

THE UTILIZATION OF DIGITAL ASSESSMENT TECHNIQUES IN K-12 EDUCATION

استخدام تقنيات التقييم الرقمية في التعليم من مرحلة رياض الأطفال حتى نهاية
التعليم الثانوي

by

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Abstract

Lifelong learning is a crucial component of assessment, ensuring that students meet learning objectives and apply them in real-world situations that meet the needs of an increasingly urbanized society. In evaluating national education systems and comparing them with others, internal and external assessments are critically important, as summative as well as formative assessments help teachers adapt teaching practices according to what students need. As online and blended learning has evolved into dominant teaching pedagogies, digital assessment has become a necessity, instead of a prestigious style like it used to be. The current study sheds light on the effectiveness and reliability of digital assessment and to what extent it can reflect the learning performance of students. Furthermore, the study sheds light on integrating technology into education so that pupils can learn, share, and receive immediate feedback regardless of where they are.

This study examines the persuasion and authenticity of digital assessment results in various learning environments as well as whether these methods reflect the intended learning outcomes. In addition, this study will discuss the teacher's role in creating effective digitized assessments and if those teachers receive efficacious training in this regard. Finally, the paper attempts to predict how digital assessments will evolve in non-traditional learning environments. To collect qualitative data, multiple ethnographic methods were used, including interviews with SLTs (school senior leadership teams) to discuss digital assessment's limitations and how to enhance it. In addition, two structured surveys were conducted among instructors and parents from various charter schools to collect relevant data.

The study found that technology-based assessments boost students' adherence to learning, boost their motivation for learning, increase their self-regulation, lower costs for schools, and promote greater equity for the student learning process. Similarly, the current study elucidates some of the obstacles that might hamper the prosperity of digital assessments, such as physical distances between students and instructors, as well as insufficient time for data collection regarding student evaluations.

Index terms: Digital assessment, online exams, formative assessment, summative assessment.

المخلص

يعد التعلم مدى الحياة هدفاً حاسماً من أهداف عملية التقييم ، الذي يضمن تحقيق الطلاب لأهداف التعلم وتطبيقها في مواقف مختلفة من حياتهم اليومية والتي تلبي الاحتياجات المتزايدة للمجتمع المتحضر. عند تقييم أنظمة التعليم الوطنية ومقارنتها مع الأنظمة الأخرى، تعتبر التقييمات الداخلية والخارجية ذات أهمية بالغة ، حيث تساعد التقييمات التجميعية والتكوينية المعلمين على إعادة تكييف العملية التعليمية وفقاً لاحتاجه الطلاب. ونظراً لبروز التعلم عبر الإنترنت والتعلم المدمج وهيمنتها على أساليب التدريس ، فقد أصبح التقييم الرقمي ضرورة ملحة وبديلاً لأساليب التعليم التقليدي الشائع استعماله. تسلط هذه الدراسة الضوء على فعالية وموثوقية اساليب التقييم الرقمي ودورها في عكس المستوى الادائي للطلاب. علاوة على ذلك ، تعكس الدراسة عملية ادماج التكنولوجيا في التعليم حتى يتعلم التلاميذ ويشاركون الحصة التفاعلية ويتلقى كل منهم التغذية الراجعة الفورية حيثما اختلف مكان وجودهم.

يدرس هذا البحث مدى مصداقية وفعالية نتائج التقييم الرقمي في بيانات التعلم المختلفة للطلاب وكذلك يختبر ما إذا كانت هذه الأساليب والطرق تعكس النتائج المتوخاه من العملية التعليمية. هذا بالإضافة إلى قيام الدراسة بمناقشة دور المعلم في إنشاء تقييمات فعالة للتعليم الرقمي تراعي الاختلافات بين الطلاب ، وتناقش الدراسة إذا كان هؤلاء المعلمين يتلقون تدريباً مختصاً بهذا الشأن. أخيراً ، يحاول البحث التنبؤ بالنتائج المرجوة من تطور التقييمات الرقمية في بيئات التعلم غير التقليدية. لقد تضمنت عملية جمع البيانات النوعية لهذه الدراسة استخدام أساليب إثنوغرافية متعددة، شملت اساليب متنوعة حيث: المقابلات مع القيادات العليا في مدارس مختلفة لمناقشة المحددات المتعلقة بالتقييم الرقمي وكيفية تعزيزه؛ بالإضافة إلى إجراء مسحين منظمين بين المعلمين وأولياء الأمور شملت عينة واسعة (من مدارس الشراكة التعليمية) لجمع البيانات ذات الصلة وتحليلها. استخلصت الدراسة أن التقييمات القائمة على التكنولوجيا تؤدي الى تعزيز التزام الطلاب بالتعلم، وتزيد الدافعية للتعلم ، وتحسن من تنظيمهم الذاتي، كما انها تسهم وبشكل فعال في تقليل التكاليف المدفوعة من المدارس، وتعطي قدرًا أكبر من الإنصاف في عملية تعليم الطلاب.

تسلط الدراسة الحالية ايضاً الضوء على مجموعة من العقبات التي قد تقلل من فعالية التقييمات الرقمية، مثل عدم وجود عناصر العملية التعليمية في نفس الحيز المكاني، فضلاً عن عدم توفر الوقت الكافي لجمع الادلة والبيانات المتعلقة بالمستوى الاكاديمي الطلاب.

الكلمات الرئيسية : التقييم الرقمي , الامتحانات عبر الانترنت , التقييم التكويني , التقييم التجميعي (النهائي).

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Table of contents

1. Chapter one: Introduction.....	1
1.1 Overview	1
1.2 Digital assessment.....	3
1.3 Statement of the problem	6
1.4 Purpose of the study.....	7
1.5 Organization of the study.....	7
2 Chapter two: literature review & theoretical framework.....	8
2.1 Online Formative Assessment.....	11
2.2 Online Summative assessment.....	12
2.3 Designing an effective digital assessment.....	14
2.4 Teachers & parents insights towards digital assessment.....	20
2.5 Examples of digital assessment tools.....	22
2.6 Digital assessment limitations.....	24
2.7 The future of digital assessment.....	25
3 Research methodology.....	27
3.1 Study context.....	27
3.2 Sampling procedure.....	28
3.3 Research Methodology.....	29
3.4 Data collection Method.....	31
3.4.1 Quantitative Method.....	31
3.4.1.1 Parent/ Teachers Online survey.....	32
3.4.2 Qualitative Method.....	34
3.4.2.1 Management staff Interviews.....	35
- Types of interviews.....	35
- Considerations before the interviews.....	36
- Considerations during the interviews.....	37
- Conducting the interviews.....	37
- The Interview protocol.....	39

3.5 Pilot study & pretesting.....	39
3.6 Ethical consideration.....	40
3.7 Research questions.....	42
4 Chapter four: Data collection & results.....	43
4.1 The online teacher survey.....	43
4.2 The online parents survey.....	48
4.3 Senior leadership staff Interview.....	53
5 Chapter five: Discussion.....	59
6 Chapter six: Conclusion.....	60

References

Appendix

1. Chapter one (Introduction)

1.1 Overview

Considerably, assessment is different from testing. While assessment is ongoing process of collecting evidences of what learners have learned and what are the expected capabilities of them, testing is built on formal and standardized measurements, where pupils are familiar with scoring procedures (Dikli, 2003). Assessment was defined by Dietel, Herman, & Knuth (1991) as “any method used to better understand the current knowledge that a student possesses” (Dietel, 1991). On the other hand, Law & Eckes (1992) have defined testing as “single-occasion, one-dimensional, timed exercise, usually in multiple choices or short-answer forms.” For a long time, the most used forms of traditional assessments were true/ false, multiple choice, short answers questions, and essay writing. Assessment embodies different types of ongoing processes that include planning of teaching, learning objectives discussion, reflection, measurement, observing, rating, data gathering, results analysis, action plans for learner’s improvement (Boud, 1996).

The first form of assessment was used by Horace Mann in 1840, where he used the earliest form of the standardized written examination in the University of Wisconsin. Since 1900, assessment forms were used usually to pass the educational institution accreditation requirements (Passarelli, 2011). The first implementation of technology in Educational assessment was 1920s’ by Sideny.L Pressess, where she developed a machine for automatic examination (Nuha Alruwais, Gary Wills , and Mike Wald, 2018). At the same time, educational institutions started to conduct the standardized assessments and get the results through automatic marking digital tools which helped to lower the cost spent on schools assessment and enhance the testing scale by convenient results (Sorensen, 2013). Moreover, in the 1990’s, when the World Wide Web was introduced to public sectors, it caused a massive shift in the educational sector and companies around the world started to create their own E-assessment systems such as JISC (Joint Information Systems Committee) which was the first company in England to introduce the Wales and Northern Ireland principles and guidance for E-assessment (JISC, 2007). In addition to that, in 1992, both of the American Department of Education and the British Higher Education Funding Council have initiated the idea of considering learning outcomes as one of the main pillars in the processes of accreditation of the educational institutions (Urciuoli, 2005). In 2009,

the IMS Questions and Test interoperability Specification was established by IMS Global Learning Consortium.

The co-evolving education vision thrusts stakeholders within the technology and educational communities to work cooperatively to restructure the conceptualization of teaching and assessment for learning by employing various digital tools to replace the old protocols of assessment (Vendlinski, 2002). Contrary, some educators still believe in traditional assessment as an authentic effective methodology to evaluate the student's progress, while others emphasize on the significance role of technology in education, which provides teaching and learning with massive superior tools (Kirkwood, 2009).

