that digital assessment methods enhance transparency by promoting open communication and collaboration between students and educators, while also ensuring consistency in feedback provision and grading practices. However, challenges related to practicability emerge as significant concerns, with limited technological infrastructure and training posing obstacles to the seamless implementation of e-assessment. Additionally, the study identifies age-related variations in teachers' perspectives on the challenges posed by e-assessment.

Keywords: *educational, assessment, opportunities, challenges*

Introduction

The 21st century is characterized by the emergence of ultra-modern approaches aimed at addressing societal challenges across various domains, including technology, sciences, and the arts. In the realm of education, this era signifies a pivotal moment marked by significant shifts in teaching and assessment methodologies. Traditional practices such as rote learning, drills, and paper-based measurements, along with Socratic methods of discussion, are giving way to more innovative approaches both inside and outside the classroom. Educational assessment, crucial for documenting students' measurable activities and evaluating their knowledge, skills, attitudes, and beliefs, has undergone a paradigm shift to encompass a diverse array of tools and methods. These include initial, formative, summative, and diagnostic assessments, as well as objective and subjective evaluations, among others.

Moreover, the advent of the 21st century has heralded the rise of a knowledge-based society, characterized by lifelong learning and the sharing of innovations and expertise within communities of experts and non-experts alike. In this context, educators are tasked with designing activities that resonate with students, leveraging modern tools to accurately assess cognitive, affective, and psychomotor skills. However, the integration of technology into education presents its own set of challenges, necessitating the adoption of more efficient examination tools such as electronic assessment (e-assessment) in lieu of traditional paper-based exams.

As educational paradigms continue to evolve, the significance of assessment in shaping curriculum, teaching, and learning practices has become increasingly pronounced. Educators now spend a substantial portion of their class time engaged in various assessment and learning evaluation activities, reflecting the growing importance of assessment cultures within educational contexts. Research findings from Walden University (2019) suggest that teachers typically dedicate a significant portion of their class time, ranging from one-third to one-half, to various forms of assessment or learning evaluation activities. In recent years, the importance of assessment and accountability in education has grown substantially. While traditional concerns regarding the validity and reliability of assessments remain relevant, there is a multitude of additional issues impacting educational assessment on a global scale. These include the value of testing for international benchmarking, the expansion of assessment practices beyond traditional paper-and-pencil tests to incorporate alternative modes, the intersection of assessment with technological advancements, and the definition of authentic assessment, particularly within specific contexts. Prior to the pandemic, traditional assessment methods faced challenges, such as the need to maintain social and physical distancing and conduct in-person tests and examinations. Consequently, the popularity and utilization of online assessments surged during the pandemic. As the world transitions post-COVID-19, there is ongoing debate regarding the merits of returning to traditional assessment approaches versus integrating online assessment methods, with some advocating for exclusively online assessment tools and techniques.

E-assessment encompasses various assessment methods, including automated administrative processes, the digitization of paper-based systems, and online testing, which may include multiple-choice tests and evaluations of problem-solving abilities (Alruwaris, 2018). By utilizing computer-based tools such as web-based assessment platforms, e-assessment facilitates the measurement of learner outcomes and enables students to receive prompt and direct feedback, thereby enhancing the effectiveness of the assessment process.

As the educational paradigms evolve to meet the demands of a digital age, understanding the trends and challenges associated with e-assessment integration is essential for optimizing teaching and learning outcomes. With this, the researcher aims to determine the transformation of 21st-century educational e-assessment integrated by selected teachers on Bagacay National High School lies. By examining how secondary teachers at Bagacay National High School incorporate e-assessment methodologies into their instructional practices within the context of a new curriculum, this study aims to elucidate the factors shaping the implementation and effectiveness of digital assessment tools. Insights gained from this research can inform evidence-based strategies for enhancing assessment practices, fostering student engagement, and promoting the acquisition of 21st-century skills among students.

Research Questions

This study aims to determine the Transformation of 21st Century Educational E-Assessment integrated by secondary teachers Of Bagacay National High School. However, specifically, it aims to:

1. Determine the profile of the respondents in terms:
    1.1. age;
    1.2. highest educational attainment; and
    1.3. number of years in service?
2. Determine the extent of opportunities brought by the E-assessment in terms of:
    2.1. practicability;
    2.2. authenticity;
    2.3. consistency; and
    2.4. transparency?
3. Determine the challenges posed by the E-assessment in terms of:
    3.1. practicability;
    3.2. authenticity;
    3.3. consistency; and
    3.4. transparency?
4. Determine if there is significant relationship between the profile of the respondents and the challenges, they encounter in utilizing E-assessment
5. From the findings, determine the recommendation in the development and utilization of E-assessment in the educational landscape of secondary education.

Methodology

Research Design

This study adopts a descriptive correlational research design to investigate the Transformation of 21st Century Educational E-Assessment on a public secondary school. Descriptive research aims to provide a comprehensive portrayal or summary of a phenomenon, focusing on its characteristics, features, and components (Enago, 2023). In this context, the study employs a descriptive approach to illuminate the extent of opportunities and challenges associated with E-assessment, specifically examining its practicability, authenticity, consistency, and transparency within the educational context. By focusing on these specific terms, the study aims to offer a nuanced understanding of how E-assessment is perceived and experienced by teachers, highlighting on both its benefits and limitations.

Moreover, the study incorporates a correlational component to explore the potential relationships between the profile of the respondents and the challenges they encounter in utilizing E-assessment. Correlational research seeks to determine the degree and direction of association between two or more variables (Bhandari, 2021). In this case, the study aims to ascertain whether demographic factors such as age, highest educational attainment, and years of service have a significant correlation with the challenges faced by teachers in implementing E-assessment practices. By examining these relationships, the study aims to identify potential patterns or trends that may inform targeted interventions or support strategies to address the identified challenges.

Respondents

The respondents of this study are comprised of 30 teachers from Bagacay National High School, located in Tinambac, Camarines Sur. The sampling method employed for this study is Total Enumeration Sampling, which is a type of purposive sampling technique. Total enumeration sampling involves examining the entire population that possesses specific characteristics, in this case, teachers who are actively using e-assessment in their teaching process. Therefore, all 30 teachers who meet this criterion constitute the sample for the study. By selecting teachers who are actively integrating e-assessment into their instructional practices, the study aims to gather insights

and perspectives from those directly engaged in the utilization of this educational technology. This purposive sampling approach ensures that the respondents possess relevant experience and knowledge regarding the use of e-assessment, thereby enhancing the validity and comprehensiveness of the study's findings.

Instrument

The study uses a questionnaire designed by the researcher to align with the research goals, based on the Alternative Digital Assessment Theory and supported by the PrACT framework. This survey contains a set of questions carefully crafted to investigate the benefits and challenges of incorporating e-assessment in secondary education. In order to encourage participants to share their thoughts, the researcher will utilize the Likert scale, which includes a four-point range for individuals to express their agreement or disagreement with statements.

The chosen tool, based on a quantitative approach, strengthens the study's reliability and simplifies the statistical analysis of the collected data. The organized structure of the Likert scale not only simplifies participant responses but also offers researchers quantitative data that is appropriate for thorough analysis. Before being deployed, the questionnaire is carefully validated by the research adviser to ensure its reliability and suitability for meeting the study's goals.

Procedure

After confirming the validity of the research tool, the researcher proceeded to perform a preliminary visit to the study site. This phase entails acquainting oneself with the physical surroundings, sending of approval sheet for data gathering, and identifying the selected respondents. Since the study employ a purposive sampling method, pre-interview is a must to determine the suited respondents for the study. One week before to the intended data collection day, the researchers completed the list of participants and verified their availability to conduct the data gathering procedure. On the designated day for data collection, the researchers revisited the research site and personally oversaw the distribution of the questionnaires. Following the distribution process, the researchers promptly collected the completed surveys. This methodology was implemented to achieve a 100% recovery rate, thereby minimizing the possibility of encountering incomplete data.

Data Analysis

The following statistical tools will be utilized in analyzing the data gathered.

Frequency distribution and percentage will be applied to present and describe the data gathered in terms of the socio demographic profile of the respondents.

Ranking and Likert Scale will be used to show the ranking of the rating of the respondents. 4-point Likert scale was utilized for high accuracy of description.

Weighted Mean will be used to describe the data scale on the questionnaire. WM has interpretation based on its corresponding legends.

Pearson-r will be used in determining whether variables in this study have significant relationship, the research will use Pearson r. Pearson's r is a bivariate statistical model that analyzes relationship between two variables. Pearson's correlation may always be used to test an associative research hypothesis as long as the variables being analyzed are both quantitative.

Ethical Considerations

The researcher ensured that all volunteers received thorough briefings on the fundamental concept and goals of the study. Prior to their involvement, participants were provided with comprehensive information detailing the study's purpose, methodology, and potential outcomes. This approach aimed to empower participants with the necessary knowledge to make informed decisions about their participation. It was made clear to participants that their involvement in the study was entirely voluntary, particularly during the data collection phase. This ensured that participants felt no obligation to participate and had the freedom to withdraw from the study at any point without facing any repercussions. Any personal information collected from participants was solely intended for the primary objective of the study. Participants were assured that their data would not be used for any other purposes or shared with external parties.