The current study is based on previous researches reviews, structured interviews with experienced schools administrative and digital education facilitators, Parents feedbacks, teachers perceptions and finally the researcher own experience in the educational field. The digital assessment techniques in this study are reinforced by various examples of digital platforms, educational software, discussion forums, and blogs. The study begins by reviewing different definitions of assessment as well as differentiating between testing and assessment concepts. Furthermore, the study, outlines the development of digital learning technologies and how these tools are integrated to e-learning. The narrative concentrates on the ten principles of designing an effective, trustworthy digital assessment, as well as it focuses on the seven principles of E-Assessment: Key Questions for Andragogy.

The International Society for Technology in Education affirms the distinguishing characteristics of E-learning as a significant tool to enhance learner's critical thinking, cognitive development, creativity, and problem solving expertise (Schunk, 1996). Designating the proper assessment tools by considering the learners cultural diversity, linguistic barriers, and necessitates. CERI (Center for Educational Research and Innovation) in its OECD/CERI international conference "Learning in the 21st Century: Research, Innovation and Policy" stated that, assessing learners is vital to the success of learning since it promotes these learners with a lifelong evocative learning, accelerate their levels of achievements, produce significant equity of pupils outcomes, and build a scaffolding learning environment to gain and master skills (OECD, 2001).

1.2 Digital assessment

Assessment is a vital component of any educational system in the world, no matter the type of assessment, it is an opportunity to evaluate teaching and learning pedagogies to provide pupil's with suitable opportunities to show their emerging skills and enrich their learning experiences. As per Biggs & Tang (2011) it's the assessment not the teaching curriculum that reflects the actual learning experiences of pupils, he used the term "backwash" to define the impact that assessment has on learner's learning process (Angus & Watson, 2009). The proper alignment of assessment with learning outcomes can result in creating constructive learning experiences where learners have the opportunities to receive immediate feedback. Digital assessment is basically based on the techniques of traditional assessments however the e-assessment is facilitated through digital tools and online procedures (Herrington, 2000).

Pachler, Daly, Mor, and Mellar (2010) have defined digital assessment as "the use of information and communication technology to support the iterative process of gathering and analyzing information about student learning by teachers as well as learners of evaluating it in relation to prior achievement and attainment of intended, as well as unintended learning outcomes" (Rouxlle de Villiers, 2016). In conjunctions with the previous definition, Buzzetto-More (2006) and Bennett (2002) have supported the digital assessments protocols due to its various advantages in the educational sector such as the prominent variety of artefacts; massive pupil's expression; multimedia driven and dynamism techniques; great accessibility; meta-documentation capability; enhance the learners academic and professional progress; knowledge transmission, minimum information transferal; and students are participating in co-constructing their own knowledge, attitudes, and growth (Rovai, 2006).

Assessment categories summative, formative, and diagnostic. Pedagogical theory is the same between online, blended, and face-to-face learning, however, the implementation varies. Where online learning is a synchronous medium of interactive collaborative work environment that provides learners with a great sense of possession. However, educational institutions must grantee that their learners are not facing any technological issues that prevent them from accomplishing the anticipated learning experience by constructing their digital assessment policy before content planning, scheming, and learning commences as well as to ensure that their digital assessment is acquiring high level of learners cognitive development and critical thinking skills

based on learning cognitive domains as it was expressed by Bloom's Taxonomy which is shown in figure 1 below. Many researchers have outlined the e-assessments methods that are mostly used by teachers to contribute to learners final marks in web-based models. Swan (2001) as well as Gaytan and McEwen (2007) in their studies have identified the most effective methods of digital assessment, these methods includes discussion forum, Journals, written assignments, experimental assignments, online projects, exams, portfolios, self-and-peer assessment, and presentations (Arend, 2007).

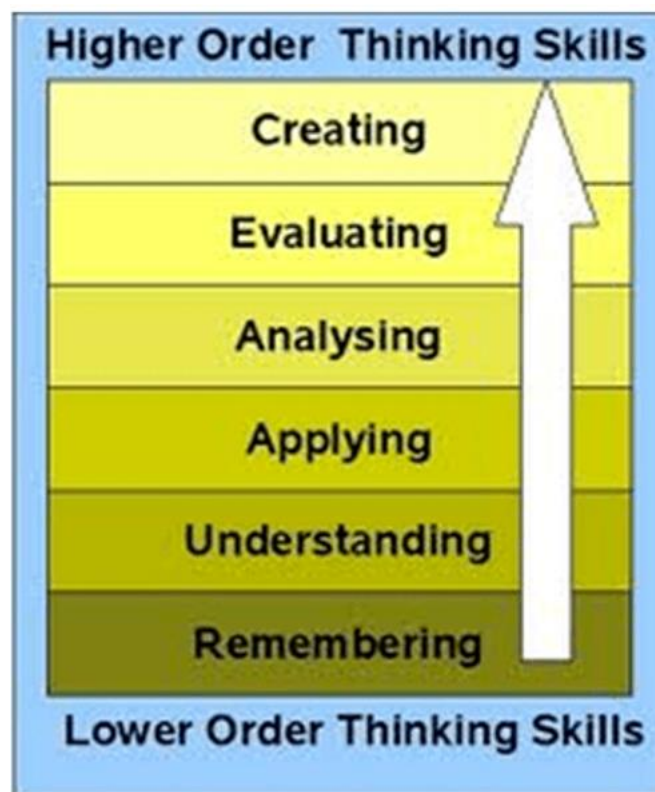


Figure 1 (Bloom's Taxonomy Cognitive domains of learning)

Whitlock, Reduel, and Mackenzie (2006) state how the E-assessment process consists of connected cycles and stages. The "E-assessment" model (Fig. 1), guides educationalists to highlight the obstacles and cultural barriers enclosed with e-assessment cycles (Whitlock, 2006). The researchers labeled motivation to be the first stage in the cycle due to its importance

as a vital factor in any evaluation process, then assessment design stage and after that the creation stage, the next stage is Testing, where pupils commence the evaluation which is an indicator that the learning outcomes were delivered, the last stage is the data retrieval and processing as well as constructive feedback generated, after that, the stage of evaluating the assessment outcomes and judge the gained feedbacks. Once the cycle completes, the loop returns back to the second and third steps, the stages of designing and creation of the e-assessment. With the aim of achieving the expected outcomes of any teaching module, the stages of testing, data processing and outcomes evaluation are depending directly on the last stage of the cycle where feedback is reviewed to strengthen the assessment process (Crews, 2010).

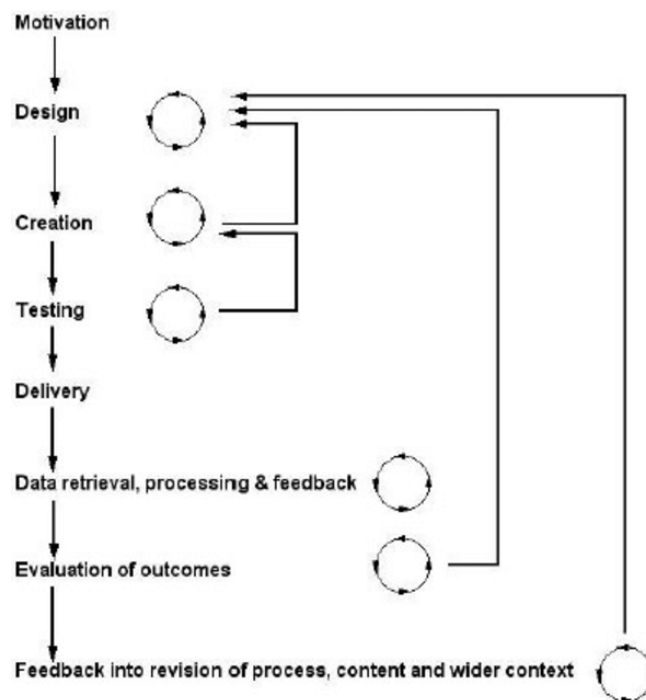


Figure 2 (Cycles of e-assessments)

1.3 Statement of the problem

The current study seeks to find answers to the three main research questions that are related to the effectiveness of digital assessment methods in reflecting the reality of the learner's academic levels as well as to find out if teachers are fully aware of the massive transformation that happening around them, and if this shift is fostering their students adherence and development, to analyze these factors the study questions were set as follow:

1. To what extent can the results of digital assessments be trustworthy, reliable and reflect the actual academic level of learner's?
2. Are teacher's being trained on how to create online assessment that shows what they have taught and who trained them?
3. In ten years from now, what will be the future of digital assessment and how it will enhance the educational pedagogy expectations?

1.4 Purpose of the study

Due to the rapid growth of technology implementation in education besides the enthusiastic role that it plays in engaging and motivating diverse learners, and enhance pupil's critical thinking skills by providing individualized learning experiences as well as a massive data base of differentiated learning activities based on student's needs and abilities. Thus, the current study seeks to analyze the impact of shifting traditional old examination methods to new interactive assessing ways on learner's productivity and academic performance, as well as to research the initial components of any effective trustworthy digital assessment.