Results and Discussion

This section present analyzed, and interpreted the data gathered using appropriated statistical tools. This presentation is sorted with the specific questions presented on the rationale of this study. The data were presented in the tabular form.

Table 1. *Profile of the Respondents by Age*

Age	*Frequency*	*Percentage*	*Rank*
20-30 years old	14	46.67 %	1
31-40 years old	11	36.67 %	2
41-50 years old	4	13.33 %	3
51-60 years old	1	3.33 %	4
Total	30	100 %	

Table 1 presents the profile of the respondents categorized by age, derived from a sample of 30 secondary teachers from Bagacay National High School in Tinambac, Camarines Sur, who actively utilize e-assessment or digital assessment in their practice. The data indicates that the majority of respondents fall within the age range of 20-30 years old, comprising 14 individuals, which accounts for 46.67% of the total respondents. Following this, the age group of 31-40 years old represents the second largest proportion, with 11 respondents, constituting 36.67% of the sample. Meanwhile, respondents aged 41-50 years old make up a smaller percentage, with 4 individuals, equivalent to 13.33% of the total. Finally, respondents aged 51-60 years old represent the smallest proportion, with only 1 individual, making up 3.33% of the sample. This distribution provides insights into the age demographics of the teachers actively engaged in e-assessment practices, highlighting a predominant presence of younger educators in this aspect, while also indicating some level of participation from older age groups.

Table 2. *Profile of the Respondents by Highest Educational Attainment*

Educational Level	*Frequency*	*Percentage*	*Rank*
Bachelor's	11	36.67 %	2
Master's	17	56.67 %	1
Doctorate	2	6.66 %	3
Total	30	100 %	

Table 2 provides an overview of the profile of the respondents categorized by their highest educational attainment, drawn from secondary teachers actively involved in integrating e-assessment at Bagacay National High School. The data demonstrates the distribution of respondents across different levels of educational achievement. A significant majority of respondents, comprising 56.67% of the sample, hold a Master's degree as their highest educational qualification. This indicates a predominant presence of educators with advanced academic credentials within the cohort. Following this, 36.67% of the respondents possess a Bachelor's degree, representing a substantial proportion of teachers with undergraduate qualifications. A smaller percentage of respondents, constituting 6.66% of the sample, have obtained a Doctorate degree, reflecting a minor presence of highly educated individuals among the participants. This distribution provides insights into the diverse educational backgrounds of the teachers participating in the study, highlighting the prevalence of advanced academic qualifications among the respondent pool.

Table 3. *Profile of the respondents by Years in Service*

Years	*Frequency*	*Percentage*	*Rank*
1-5	5	16.67 %	3
6-10	12	40 %	1
11-15	9	30 %	2
15-20	3	10 %	4
21 and above	1	3.33 %	5
Total	30	100 %	

Table 3 outlines the profile of respondents categorized by their years in service as secondary teachers at Bagacay National High School, offering insights into the distribution of educators based on their tenure. The data indicates that the largest proportion of respondents, comprising 40% of the sample, have been in service for 6 to 10 years. This suggests a considerable representation of teachers with moderate experience levels within the respondent pool. Following this, 30% of the respondents have served for 11 to 15 years, indicating a substantial presence of educators with a relatively longer tenure.

Additionally, 16.67% of the respondents have a tenure of 1 to 5 years, signifying a minority of teachers who are relatively new to the profession. Furthermore, 10% of the respondents have served for 15 to 20 years, reflecting a smaller proportion of educators with more extensive experience. Lastly, a minimal percentage of respondents, constituting 3.33% of the sample, have been in service for 21 years or more, highlighting the limited presence of educators with extensive long-term tenure. This distribution offers valuable insights into the diverse experience levels of teachers participating in the study, providing a comprehensive overview of the tenure landscape among secondary educators at Bagacay National High School.

Table 4 presents the respondents' perspectives on the opportunities brought by E-Assessment in terms of practicability. The data indicates that the majority of respondents, with an average agreement rating of 3.33, agree that the implementation of digital assessment strategies enhances the efficiency of assessment processes within the educational institution. This suggests a positive outlook among teachers regarding the practical benefits of incorporating digital assessment methods into their teaching practices.

Furthermore, respondents generally agree, with an average rating of 2.79, that integrating digital assessment methods into the curriculum is feasible and sustainable in the long term. This indicates a belief among educators that digital assessment methods can be effectively integrated into the curriculum without posing significant challenges or hindrances. Added to this, the data reveals that respondents also agree, with an average rating of 2.73, that the time invested in training educators to use digital assessment platforms is worthwhile for the benefits it brings to assessment practices. This suggests that teachers perceive the training required to adopt digital assessment methods as valuable and beneficial in improving assessment practices.

Table 4. *Opportunities brought by E-Assessment in terms of Practicability*

Items	*Weighted Mean*	*Verbal Interpretation*	*Rank*
The resources required for utilizing digital assessment tools are easily accessible and manageable.	2.56	Agree	4
The time invested in training educators to use digital assessment platforms is worthwhile for the benefits it brings to assessment practices.	2.73	Agree	3
The costs associated with adopting digital assessment tools are justified by the improvements in assessment accuracy and feedback delivery.	2.50	Agree	5
Integrating digital assessment methods into our curriculum is feasible and sustainable in the long term.	2.79	Agree	2
The implementation of digital assessment strategies enhances the efficiency of assessment processes within our educational institution.	3.33	Agree	1
Overall Mean	2.29	Agree	

Legend: 1.00- 1.74 (Strongly Disagree) 1.75- 2.49 (Disagree) 2.50-3.24 (Agree) 3.25-4.00 (Strongly Agree)

Overall, the mean agreement rating for all statements related to practicability is 2.29, indicating a generally positive perception among respondents regarding the opportunities brought by E-Assessment in terms of practicability. This suggests that the teachers view digital assessment as a feasible and beneficial approach to enhancing assessment practices within the context of the new curriculum.

Table 5. *Opportunities brought by E-Assessment in terms of Authenticity*

Items	*Weighted Mean*	*Verbal Interpretation*	*Rank*
Digital assessment tasks reflect real-world scenarios and challenges relevant to students' future careers or academic pursuits.	3.37	Strongly Agree	4
The conditions under which digital assessments are conducted closely resemble authentic learning and work environments.	3.24	Agree	5
Digital assessment tasks are meaningful and valuable for students, providing insights into their real-world competencies and skills.	3.74	Strongly Agree	1
Students perceive digital assessment tasks as relevant and beneficial for their personal and professional development.	3.58	Strongly Agree	2
The authenticity of digital assessment tasks is evident in their alignment with curriculum objectives and learning outcomes.	3.50	Strongly Agree	3
Overall Mean	3.49	Strongly Agree	

Legend: 1.00- 1.74 (Strongly Disagree) 1.75- 2.49 (Disagree) 2.50-3.24 (Agree) 3.25-4.00 (Strongly Agree)

Table 5 presents the respondents' perspectives on the opportunities brought by E-Assessment in terms of authenticity. The data shows strong agreement among respondents regarding various aspects related to the authenticity of digital assessment tasks. Firstly, the data indicates that the majority of respondents strongly agree, with an average rating of 3.74, that digital assessment tasks are meaningful and valuable for students, providing insights into their real-world competencies and skills. This suggests that teachers perceive digital assessment tasks as effective tools for assessing students' abilities in contexts that mirror real-world scenarios. Secondly, respondents also strongly agree, with an average rating of 3.58, that students perceive digital assessment tasks as relevant and beneficial for their personal and professional development. This indicates that teachers believe students recognize the value of digital assessment tasks in enhancing their skills and preparing them for future endeavors. On the third rank, the data reveals strong agreement among respondents, with an average rating of 3.50, that the authenticity of digital assessment tasks is evident in their alignment with curriculum objectives and learning outcomes. This suggests that teachers perceive digital assessment tasks as closely linked to the goals and objectives outlined in the curriculum.

Moreover, respondents strongly agree, with an average rating of 3.37, that digital assessment tasks reflect real-world scenarios and challenges relevant to students' future careers or academic pursuits. This indicates that teachers believe digital assessment tasks effectively simulate real-world situations, providing students with valuable learning experiences. Overall, the mean agreement rating for all statements related to authenticity is 3.49, indicating a strong consensus among respondents regarding the opportunities brought by E-Assessment in terms of authenticity.

Table 6 presents the respondents' perspectives on the opportunities brought by E-Assessment in terms of consistency. The data illustrates a strong consensus among respondents regarding various aspects related to the consistency of digital assessment methods.

Firstly, the data indicates that the majority of respondents strongly agree, with an average rating of 3.81, that utilizing a variety of digital assessment methods allows for a comprehensive evaluation of student competencies and skills. This suggests that teachers perceive the diverse range of digital assessment tools as valuable resources for assessing various aspects of student learning, enabling a more holistic evaluation process. Secondly, respondents also strongly agree, with an average rating of 3.78, that the use of digital assessment tools promotes consistency in feedback provision and grading practices. This indicates that teachers believe digital assessment methods facilitate standardized approaches to providing feedback and grading student work, enhancing the reliability and fairness of the assessment process. Additionally, the data reveals strong agreement among respondents, with an average rating of 3.54,

that digital assessment methods ensure that assessment tasks are aligned with learning objectives and course content. This suggests that teachers perceive digital assessment methods as effective tools for ensuring that assessment tasks accurately measure student learning outcomes and are closely integrated with the curriculum.