1.5 Organization of the study

The current study consists of six chapters; the first chapter is topic introduction, which initiate the main conceptualization of the study topic; the research problem statement; the significance of the current study along with the organization of the study. The study literature review and theoretical framework are presented in the second chapter, which as well, discussing the

formative and summative types assessment, the third section of chapter two is reviewing the effective methods in designing a trustworthy digital assessment, the forth section presents the insights of teachers and parents towards digital assessment, the next section reviews some of the used educational platforms to assess learners. Finally the last two sections, six and seven are highlighting the limitations and future of the digital assessment. Chapter three is presenting the study methodology components, such as the study context, sampling procedure, research methods and data collection methods. The fourth chapter is where the researcher analyzes her data and presents the outcomes of both parents and teachers surveys, as well as reviewing the outcomes of the school admins structured interviews. Chapter five is discussing the study results as well as compare and contrast the study findings with other parallel studies in the same field. Finally, chapter six is summarizing the overall conclusion, effectiveness and limitations of digital assessment.

2. CHAPTER TWO (LITERATURE REVIEW)

The new era of heightened societal presupposition for flexibility, accountability, and transferrable learning environment, where the current structure of knowledge involves three kinds of educational frameworks: (1) teacher led-model or the traditional teaching model, (2) cognitive apprenticeship model, where establishing knowledge is a collaborative responsibility between learner and instructor, and (3) situated legitimate engagement in peripheral learning model (Collins, 1989). The last two frameworks are based on building learners knowledge through social interaction and collaborative work. However, all of the previous learning frameworks emphasized the importance of assessment process as an integral part of any successful educational process since it establishes the learners knowledge, skills, and attitudes (Escudier, 2011).

Ascendency of the technological revolution was accompanied with enormous rise of using digital tools in teaching and learning in terms of provide learners with unique personalized learning experiences, align the development of the philosophical and theoretical structure of teaching pedagogies to harmonize with public standards that call to increase the participation, flexibility, and accessibility co-construction of teaching and learning methodologies, assessments themes and protocols (Mackey, 2009). In conjunction with the increased societal expectations of the new era of learning the technology enhanced assessment methods was reconstructed in term of creating an evocative, constructive online / blended learning approaches that based on dynamic, convenience, authentic, and experiential instructions that create magnificent opportunities to build self-regulated, technological capable generations and empower them to be an effective parts in their communities sustainable development processes (McCracken, 2012).

At his research about international e-benchmarking, authentic learning principles and peer development, Leppissri (2011) stated the consequences of providing educational institutions with appropriate technological tools that give learners reliable access to enormous world of social communications and interactions which will lead to immovable adaption of online / blended learning approaches especially in the westernized communities as well as developed societies (Perera-Diltz, 2014). As a result of transferrable scaffolding blended learning experiences, educational systems around the globe will produce a contemporary generation that is more capable, globalized and miscellaneous. Consequently, no more teacher-centered classes, teachers

should perform as proficient facilitator to establish convenient foundations for rapport with all learners (Lesnick, 2004). Four roles of teacher in online teaching were stated by Corciu (2008) as following: planner, where he/ she plans teaching content to align with learner's needs, learning outcomes evaluator, teaching facilitator, and pupil's supervisor (Wang, 2015).

Unlike summative assessment, formative assessment creates potential to concentrate pupils learning in terms of creating instantaneous, instructional, and scaffolding learning experience, as well as formative assessment is more attached to instructors teaching objectives (Vonderwell, 2007). However, both assessment themes could work mutually to deepen and broaden learner's knowledge, where the ongoing formative assessment serve summative assessment goals by showing detailed evidences regarding learners academic growth, likewise summative assessment backup the formative continuous evaluation by using assessment results to modify learning in subsequent content (Nicol, 2007). Both themes of assessments themes have their own con and pro, based on various factors related to the implementation of web-based/ online learning approaches. However, even with the high significance of formative assessment as an ongoing evidence of learner growth, summative assessment has the strongest influence prioritization on the national and international domains (Black, 2009).

Formative assessment (Assessment for learning) usually intelligible as the preferred evaluation theme in online/ blended learning models (Reeves, 2002). Despite the fact that ongoing formative assessment requires various essential components such as continual monitoring for learners progress, attentive design to fulfill pupils needs, meaningful and transparent feedback to learners within specific timeframe, and ongoing documentation of learners data, formative assessment anticipate learners with various benefits includes learners ability to demonstrate new gained knowledge as well as to master the new learned skills easier since its assessing small portions of the teaching content (Pintrich, 2002). Additionally, and is it shown in the figure below, formative assessment allows learners to diminish an assignment, learn from previous mistakes, and reduce the stress result from achieving weak final marks (Schlager, 2009). However, formative evaluation doesn't force learners to continuously demonstrate knowledge in every learning outcome since it's an ongoing assessing process, learners have multiple opportunities to improve their marks as well as strengthen their weaknesses (Burkard, 2006).

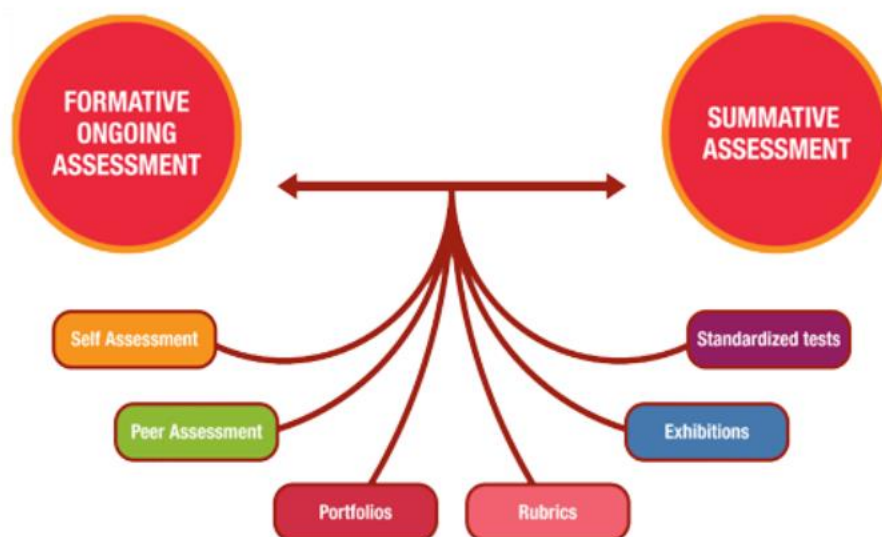


Figure 3 (Formative & Summative assessment)

In contrast to formative assessment and its demanding pressure on learners and teachers alike, summative assessment or (assessment of learning) has advantages of being one-time potential, holistic, and non-segregated evaluation. If a learner is unable to reach his/her peak of achievement in any style of summative assessment (e.g., final exams, project), subsequently the student learning experience is not properly evaluated, it's a clear indicator on learners diminished feelings of empowerment and commitment (McAlpine, 2012). Gee and Shaffer (2010) criticized summative assessment for being retrospective, since it's mainly focuses on assessing prior knowledge. Additionally, summative assessment evaluates whether all learners can master the same degree of acquisition, rather than measuring individual growth (Gee, 2010). Finally, assessment of learning (summative assessment) provides inadequate opportunities to evaluate the actual learning outcomes or enhance learners with real life expertise (Hancock, 2010).

Some researches emphasized the importance of self-regulated learning, which was identified by Nicol and Macfarlane (2006), as giving learners opportunities to decide about their own assessment, where they can choose suitable assessment rubric that appropriate to their abilities

and needs (Hattie, 2008). Since both assessment themes are embedded within current web-based/blended learning modes, a massive shift has been made in the theoretical and pedagogical approaches of assessing and evaluating students. Technology integrated assessment enriches learning experiences with various opportunities of self-and- peer assessment, as well as coordinate evaluation themes to provide constructive and direct feedbacks (Draper, 2009). Additionally, e-assessment employs summative assessment to serve formative goals since it offers alternative solutions for directed feedback. Despite, it is particularly beneficial for formative assessment since it offers various mechanisms for immediate, private and non-judgmental feedbacks, as well as, testing skills diagnosing and self-and-peer assessment (Haggie, 2012).

2.1 Online Formative Assessment (Assessment for learning)

Formative assessment or assessment for learning was defined by Gikandi et al (2011) as “the iterative processes of establishing what, how much and how well students are learning in relation to the learning goals and expected outcomes in order to inform tailored formative feedback and support further learning, a pedagogical strategy that is more productive when role is shared among the teacher, peers and individual learner” (Hargreaves, 2005). Hence the new era of learning requires the educational sector to merge between education and digital tools, the merging process have included all assessments categories: Formative, Summative, and Diagnostic. As a result of that, formative assessment was restructured with a contemporary label “Formative e-assessment”. Personalized, timed, and formative feedbacks in formative e-assessment aim to crystalize pupils knowledge as well as accelerate students learnings experiences and skills towards building new knowledge and learning attitudes (Smith, 2007).

Formative assessment is the main source of running records of the ongoing evaluation of a learner’s progress in various content areas and skills within particular knowledge domains. Furthermore, student progress can be measured using different forms such as online quizzes and assignments, online experiential exercises, games, and discussion forums (Venddinski, 2002).By assessing pupil’s comprehension, teaching process can be modified to accomplish an anticipated level of learning. Additionally, effective formative e-assessment aims to create a transferable scaffolding learning atmosphere that fulfill the essential of the 21st century as well as an evocative learning environment that ensure an ongoing collaboration and cooperation between pupil’s and

their instructors, enhance learners abilities to hold a primary responsibilities for their lifelong learning, and establish an approach to the state-of-the-art pedagogy (Goldstein, 2012).