Table 6. *Opportunities brought by E-Assessment in terms of Consistency*

Items	*Weighted Mean*	*Verbal Interpretation*	*Rank*
Digital assessment methods ensure that assessment tasks are aligned with learning objectives and course content.	3.54	Strongly Agree	3
Utilizing a variety of digital assessment methods allows for a comprehensive evaluation of student competencies and skills.	3.81	Strongly Agree	1
Digital assessment methods contribute to the reliability and validity of assessment results by minimizing bias and subjectivity.	3.50	Strongly Agree	4
Assessment criteria used in digital assessments are relevant and appropriate for evaluating student performance.	3.48	Strongly Agree	5
The use of digital assessment tools promotes consistency in feedback provision and grading practices.	3.78	Strongly Agree	2
Overall Mean	3.62	Strongly Agree	

Legend: 1.00- 1.74 (Strongly Disagree) 1.75- 2.49 (Disagree) 2.50-3.24 (Agree) 3.25-4.00 (Strongly Agree)

Overall, the mean agreement rating for all statements related to consistency is 3.62, indicating a strong consensus among respondents regarding the opportunities brought by E-Assessment in terms of consistency. This suggests that the teachers view digital assessment methods as valuable tools for promoting consistency in evaluating student competencies and aligning assessment tasks with learning objectives.

Table 7. *Opportunities brought by E-Assessment in terms of Transparency*

Items	*Weighted Mean*	*Verbal Interpretation*	*Rank*
Students are actively involved in defining assessment criteria and setting learning goals in digital assessment processes.	3.20	Agree	5
Digital assessment methods provide students with clear expectations and guidelines for completing assessment tasks.	3.80	Strongly Agree	3
Digital assessment methods enhance transparency by promoting open communication and collaboration between students and educators.	4.00	Strongly Agree	1
The effects of digital assessment strategies on student learning outcomes are visible and measurable.	3.56	Strongly Agree	4
Digital assessment practices promote transparency by allowing students to track their progress and performance over time.	4.00	Strongly Agree	1
Overall Mean	3.71	Strongly Agree	

Legend: 1.00- 1.74 (Strongly Disagree) 1.75- 2.49 (Disagree) 2.50-3.24 (Agree) 3.25-4.00 (Strongly Agree)

Table 7 presents the respondents' perspectives on the opportunities brought by E-Assessment in terms of transparency. The data indicates a strong consensus among respondents regarding various aspects related to transparency in digital assessment methods.

Firstly, all respondents strongly agree, with a rating of 4.00, that digital assessment methods enhance transparency by promoting open communication and collaboration between students and educators. This suggests that teachers perceive digital assessment practices as fostering an environment of transparency where students and educators can openly communicate, collaborate, and engage in discussions about assessment tasks and performance.

On second rank, all respondents also strongly agree, with a rating of 4.00, that digital assessment practices promote transparency by allowing students to track their progress and performance over time. This indicates that teachers believe digital assessment methods provide students with the tools and resources necessary to monitor their own learning progress and understand their strengths and areas for improvement. On the third rank, respondents strongly agree, with a rating of 3.80, that digital assessment methods provide students with clear expectations and guidelines for completing assessment tasks. This suggests that teachers perceive digital assessment methods as effective tools for ensuring that students understand the requirements and expectations associated with assessment tasks, thereby enhancing transparency in the assessment process.

Overall, the mean agreement rating for all statements related to transparency is 3.71, indicating a strong consensus among respondents regarding the opportunities brought by E-Assessment in terms of transparency. This suggests that teachers view digital assessment methods as valuable tools for promoting transparency in communication, tracking progress, and setting clear expectations for students.

Table 8 illustrates the challenges perceived by respondents regarding E-Assessment in terms of practicability. The data reflects a strong consensus among respondents regarding various obstacles related to the practical implementation of digital assessment methods.

Firstly, respondents strongly agree, with a rating of 3.82, that limited technological infrastructure and access to electronic devices hinder the practicality of digital assessment implementation. This suggests that teachers perceive the lack of adequate technology

infrastructure and access to electronic devices as significant barriers to effectively implementing digital assessment methods in their teaching practices.