2.2 Online Summative assessment (Assessment of learning)

Upon primary consideration of assessing pupils learning experiences in digital learning atmospheres, various principals must be ensured before co-creating the summative evaluations , such as learners are at the core of the learning process which is as per Luckner and Bowen (2010) will lead to highlighting the strengths and the weaknesses areas of learners. Additionally, to ensure pupils are involved in a constructivist, authentic learning process, where they take responsibility in making decisions, boost their skills in problem-solving, and apply what they have learnt in real-world scenarios. Also, instructors ensure motivating their pupils to reach an appropriate level of engagement as well as providing them with sufficient time periods (Levia Jr., 2008).

So-called high-stakes evaluation or Summative assessment is the sole indicator to specify if pupils have mastered the learning objectives, evaluate learning experiences and measure learner's progress after some time. Furthermore, summative evaluation at best pursues to lavishly delineate the developing process of learning as well as to comprehensively document the learning experiences growth obtained over a determined time-bounded frame such as mid-term, end-of-year exams, or any other assessment that is conducted at the of any finished instruction (e.g. unit, chapter, quarter, or end of course) (Naughton, 2011). The collected data from summative evaluation is usually used for: (a) assigning students marks; (b) documenting learner attainment of learning outcome; (c) regulating eligibility for next level or program advancement; and (d) assess system-level program reliability and transparency (Pappas, 2015).

Hybrid learning environments require instructors and SLTs (Senior Leadership Teams) staff to re-appropriation of the goals of summative assessment in order to regulate strategic protocols during designing summative assessment, deciding what pupils need to master, and what considers as auxiliary knowledge (EdTick, 2021). Due to the unhurried pace of online education, only essential skills sets and knowledge should be assessed, since it demands additional time from pupils to master those skill sets as well as their instructors to complete the expected

teaching content. An effective learning experiences offers the present of mastery, whether it be knowledge, attitudes or skill-set. However, students should test in order to determine if they achieved the expected level of proficiency. Larry Ainsworth (2014), suggested the R.E.A.L criteria to highlight the skill-sets that considered as essential knowledge, the R.E.A.L criteria that stands for Readiness, Endurance, Assessed, and Leverage is briefly explained below (Ainsworth, 2014):

- **Readiness**

Summative assessment must evaluate if the learner has acquired the essential competencies and desired knowledge for the current level of the online module or course. Moreover, to measure if the students have gained the desired level of skill sets as well as to find out if pupils are ready to be promoted to the next level exams can be used as a milestone.

- **Endurance**

Summative assessment should evaluate learners who have exhibited a level of knowledge and skill mastery that will be retained beyond the evaluation itself. Evocative online learning aims to offer learners competencies and knowledge which can be used later in real-world context.

- **Assessed**

Teachers should be fully aware of the learning protocols and standards regulated by the educational authority or school district (e.g. Ministry of education). Summative assessment must ensure that the skills sets, knowledge, and attitudes the teaching authorities expect learners to adhere to is being evaluated.

- **Leverage**

Assessment of learning should evaluate the expertise and skills that can be applicable in various contexts and disciplines which will produce more robust and boost learners understanding. In an E-learning environments, summative assessment could be conducted by using various digital tools so learners have a variety of methods to measure their level of proficiency such as: online multiple choice exams, building websites, creating blogs, online presentations, student portfolio, online group projects, and discussion forums (Premkumar, 2016). In his article “Summative

Assessment in E-learning: What E-learning Professionals Should Know”, Christopher Pappas (2015) recommended instructors and admin staff to take the points below in their consideration for the purpose of integrating the previous assessment methods in online learning strategies and evaluate the gained learning experiences: (1) Marking rubrics to be prepared in advance in cooperation with students; (2) Analyze the summative assessment results to identify areas of improvement for each student; (3) Teachers must use various methods of assessment to cater to multiple learning strategy; (4) Involve performance tasks to demonstrate learners understanding and performance tools to enhance their skills; and (5) Breaking down the assessment into small portion so learners can tackle the required tasks within the expected time frame (Pappas, 2015).

2.3 Designing an effective digital assessment

Many scholars contribute in the processes of creating, implementing, and developing technology based assessment themes (formative & summative), those literatures started from analyzing the basics of significant traditional assessment and they used these analytical studies to build a pedagogical framework for the new assessments themes due to the technological revolution we are living in the 21st century (Popper, 2005). For instance, Kellough and Kellough (1999) in their studies “A Guide to Methods and Resources” clarified that any effective assessment has to achieve the following seven purposes for learners: develop pupils learning experiences; highlight learners strengths and weakness areas; review, evaluate and develop the effectiveness of various teaching techniques; review, evaluate, and develop the efficiency of curricular programs; develop the efficacy of teaching and learning; build a potent data base for administrative and decision making purposes; offer clear basis for constructive interactions with stakeholders (Kellough, 1999).

However, web-based assessment must provide affordance, which means e-assessment must offer supplementary benefits over the old assessment methods. Affordance is related to the technological capability of the students, where they are able to transform, proceed, and broaden the current andragogy, especially during their involvement in blended learning or online learning modes. Kirkwood (2009) in his study about E-learning outlined among the essential andragogical tasks of ICT in learning are: presentation, communication, discussions and generative schemes that enhance the learners abilities to document, create, gather, redeem, present, proof data every time they response any assessment of/for learning to evidence their success in building new

knowledge (Kirkwood, 2009). Moreover, Alexopoulou, Batsou, and Drigas (2019), have highlighted the diagnostic tasks of ICT in learning, which includes: ensure maximal engagement of learners in self-and-peer assessments, offer a bilateral dialogue for assessments and feedbacks between developer, monitors, instructors and trainers in intent to specify the weaknesses and strengthens areas, remedial chances, and following steps in the pupils learning experiences (Alexopoulou, 2019).

According to McCracken, Cho, Sharif, Wilson and Miller (2012) to design a trustworthy, authentic, and transferrable digital assessment it must be built on the following six principles: (1) digital affordance, (2) Alignment of learning expected outcomes with assessment, (3) discipline-specific approaches and applications, (4) timely constructive feedback, (5) transferability and reliability, and (6) assessment standards transparency. Figure 2 provides a diagrammatic illustration of the effective digital assessment that should be built on the basis of the extant approach and the practices of assessment in e-learning environments, aligned with the andragogical and diagnostic functions of ICT, as well as the figure is providing key questions for education facilitators with the intention of judging the current e-assessment and drawing constructive plans for the future assessment practices. Moreover, the seven fundamental principles of any digital assessment methodology are outlined disregarding the content, context or stakeholders.

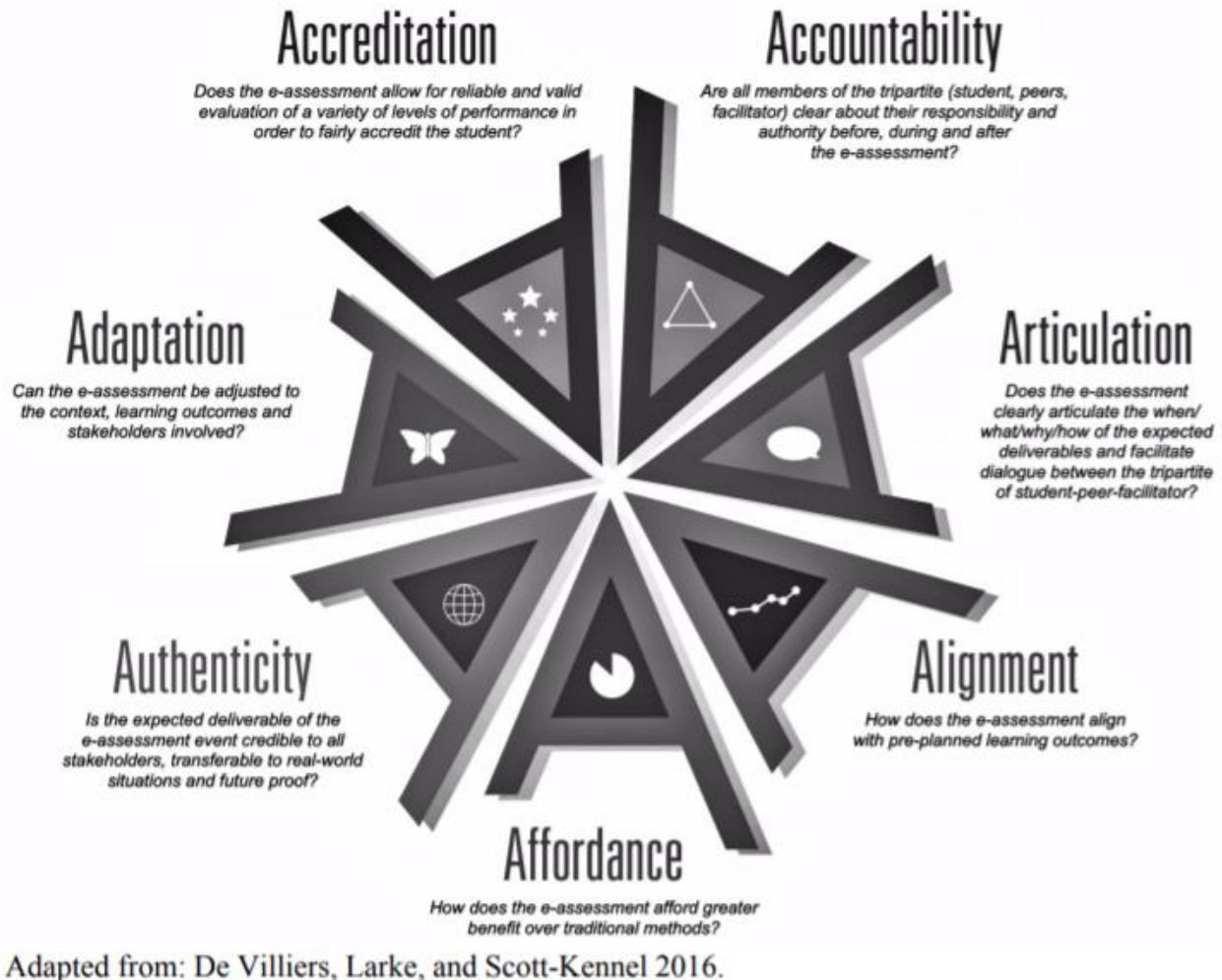


Figure 4 (Principles of E-Assessment: Key Questions for Andragogy)