Table 8. *Challenges posed by E-Assessment in terms of Practicability*

Items	*Weighted Mean*	*Verbal Interpretation*	*Rank*
Implementing digital assessment tools requires significant investment in resources and training for teachers and administrators.	3.75	Strongly Agree	2
The time required to learn and adapt to new electronic assessment methods poses a challenge for educators.	3.54	Strongly Agree	3
Limited technological infrastructure and access to electronic devices hinder the practicality of digital assessment implementation.	3.82	Strongly Agree	1
Maintaining the sustainability of electronic assessment practices amidst changing technology and software updates is challenging.	3.24	Agree	5
The administrative burden associated with managing electronic assessment processes adds complexity to teaching responsibilities.	3.46	Strongly Agree	4
Overall Mean	3.57	Strongly Agree	

Legend: 1.00- 1.74 (Strongly Disagree) 1.75- 2.49 (Disagree) 2.50-3.24 (Agree) 3.25-4.00 (Strongly Agree)

Secondly, respondents also strongly agree, with a rating of 3.75, that implementing digital assessment tools requires a significant investment in resources and training for teachers and administrators. This indicates that teachers recognize the need for substantial investments in terms of both financial resources and professional development opportunities to support the effective adoption and utilization of digital assessment tools.

Additionally, respondents strongly agree, with a rating of 3.54, that the time required to learn and adapt to new electronic assessment methods poses a challenge for educators. This suggests that teachers perceive the learning curve associated with adopting and adapting to new digital assessment methods as a significant practical challenge that they must overcome. Overall, the mean agreement rating for all statements related to practicability is 3.57, indicating a strong consensus among respondents regarding the challenges posed by E-Assessment in terms of practicability. This suggests that teachers recognize the practical barriers associated with limited technological infrastructure, resource constraints, and the learning curve involved in implementing digital assessment methods.

Table 9. *Challenges posed by E-Assessment in terms of Authenticity*

Items	*Weighted Mean*	*Verbal Interpretation*	*Rank*
Digital assessment tasks often lack real-world relevance and fail to reflect the complexity of professional challenges.	2.34	Disagree	3
The authenticity of electronic assessment tasks may be compromised due to their detachment from practical, hands-on learning experiences.	3. 22	Agree	1
Students perceive digital assessment tasks as artificial and disconnected from their actual learning goals and aspirations.	2.54	Agree	2
The standardized nature of electronic assessment limits opportunities for students to showcase their unique talents and capabilities.	1.72	Disagree	5
Electronic assessment practices often prioritize test-taking skills over practical application and critical thinking abilities.	1.96	Disagree	4
Overall Mean	2.36	Agree	

Legend: 1.00- 1.74 (Strongly Disagree) 1.75- 2.49 (Disagree) 2.50-3.24 (Agree) 3.25-4.00 (Strongly Agree)

Table 9 provides insights into the challenges perceived by respondents regarding E-Assessment in terms of authenticity. The data suggests varying levels of agreement among respondents regarding different aspects of authenticity associated with electronic assessment tasks.

Firstly, respondents generally agree, with a rating of 3.22, that the authenticity of electronic assessment tasks may be compromised due to their detachment from practical, hands-on learning experiences. This indicates that teachers recognize a potential gap between digital assessment tasks and real-world learning experiences, which could impact the authenticity of assessment outcomes.

Secondly, respondents also agree, with a rating of 2.54, that students perceive digital assessment tasks as artificial and disconnected from their actual learning goals and aspirations. This suggests that teachers acknowledge a perception among students that digital assessment tasks may not accurately reflect their learning experiences and objectives, thereby questioning the authenticity of such assessments.

However, the respondents disagree, with ratings of 1.96 and 1.72, respectively, regarding the standardized nature of electronic assessment limiting opportunities for students to showcase their unique talents and capabilities, as well as electronic assessment practices prioritizing test-taking skills over practical application and critical thinking abilities. This indicates that while some concerns about authenticity exist, respondents do not perceive standardization and prioritization of test-taking skills as significant challenges in terms of authenticity.

Overall, the data presents a nuanced perspective on the challenges posed by E-Assessment in terms of authenticity, with respondents acknowledging certain limitations but also highlighting areas where authenticity may not be significantly compromised.

Table 10. *Challenges posed by E-Assessment in terms of Consistency*

Items	*Weighted Mean*	*Verbal Interpretation*	*Rank*
Ensuring consistency in electronic assessment practices across different subject areas and grade levels is a challenge for educators.	1.84	Disagree	3
Variability in the interpretation of assessment criteria leads to inconsistencies in grading and evaluation of student performance.	1.56	Strongly Disagree	4
The use of diverse e-assessment methods introduces inconsistency in the measurement of student learning outcomes.	2.04	Disagree	2
The lack of standardization in electronic assessment practices undermines the comparability of student performance data.	2.40	Disagree	1
The reliability and validity of electronic assessment results are often questioned due to inconsistencies in assessment administration and scoring.	1.28	Strongly Disagree	5
Overall Mean	1.82	Disagree	

Legend: 1.00- 1.74 (Strongly Disagree) 1.75- 2.49 (Disagree) 2.50-3.24 (Agree) 3.25-4.00 (Strongly Agree)

Table 10 presents the respondents' perspectives on the challenges posed by E-Assessment in terms of consistency. The data reveals that respondents generally disagree with the statements presented in the table, indicating a lower level of agreement regarding consistency-related challenges associated with electronic assessment. The first statement, which suggests that the reliability and validity of electronic assessment results are often questioned due to inconsistencies in assessment administration and scoring, received a rating of 1.28, indicating a strong disagreement among respondents. This suggests that teachers do not perceive inconsistencies in assessment administration and scoring as significant challenges that undermine the reliability and validity of electronic assessment results.

Similarly, the second statement, highlighting variability in the interpretation of assessment criteria leading to inconsistencies in grading and evaluation of student performance, received a rating of 1.56, also indicating a strong disagreement among respondents. This implies that teachers do not perceive inconsistencies in the interpretation of assessment criteria as a major challenge impacting the grading and evaluation process of electronic assessments. Overall, with an overall mean rating of 1.82, indicating disagreement across all items, the data suggests that respondents do not view consistency-related challenges as significant barriers to the effectiveness of electronic assessment practices. This indicates a level of confidence among teachers in the consistency and reliability of electronic assessment methods utilized in the educational setting under study.

Table 11. *Challenges posed by E-Assessment in terms of Transparency*

Items	*Weighted Mean*	*Verbal Interpretation*	*Rank*
Students lack clarity regarding the criteria used to evaluate their performance in digital assessment tasks.	1.80	Disagree	5
The process of setting learning goals and performance criteria in electronic assessment is often opaque to students.	2.24	Disagree	2
Limited opportunities for students to share their learning process and products hinder transparency in digital assessment practices.	2.58	Agree	1
Students perceive electronic assessment strategies as arbitrary and subjective, lacking transparency and fairness.	2.12	Disagree	3
Educational program design fails to incorporate student feedback on the effectiveness and transparency of digital assessment practices.	1.98	Disagree	4
Overall Mean	2.14	Disagree	

Legend: 1.00- 1.74 (Strongly Disagree) 1.75- 2.49 (Disagree) 2.50-3.24 (Agree) 3.25-4.00 (Strongly Agree)

Table 11 presents the respondents' perspectives on the challenges posed by E-Assessment in terms of transparency. The data indicates varying levels of agreement among respondents regarding different aspects of transparency in digital assessment practices. The third statement, which suggests that limited opportunities for students to share their learning process and products hinder transparency in digital assessment practices, received a rating of 2.58, indicating agreement among respondents. This implies that teachers perceive limitations in opportunities for students to share their learning process and products as a challenge that compromises the transparency of digital assessment practices.

However, for the remaining items in the table, respondents generally disagree with the statements presented, indicating a lower level of agreement regarding transparency-related challenges associated with electronic assessment.

The overall mean rating for Table 11 is 2.14, indicating disagreement across all items except for the first statement. This suggests that while there is some concern among teachers regarding limitations in opportunities for students to share their learning process and products, overall, they do not view transparency-related challenges as significant barriers to the effectiveness of electronic assessment practices.

Table 12. *Significant relationship between profile of the respondents and their challenges on the utilization of E-Assessment*

Relationship of:	*R-value*	*P- value*	*Decision*
Age to			
Practicability	0.45	.012591.	Significant at $p < 0.05$
Authenticity	0.37	.044165	Significant at $p < 0.05$
Consistency	0.23	.221441.	Not significant at $p > 0.05$
Transparency	0.41	.024436	Significant at $p < 0.05$
Highest Educational Attainment			
Practicability	0.33	.07492.	Not significant at $p > 0.05$
Authenticity	0.27	.149029	Not significant at $p > 0.05$
Consistency	0.23	.221441	Not significant at $p > 0.05$
Transparency	0.29	.12006	Not significant at $p > 0.05$
Years in Service			
Practicability	0.38	.038328	Significant at $p < 0.05$
Authenticity	0.16	.398346	Not significant at $p > 0.05$
Consistency	0.11	.562822	Not significant at $p > 0.05$
Transparency	0.27	.149029	Not significant at $p > 0.05$

Table 12 presents the significant relationship between the profile of the respondents and their perceived challenges in the utilization of E-Assessment, considering their age, highest educational attainment, and years in service.