1- Affordance

Technology enhances learning approaches and assessment with various affordances or advantages. E-assessment Affordance is the ability of the assessment practice to offer learners to gain timely constructive feedbacks, data, and information from anywhere, at any time, and from various resources during their formative, summative, or diagnostic evaluation as well as it offers them the accuracy, flexibility, and responsiveness from different angles such as the learning content, learning outcomes delivery and formative feedbacks in term of boosting the participation and engagement of those learners and their instructors. For instance, the online

discussion forums that allow pupils to reply to assessment activities via centralized digital teaching platforms (e.g. Moodle, Master modules) as well as online workshops and pairs or group online discussions (Shute, 2010). Many studies such as Angus and Watson (2009); JISC (2010); Pellegrino & Quellmalz (2010) emphasized the affordances that digital tools may offer learning and assessment themes are shown in the list below (Siemens, 2012):

- Enhance collaborative learning
- Broaden the skills measurement ranges
- Allow appropriateness and flexibility in responses
- Allow immediate and students-led feedbacks
- Boost the learners self-regulation and self-evaluative learning
- Enhance authenticity and learners future work experiences.
- Decrease teaching staff workloads and enhance teaching efficiency.
- Integrate both assessment themes to each other (Formative and Summative).
- Promote learner's engagement and academic performance.
- Widen assessment themes validity and the results reliability.

2- Alignment

The ability to parallelize the learning outcomes with assessment methods as well as outline dissonance between the expected and actual learning objectives. Additionally, it enriches pupils learning experiences by offering formative, personalized, and timely feedbacks as well as enhancing the learning reliability by providing electronic documentation of students results and progress. For instance, E-marking schemes, E-learning platforms, and rubrics and that allow learners to receive individual as well as pairs and group timely feedback through emails, voice records, Teams, blogs, social media channels, online forums (Ashton, 2008, July 8).

3- Articulation

The integration of standards, objectives, and learning expectations as well as enrich both pupils and teaching facilitators abilities to create mutual dialogues in cases of assessment uncertainty and interventions (Bennett, 2002). The main con of assessment articulation is to keep it obvious

and understandable for both sides (learners & instructors) as well as to enhance collaborative learning and academic growth via learners-peer-teachers synergism. For instance, E-platforms that offers facilitated personalized and collaborative learning through instantaneous chat, one-to-one videos, discussion groups, blogs, class emails, and social media channels. Additionally, applications that offer e-marking schemes, rubrics, and formative/summative preparation through peer review, group discussions, and immediate feedback. Also, the articulation of the cross-border scholarly papers guidance through cloud-based file sharing, emails, Doctoral /Masters pupils as well as online lectures, presentations, and training workshops (Buch, 2002).

4- Accountability:

Pupils-peer- facilitators tripartite the responsibility of achieving the expected learning objectives, assessment completion, results evaluation, and feedbacks review for the purpose of data collecting and documenting students growth. Such as LMS (Learning Management Systems) and Blackboards, as well as the digital portal that offers learning and assessment resources (e.g. lectures and studies materials, reading records, study cases). Additionally, some webpages URLs (Uniform Resources Locator) that allow sharing emails, announcements, latest updates, and feedbacks (Flores, 2014).

5- Accreditation:

Enhance the academic integrity, reinforce fortify assessment methods reliability, transparency and validity to promote evocative-learning styles and reduce the educators / facilitators work pressure as well as promote the assessment authentic in evaluating the learning outcomes and delivering formative feedbacks before, during, and after conducting the assessment(Wing-Shui, 2012). For instance, software to deter and diminish cheating such as Turnitin and Google search as well as the LMS the follow online exams by remediation suggestions or training reports. Also, applications that offers online teaching courses and appraisals as well as provide teachers with enormous number of personalized constructive feedbacks (e.g. BLUE). Finally, the E-platforms that allow learners to upload individual, peer or group presentations and videos to reply summative assessment activities (e.g. Panopto, Seesaw).

6- Adaptation:

The ability to integrate the e-assessment to the teaching and learning styles, learning content, context, student's abilities and the expected learning outcomes in order to enrich learning with formidable levels of competences through providing several teaching context, learners abilities, and learning outcomes. Such as bridging the cross-cultural variability by international work teams, language courses, training groups, teleconferencing, and Skype.

7- Authenticity:

Assure the currency, reliability, fairness and future value of the assessment methods through the legitimate, practical and useful practice of the gained knowledge, learned skills, and competences in the real world and future work market. As an illustration of that, applications that link education and assessment to real life situation by reflecting that via images, text, and videos (e.g. YouTube). Also, customized web pages that allow learners, facilitators and developers to revisit, improve, and evaluate learning process, goals, academic growth (e.g. university modules for undergraduate, master, and doctoral). Additionally, digital tools that enhance collaboration (e.g. Google sheet, Docs, & forms) may simulate the learners real-life scenarios, boost social interaction, and transmit personal competencies and needs. Finally, the customized e-textbooks and e-workbooks that relate assessment themes and activities to the learning objectives (Wilson, 2011).

Using digital tools in designing assessment activities that mimic the student's real-world experiences have a positive impact on pupil's engagement and motivation by influencing their enactment as well as enhance the learners self-efficacy. Furthermore, Kigandi (2010) outlined the most invaluable points to take in consideration to design reliable formative assessment based on expected learning outcomes are shown below (Z, 2015).

1. The structure of online assessment should be authentic and related to the learner's real life scenarios and what they have learnt in class.
2. Online assessment activities should be designed based on differentiated individualize learning styles where pupil's are fully engaged and confident using their previous learning experiences answering those activities.

3. Learners must feel confident to reflect their own understanding answering the assessment activities by providing equal opportunities of self-assessment and motivation to achieve the expected goal.
4. Ongoing monitoring and documentation of pupil's progress through the academic year.
5. Online assessment should enhance the learner's abilities to build new knowledge and learning experiences, such as using discussion forums to assess learners through peers or groups so they can share information between them.
6. Teacher's must be fully aware and trained on aligning teaching outcomes with the online assessment criteria, this to be provide by evidences.
7. Learners should be involved in the assessment planning process, where they participate in choosing the suitable rubric of their online assessment.
8. Learner's online evaluation must be an opportunity to reflect their capabilities in employing independent critical thinking and problem solving skills to pass this evaluation.
9. Every online assessment should be followed by formatively timely feedback not based on learners marks and must be provided continuously by instructors.
10. Online assessment should be accompanied by analytical review of the student's results that must be shared and discussed with pupils to enhance their self-esteem to achieve what's expected from them next.

2.4 Teachers and parents perspectives on digital assessment

As a result of technology's vast integration into education, instructors can now assess pupils' academic progress in a more accurate manner. Digital tools provide teachers various opportunities “for improvement and diversification in the evaluation of learners, including addressing written communication skills, cooperation, team-work, and reflective thinking” (L. Eyal, 2012). Technology-based assessment has been viewed positively by teachers and its benefits by students in several studies. For example, Alderson (2000) describes how technology helps teachers respond to the needs and diversity of their pupils, as well as digital tools that enable teachers to create tests, submit students' responses, generate automated test scores, provide feedback, and analyze student data. (Alderson, 2000).

Teaching professionals affirmed the importance of digital assessments in assessing their students' learning experiences, as it supported their efforts in creating enjoyable and motivating learning

environments, plus it relieved the pressure they otherwise faced since it offered them personalized learning experiences, automated scoring systems, and direct formative feedback. Despite the positive outcomes of digital assessment, many teachers noted several obstacles when using it in their classrooms, such as the following: inadequate institutional infrastructure and policies, inadequate teacher training and competence in using digital tools and applications, unreliable internet connections, inadequate resources, and inadequate support from management (L.Brooks, 2003).

Due to the Coronavirus epidemic and remote learning, students as well as their parents around the world have faced new challenges. However, there were very few studies that examined how parents perceived the online learning environment and the digital assessment process. As an example, Abdallah, A. K., conducted a study in 2018 on parent's perceptions of e-learning in UAE. The study revealed that most students' parents were seeking better quality online education and engagement for their children. Additionally, they stressed the importance of reinforcing their kids and using formative feedback to boost their academic performance. Additionally, parents urged school management to take into account the loads of online activities and the length of the assessment processes since they vary from school to school and still there is a lot of progress to be made (Abdallah, 2018).

Even with some parents' negative experiences, other parents highlighted the positive influence of implementing technology-based assessments. They deemed technology to be the best solution during the voyage, and also confirmed that technology played an important role in evaluating and providing direct feedback to their children during that crisis period. Furthermore, parents noted how the processes for teaching and assessing their kids were appropriate and well-managed, whether it was the teaching content and resources, assessment activities, automated scoring, and academic progress data analysis, several parents highlighted the school's role in supporting their children and guiding them in baby steps to be fully engaged in digital assessment activities, showing how seriously they were taking evaluation results as evidences on kids learning progress while they were home-schooled (Rowe, 2013).