Regarding age, the analysis reveals that there is no significant relationship between age and challenges in E-Assessment consistency, with an r-value of 0.37. However, significant relationships exist between age and challenges related to practicability ($r = 0.45$), authenticity ($r = 0.37$), and transparency ($r = 0.41$). These findings suggest that age influences teachers' perspectives on the challenges posed by E-Assessment, particularly in terms of practicability, authenticity, and transparency.

In terms of highest educational attainment, the data indicates no significant relationship between educational attainment and challenges in E-Assessment practicability ($r = 0.33$), authenticity ($r = 0.27$), consistency ($r = 0.23$), and transparency ($r = 0.29$). This suggests that the level of education attained by the respondents does not significantly affect their perceived challenges in utilizing E-Assessment.

Regarding years in service, there is no significant relationship between years in teaching service and challenges in E-Assessment authenticity ($r = 0.16$), consistency ($r = 0.11$), and transparency ($r = 0.27$). However, a significant relationship exists between years in service and challenges in E-Assessment practicability, with an r-value of 0.38. This implies that the duration of teaching experience influences teachers' perspectives on the practical challenges associated with E-Assessment implementation.

Conclusions

Based on the result of the study, the researchers concluded the following:

Profile of the respondents shows that who actively utilize e-assessment or digital assessment methods in their practice are relatively young, with a majority falling within the age range of 20 to 40 years old. Additionally, a significant portion of the respondents have attained a master's degree, indicating a relatively high level of educational attainment among the teachers.

The opportunities brought by E-assessment in terms of practicability, authenticity, consistency, and transparency are perceived favorably by the respondents. Teachers strongly agree that transparency in e-assessment with students able to track their progress and performance over time, providing clear expectations and guidelines for completing tasks. Aside from this, consistency in assessment is also perceived positively, with respondents strongly agreeing that digital assessment methods allow for comprehensive evaluation and promote consistency in feedback provision. Lastly, teachers strongly agree that digital assessment tasks are meaningful and valuable, reflecting real-world competencies.

Teachers agree that integrating digital assessment methods into the curriculum is feasible and sustainable, despite some challenges such as limited technological infrastructure.

Top ranked on challenges, teachers agree that there might be challenges on e-assessment in terms of practicability reveal concerns regarding limited technological infrastructure, significant investment in resources and training, and the time required to adapt to new assessment methods.

There is significant relationship between the age of the teachers and their perceived challenges posed by E-assessment in terms of practicability, authenticity and transparency.

Based on the summary of findings and conclusion mentioned above, the researchers recommend the following:

Tailored Training Programs: Develop and implement targeted training programs focusing on the effective use of digital assessment methods, especially for teachers who may face challenges due to limited technological infrastructure or lack of familiarity with digital

tools. These programs should address the specific needs and preferences of teachers of varying ages, educational backgrounds, and years of service, ensuring that they are equipped with the necessary skills and knowledge to integrate e-assessment seamlessly into their teaching practices.

Enhanced Technological Infrastructure: Invest in upgrading and expanding technological infrastructure in educational institutions to address challenges related to limited access to electronic devices and resources. This may include providing adequate access to computers, tablets, and reliable internet connectivity, as well as offering technical support and assistance to teachers to ensure smooth implementation of e-assessment initiatives.

Curriculum Integration: Integrate digital assessment methods more seamlessly into the curriculum to enhance their feasibility and sustainability in the long term. This involves aligning assessment tasks with learning objectives and course content, as well as providing ongoing support and resources to teachers to facilitate the integration process. Additionally, explore ways to make digital assessment tasks more meaningful and valuable for students by incorporating real-world scenarios and challenges relevant to their future careers or academic pursuits.

Promote Collaboration and Knowledge Sharing: Foster a culture of collaboration and knowledge sharing among teachers, administrators, and other stakeholders to address challenges and share best practices related to e-assessment. Establish forums, workshops, and online platforms where educators can exchange ideas, resources, and experiences, allowing them to learn from each other and collectively overcome barriers to effective e-assessment implementation.

Continuous Evaluation and Improvement: Implement a system for continuous evaluation and improvement of e-assessment practices, taking into account feedback from teachers, students, and other stakeholders. Regularly assess the effectiveness of digital assessment methods in achieving learning objectives and addressing challenges, and make necessary adjustments and improvements based on the findings. This iterative process of evaluation and improvement will ensure that e-assessment practices remain relevant, efficient, and beneficial for all stakeholders involved.

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