2.5 Examples of digital assessment platforms tools:

Portfolio “Netfolio”

Students' e-portfolios are used to create authentic learning experiences, enhance metacognition skills, gain constructive feedback, and offer learners the opportunities to be in charge of their own learning. The purpose of pupils' e-portfolios is to display the learning experiences that led to their knowledge and understanding and to revise them through participation in assessments of and feedback on other students' portfolios that mirror their ability to reflect on themselves and others. Using e-portfolios to assess learning also provides the following advantages: (a) it assists with collaboration between students and teachers, as well as among pupils themselves; (b) it provides accurate and prompt feedback quickly; (c) it facilitates a learning community through virtual interactions; (d) learners can see other students' exemplary work; (e) self-examination improves one's work (Barbera, 2009).

Journals & Blogs

As a means of creating an atmosphere of authentic and constructivist learning, technology gives teachers the opportunity to include the student voice at the center of the assessment process. Reflective journals, in which students outline their own perspective on key educational themes, can enrich the assessment process both formatively and summatively. Through the idea of the reflective journal, students can be requested to establish web links in their writing that include pertinent resources, streaming videos, images, or any other media that complement and contextualize students' awareness and achievement of their own learning and reflection. An educational Web-log can be a valuable tool for learners to communicate with each other and with instructors; these logs can be commented on and reviewed by other students. A Web-log facilitates the review of the evaluative rubric with other learners in order to be used in class-wide assessment of learning.

Test & Examinations

Assessments used to evaluate the progress of learners academically, validity, fairness, authenticity of learning, and with the best use of learning resources regardless of the mode (e.g. in class,

online). Security is a major aspect of the web-based assessment, and various software applications are available for verifying the content submitted is original. This can be accomplished by using tools such as web-browser, lock-downs, and text comparison tools. According to a study conducted by Williams and Wong (2009) comparing face-to-face and online exams, students prefer asynchronous online exams that include open-resources (e.g. readings, slides). So, virtually all LMS (learning management systems) support synchronous, time-bound, and one-off submission options. In the long term, this examination policy could diminish the authenticity of exams used as a tool of summative assessment (Williams, 2009).

Student-Generated questions and concept maps or multiple-choice examination is another example of web-based assessment for/of learning, although some educationalist have criticized this method for not enabling active learning as it provides no justification of answers. The benefits of online MCQs outweigh these concerns, including faster marking, eliminating the need for error-checking by the examinee, and facilitating faster item evaluation. They also eliminate teacher bias, confirm reliability, and ensure validity over time. The question tree can be extended by branching in some learning management systems, while others offer a feedback system while learners are taking the test. Additionally, Pittenberg and Lounsbery (2011) make the case that MCQ is a useful method of assessment that allows passive learning to be mitigated by stimulating pupils' interest in teaching content as well as their metacognitive skills, and they are more likely to own their learning experiences (Berry, 2008).

Wikis

A wiki or web-page is a technologically-based resource that allows learners to design a case study, planning a lesson plan, or designing a treatment plan where they can use different font colors with their names within brackets in order to be able to identify their contributions that learners can use to enhance their scholarly writing skills by collaborating on web-pages. In wikis learners have to detail their referencing and view the covered topics thoroughly, once they submit their final draft they are evaluated on many aspects of their work, particularly web-based multimedia, the promptness of their revisions, and their ability to work cooperatively with others. Peers and instructors can grade this assessment, which can be repeated multiple times during the

term or quarter in order learners will be encouraged to enhance their performance by participating, receiving peer feedback, and reflecting on themselves (Glassmeyer, 2011).

2.6 Digital assessment limitations

Despite the enthusiastic and innovative practices of TEA (Technology enhanced assessment), some studies have outlined the potentials of the fully embedding of technology enhanced assessment. Additionally, many researchers emphasized the importance of innovation factor in effective assessing processes, no matter whether its traditional assessment or technology enhanced one, in both cases innovation is considered as a delicate matter (Mogey, 2011).

Besides, some researchers like Winkley (2010) and Mansell (2009) have considered innovation is becoming a risky matter, particularly in the case of digital summative assessment, since it's the assessment that usually publicly considerable, heavily managed, and has enormous influence on the cohort of learners going through the assessment (McAlpine, 2012). The TEA (Technology enhanced assessment) barriers specific to the broad adoption and integrate it to all educational systems around the globe, those obstacles have been outlined by many scholars such as Mogey (2011), Mansell (2009), Whitelock & Watt (2008), Brasher & Whitelock(2006), and Ripley (2007). The most common obstacles are briefly documented below.

- Plagiarism spotting and invigilation potentials related to practitioner.
- Transferability and scalability issues due to massive loads of separate duties and cultures from various departments at the same time especially in HE (Higher education).
- Validity and reliability concerns shown particularly in high-stakes assessments where learners receive different tests selected randomly from the questions or tests bank and there is no guarantee all students are having equivalent exams.
- Security concerns related to verifying users identities.
- Training deficiencies and lack of time, where staff should be fully aware of implementing new digital tools and work on rethinking techniques.
- Testing standards concerns, where assessment standards must be authentic and reliable.
- The absence of system-wide authoritative and management policies implantations.
- Lack of developing the appropriate physical scopes to match the digital assessment goals and needs.
- The high cost of implementing latest technologies, interoperability, and staff training.

- Lack in the infrastructures of the immersive games and educational computer games assessments strategies.
- The absence of collaboration between learning environments and assessment cultures due to the attentiveness concentration on the learner's individual progress.
- The absence of collaborative work between interdisciplinary teams including educators, innovators, scholars, and designers.
- Ethical concerns related to the new technologies assured dilemmas, such as how to handle the real and fake online identities?
- “Big data” ethical concerns, includes data ownership and protection as well as information management and online publishing.

Many scholars emphasized the importance of guidance on student's online empowerment, Hughes (2009) highlighted the concerns of the full empowerment of schools and higher education pupils via various digital equipment like social software since it will not guarantee learners equal chances in participation or gaining the same benefits for all students. For instance, the wiki software, despite it evaluates a wider domain of learning activities using different strategies and techniques, it is doubtful to undetermined learners inequalities because of the unassured chances of pupils online participation since not all learners mastering the same level of skills and learning experiences (Siemens, 2012).

2.7 The future of digital assessment

Despite the various concerns that digital assessment is facing, some scholars have highlighted the distinguish characteristics in some implementation experiences that employ technology enhanced assessment successfully. The REAP projects (Re-Engineering Assessment Practices in Scottish Higher Education) proposes various techniques to implement and develop e-assessment practices effectively (Hickey, 2009), those suggestions includes:

- Intensive engagement of learners in the process of assessment practice.
- Build the practices of the proposed assessment on a constructive conceptual framework.

- Ongoing evaluation of the assessment practices through quality assurances standards and reports.
- Continual support of the educational institutions and departments and building and rechecking their policies.

Beevers et al (2011) in his study “What can e-assessment do for learning and teaching?” emphasized the excessive importance of the solid designing and planning of the e-assessments practices, as well as, the explicit base of assessment pedagogy, least fuss, and the authority for implementing new technologies and strategies in producing a well-designed, constructive assessment practice (Beevers, 2011). Lastly, the “Roadmap for e-assessment” study for Whitelock and Brasher (2006), stressed on the importance of the following factors in supporting the implementation of technology enhanced assessment: the management and leadership team’s ongoing reinforcement and support, continual staff pedagogical and technical training, develop the individual’s roles in champion the digital tools and assessment practices (Pellegrino, 2010).

CHAPTER THREE (RESEARCH METHODOLOGY)

3.1 Study context

Study is being conducted at Abu Dhabi charter schools project to monitor the efficacy of technology in enhancing the quality of assessment strategies (formative and summative) and determining whether they effectively promote student achievement. In the early 1990s, charter schools were established to provide advanced artificial intelligence (AI) and smart school technology with customized curriculums and international staffing. As part of an educational public-private partnership model, government schools are managed by leading private sector operators under charter systems. In order to improve education standards in government schools, this programme aims to utilize the expertise of private companies. Students were successfully motivated, attendance and dropout rates were reduced, and uninspired teaching was reduced with the scheme.

An Emirati charter school is a project operated and staffed by a private company. Having modified the US curriculum to include some elements from the UAE curriculum, the classes are most often taught in English, with the exception of certain subjects. This strategic partnership between the public and private sectors offers Emirati children access to Charter Schools, which are free for Emirati children. The partnership provides a unique platform for international exchanges, and supports the UAE's plans to develop a competitive and sustainable economy. Charter Schools educate public school students in the UAE, starting with kindergarten, cycle one, and cycle two, and adding grades as students progress within their educational program. Furthermore, all of the staff members have the opportunity to experience local culture in an authentic way, as opposed to living in a bubble of expats. Meanwhile, students acquire new English language skills while receiving support from a western teacher. According to different studies, charter schools have demonstrated more innovation in their organizational structure, if not their curriculum, as well as their likelihood to innovate compared to traditional public school curriculums should create an environment in which morals and values are integrated with the achievement and cognitive development of students.

3.2 Sampling procedure

With respect to selecting the population and type of research to be conducted, the researcher, who is a curriculum developer at a charter school program, specifically targeted parents, teachers, and administrators involved with education and in the assessment process. The study was conducted to determine the effectiveness and reliability of web-based assessment in measuring the academic progress of learners. A variety of digital assessment tools were used to ensure accuracy and validity, including (Kahoot, Seesaw, Mathletics, Pearson, PM readers, and Edmentum) that are usually used to measure students' academic progress in charter schools. A variety of individualized learning activities are provided through these online tools based on each student's academic progress, which is measured by MAP (the Measure of Academic Progress), a computerized testing program designed to help teachers, parents, and administrators enhance student learning and determine the best way to help each child achieve academic success. Further, teachers can use these digital platforms to communicate with students, assign learning activities, provide direct formative feedback, analyze results, and tailor instructions to provide students with targeted learning experiences. Learning technologies such as these are used by learners every day to apply the knowledge they have learned, communicate with their peers, and interact with learners around the world.

Teddli and Yu (2007) introduced probability and purposive sampling techniques that are combined in the current study. At the same time, this study makes strong use of the mixed-method sampling approach, since it aims for depth and breadth of analysis. Research questions can be answered with relevant data that targets a representative sample of concerned parties and is valid to apply externally (Evankova & Creswell 2009; Teddlie & Yu 2007; Graff 2012). Through conducting online surveys with parents and teachers, the researcher was able obtain quantitative data using the sampling method under the probability of the sample size (N=45). The Purposive Sampling method, on the other hand, allows qualitative data to be collected by interviewing administrative staff (N=5). By interviewing the administrator staff who make decisions regarding the use of these technological tools, the study seeks to gain insight into the qualitative part of the research. To introduce the quantitative component of the study, random samples of parents and teachers were selected to represent the whole sample.

Taking this approach, the researcher was able to obtain data that provides important information about the effectiveness of digital assessment in reflecting learners' actual academic growth.

3.3 Research Methodology

Education study statements represent issues, topics, or questions for which researchers are seeking solutions. The solution-finding process involves several approaches. The majority of these studies combine an element of theory with an element of practice, and most of these studies collect some data about a particular educational aspect. After gathering the data, they analyze it to reach conclusions pertaining to the issue at hand. An example would be code switching in language courses, bullying in elementary school, motivation of students in high school, and evaluation of educational policies. A majority of educational studies, both quantitatively and qualitatively, rely on traditional social science empirical research (Creswell, 2009). Scholarly literature of this type differs from other forms like literature criticism, theoretical and conceptual frameworks, humanities research, and custom and tradition studies. Utilizing such an approach is important because quantitative data provide facts different from those provided by qualitative data. Based on the meta-inference strategy, the researcher summarized the study's findings and results (Teddle, 2008).

The quantitative method is based mainly on the numbers and data collected from the online surveys of the learner parents and their teachers. While a qualitative approach is a description of school administrative staff responses. For the purpose of answering the research questions, the study employs a mixed-methods approach (quantitative and qualitative). The quantitative approach of this method relies on two online surveys in conjunction with structured interviews with senior leadership members to follow the qualitative approach. After that, the data are analyzed in detail in order to arrive at a logical solution of the research questions, a process that utilizes Quan and Qual procedures to examine various aspects of the research question in depth.

In the convergent mixed method, the quantitative and qualitative techniques are combined together to boost their positive effects and reduce their negative impacts. Further, a mixed methods approach will be able to provide more meaningful and comprehensive answers to a

research question than a singular approach could (Johnson, 2012). The mixed methods are considered more accurate since they have fewer error percentages compared to using only one method to study people's behaviors in their communities. Mixed methods can validate one another because each type of data can be used to validate the other. As per Jack (1979), convergent validation is a triangulation method. In his view, using different methods to gather different types of data can affect the validity of the information that is collected. In his presentation, he pointed out that the importance of retaining more than one approach enhances study validity and prevents methodological artifacts from entering into results. Mostly, it is used to provide high-quality data for scientific studies, as well as to enhance and support the scientific background (Klassen, 2012).

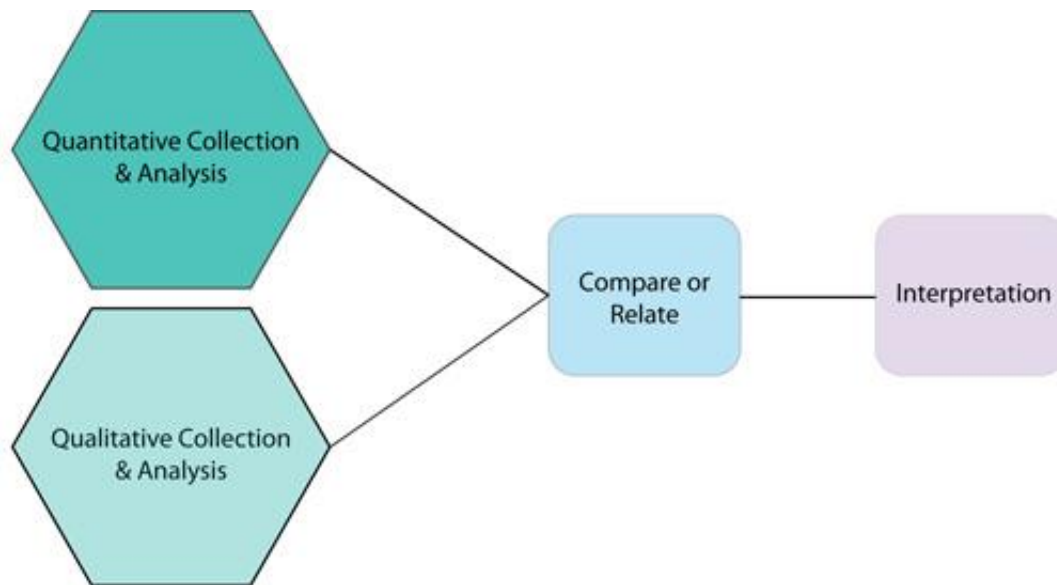


Figure 4 (Convergent mixed-method design)

Technology has developed educational platforms that are tailored to meet the needs of learners. Through these platforms, pupils have access to unlimited learning opportunities. Besides participating in individualized learning activities, communicating with their instructors, and receiving direct feedback, pupils can also communicate with other pupils worldwide. In order to maximize learning, both formative and summative assessment themes are indispensable.

However, modern education methods (e.g. e-learning and hybrid education) require reshaping these themes to meet the current needs of the students and 21st century demands.

The results of this study, however, are dependent on the data analysis generated by online tools and the feedback of administrators, teachers, and parents. By using technology-based assessment themes and techniques, students are exposed to new learning opportunities, improve their cognitive development, and apply their new skills in real-world scenarios where they can contribute to the sustainable development of their communities.

3.4 Data collection Method

The research questions are examining the authenticity of digital assessment themes in reflecting pupil's academic performance and maintaining the integrity of the educational systems. Before the experiment, and in light of the researcher's professional background, she has sufficient experience in implementing web-based assessment tools and facilitating continuous professional development workshops to introduce the latest digital platforms and assessment tools to colleagues, in order to keep them technologically knowledgeable and enhance their abilities to employ these tools. Throughout the experiment, feedback from parents, student growth reports, and teachers' discussions are collected and analyzed. The researcher can measure the impact of the study tools after applying the experiment in the following ways:

- 1- For a quantitative approach, parents and teachers are asked to respond to online surveys regarding how they feel about assessing their children using software-based tools, as well as obtaining feedback from educators regarding the method they use in evaluating their students.
- 2- For the qualitative method, interviews with senior management team members are conducted as a way to understand how they legitimize digital assessment in their respective institutions.

3.4.1 Quantitative Method :

Data collection and analysis are the main components of quantitative research. Empirical philosophers shaped this method by relying on the experiment of theories. Analyzing data is vital to quantitative research in order to explain how observations and mathematical processes work together. Statistical data, percentages, and the like form part of quantitative research (Given, 2008). A large number of people can be generalized from the results of the study, by analyzing data with statistics and numbers.

- Parents / Teachers Online Surveys

Scientific instruments of academic research are most effectively applied through surveys. These are instruments used to determine how participants respond to a series of questions. Participants are tested and their attitudes examined, and researchers get a numerical representation of their results. Surveys generate data that saves time and effort (Dornyei, 2011). A large number of people can be surveyed, which allows for a great deal of data to be collected very quickly. On top of that, the results can be generalized to the whole population when applied to small samples of people. Other types of tools lack the possibility of anonymity that surveys offer. The growth and evolution of online surveys is still in progress. The design and conduct of online surveys used to be a waste of time until recent years. It is essential for researchers to have a fundamental understanding of online applications and programs before implementing online surveys (Groves, 1989).

The application and program development process has become simpler and faster in recent years. Online surveys still have limitations and merits, but many researchers are ignorant of these aspects, such as the lack of certainty in data validity and sampling options and falsified data evaluation. In contrast, web-based surveys have many advantages when compared to online surveys, including the ability to involve respondents from around the world; to generate a large number of anonymous responses from participants out-of different contexts; and to decrease the time and effort necessary to gather data.

The first online survey in this study is meant to find out how parents of learners feel about technology tools and platforms for assessing their kids. Furthermore, it measures the effectiveness of these technologies in accelerating learners' academic achievement from the point

of view of their parents. In contrast, the second survey addresses teachers' perceptions regarding the use of digital tools to replace the old techniques for assessing students. Moreover, it described how the new technologies impact the teaching profession, the learning process, and educators' well-being.

Each survey contains fifteen questions and explores various aspects of the influence of implementing web-based assessments to align with e-learning approaches, with the first survey focusing on how parents can support their children and boost their academic performance. The second examines teachers' perceptions of the new technologies and their use to enhance the learning experiences, academic progress and cognitive performance of their students. Part one of the parents' survey explores how parents, who assist their children through ongoing digital assessments, work together with their kids' schools to enhance their children's skills in using these technologies appropriately and to ensure their cyber safety. With regard to the teacher's survey, the first part looks at how they are being prepared and trained about using the new technologies to assess their students' learning through the academic year, as well as how these technologies impact their workloads.

The first survey details the obstacles and challenges parents and students face when they participate in online assessment. A second survey outlines how web-based assessment strengthens students' learning experiences and how it enhances educators' professional growth, as well as how educators insights and personal practices can direct students learning. As part of both surveys, parents and teachers answer 15 close-ended questions regarding how both of them are ensuring their children are supported through the ongoing digital assessment and how they play a crucial role in using technology to make their children/ students better prepared for university. Parents and teachers have completed the surveys in about ten minutes, which would be sufficient to answer all the questions as described by Dornie (2003). There are no hard-to-understand or confusing questions in both surveys. By doing so, the researcher eliminates any personal subjectivity. There are five levels of agreement ratings based on the responses (strongly agree, agree, neutral, disagree, and strongly disagree).

These options allow participants to express their opinions on the questions. The multiple choice format is used because it is straightforward and reader-friendly. Alternatively, Johnson and Christensen (2012) underlined the importance of including both the open-ended and the closed-ended questioning styles in surveys because it provides more opportunities for participants to state their opinions rather than relying on only quantitative data. According to the research questions, the questions are sequenced in the survey according to where the researcher should focus her attention. She will then be able to prevent potential misinterpretations caused by the study context or questions.

The introduction of both surveys provides a description of the purposes, the context of the study, and a statement providing consent (Peterson, 2000). An informed consent can be gained from participants if these elements are included. The overall framework and structure are in line with those made by Wallen, Frankel, and Hyun (2012), Dornyei (2003), and Voegtel (2010).

Participants were informed of the ethical statement that no harm will be inflicted on them by the researcher. Therefore, she promised to maintain and protect the participants privacy and confidentiality as well as their right to choose whether or not to participate. Lastly, the researcher informs them of who will receive the study, and how access to the data will be granted (Fraenkel, 2012).

3.4.2 Qualitative Method

Studies are derived from analyses of data collected in previous research. Interviews have been conducted as a method for gathering qualitative data in the studies. Psychological interviews, which are grounded in sound scientific research methodology, have been used in many qualitative studies. Positive and post positivist theories are often discussed. As the researchers conduct these interviews, they are familiar with previous theories and studies. By using interviews, they confirm their theories and confirm their hypothesis (Glaser, 1967). Additionally, they maintain a distance from the interviewees as objective observers. The field of qualitative research has shifted to a new paradigm that focuses on constructivism theory over the last few decades.

To obtain a broader understanding of the participant's experiences, they become more involved. The researchers collaborate with interviewees on several activities and projects in order to understand their interests (Charmaz, 2005). These insights are then applied to designing the interview questions that stimulate fruitful dialogue with the participants. As a result, researchers must understand the impact of the participants' attitudes and interests on the interview results based on their philosophical beliefs, which have an essential influence on designing the interview questions.

3.4.2.1 Management Staff interviews

- Types of interviews

Researchers have analyzed three kinds of interviews: unstructured, semi-structured, and structured. In an unstructured interview, questions are closed, which take into account the study's focus. To obtain specific information and make comparisons between the participants responses, these questions were developed. Nevertheless, researchers remain flexible in their approach so as to get unexpected details and stories from the participants (Fontana, 2005). It is possible that unstructured interviews may result in unexpected results, according to Kvale (1996). If the participants answered different amounts of questions, it is difficult to compare the results of the interviews. Using semi-structured interviews, they are solving this problem and holding the continuum in place from the middle. Afterward, all participants are asked the same questions by the interviewers. However, each participant may have marked areas that are unique to them.

Additionally, each respondent may be asked questions in a different order. Based on this protocol, we can create a foundation guide for conducting semi-structured interviews. According to this guide, interviews are designed in a flexible and creative way to reveal the story of every respondent (Hill, 1997). The second type of interview involves standardized questions and experiences that each participant receives (Singleton, 2002). So, if any dissimilarities are observed, it is due to the divergences in the interview questions rather than the differences in the participants themselves. Accordingly, these types of interviews are classified as highly structured interviews where the majority of the questions are closed, have either yes or no answers and are aiming to uncover facts about all the interviewees in a systematic way.

Moreover, the interviewing process itself is extremely standardized with the same standard prompting used to conduct the interviews, the questions are written like they will be read so there is no chance for interviewers to disclose anything (Jick, 1979). In other words, the researchers seem consistent and neutral for this process of interviewing. Groves (1989) suggested that structured interviews serve the purpose of reducing the claim that the interviewer may be responsible for some accuracy errors. Having said that, standardized interviews have many advantages that contribute greatly to their consistent description among the participants. In contrast, they cannot get a clear picture of their personal histories, particularly those who do not share the same interests as those that are being examined in the interview.

- Consideration before an interview:

Before choosing the questions for an interview, the researcher needs to consider some important factors. Siedman (1991) explains that in order to determine whether the interviewees do have a unique experience, you will need to start by gaining an understanding of them. Consequently, the interviewer can stick to structured open-ended questions as opposed to unstructured open-ended questions. An individual should control the interview so that it is not just a friendly conversation but a data collection interview (Seidman, 1991).

A highly structured interview can also consist of standardized and predetermined questions with little variation. As a result, researchers should be aware of some relatively unstructured approaches, such as participant ethnography and choosing different grounded theories to use. These factors may lead to researchers formulating different sets of questions based on the theoretical background and ethnic background of their interviewees. In this step, the researcher collects and analyzes preliminary data, then refines all the questions in line with the study's focus. Finally, the facilitator poses new questions for all participants (Singleton, 2002).

Kyale (1996) made similar claims. In qualitative interviews, the design is based on open-ended questions, which vary according to each participant's unique characteristics and interests rather than following the same interests for all participants. As an example, a researcher conducting an ethnographic interview might start by speaking with the subject for a couple of minutes and then introduce supporting prompts as a way to help the subject respond (Glaser, 1967).

A standard focus of the study is then established by directing questions accordingly. It is likely that the main topic of the study would be decided before doing interviews. Nonetheless, it might have different content or questions may be arranged differently. Described by Kvale (1996), wherein the interviewer can start the conversation with an introduction to the topic. Following that, the questions below ask participants to expand on their answers to the first question.

- Consideration during the interview:

Qualitative research differs from quantitative research in the strong relationship between interviewer and interviewee that is vital to its success. Data collection and validity can be improved through it as well. A quality relationship impacts the participant's self-disclosure and, as a result, their ability to share personal information with others. For instance, participants who talk about bad experiences often develop an emotionally problematic relationship with their inflexible supervisors as a result of their adverse reactions. According to Brinkmann (2013), participants can be emotionally driven during interviews, which can have an effect on their responses when they are asked to discuss bad experiences. This is why they will not practice difficult conversations with the interviewer again because they don't feel safe with him. In the section that follows, it outlines more information about how to elicit information from participants and to emphasize the importance of building relationships during interviews, emphasizing the factors affecting the strength of the relationship between researchers and their participants as well as the obvious benefits of developing this relationship further.

- Conducting an interview:

To collect data, educators rely heavily on interviews. Gathering qualitative data with interviews is one of the most effective ways to do so. It is difficult to support such methods as those of Seidman (1991), Kyale, and Kvale (1996) due to the limited resources available. In which interviewing strategies and procedures are discussed. Interviewing techniques for successful interviews cannot be determined using qualitative methods (DiCicco-Bloom, 2006). As an

essential tool in qualitative research, interviews are used to collect data; participants should be given an overview of the interview process. A list of the actual verbatim phrases that are used may be included, as well as descriptions of additional clarification prompts, summarizing, paraphrasing, interpretations, closed questions, etc. A researcher may encounter a few obstacles after conducting interviews, including: (a) Lack of transparency in interview purposes. It is important that the researcher provides some introductory ideas to the interviewees in this case to increase the authenticity of the interview. (b) Due to the continuous evolution in the implementation of interviews, they are often based on vague assumptions from previous studies. An example would be a discussion or conversation between an interviewer and interviewee that occurred unexpectedly. Still, the researcher and the participants will normally conduct the interview and collect the data. Therefore, the gathered data might be affected by this relationship. Various interview protocols may be known to the participants in other interviews, which may be considered semi-structured qualitative interviews.

It is thus important to plan ahead and conduct the interviews in the very same way with each participant, so that the effective interview questions are chosen in advance. However, few scholars provide explanations for their purpose when interviewing participants as a data collection method. To prove that their definition is accurate, they analyze some explanations to show that the interviews are the most appropriate tool for gathering data (Fassinger, 2005). Qualitative research's practical definition of interviews should also be transparent to ensure a high level of objectivity. In the definition of the research process, researchers should include the philosophy of the research process, such as positivists and post-positivists, constructivists and interpretivists. Also, describe the technique and strategies used in the actual interview, such as the feeling reflection, paraphrasing, encouraging participants, and open-ended questions. In the research method, this data has to be documented. Due to the nature of the statement of research, the current study recommends that researchers be transparent about the reasons for conducting interviews.

- The interview protocol:

Despite similarities between the researches of some researchers, each uses differently structured interviews and interview protocols. Results can be compared based on the type of data, how each study has deeper or more comprehensive data, and how similar their final outcomes are.

Conversely, researchers may learn valuable information about each type of interview protocol and its strengths and weaknesses. Furthermore, different pre-interview procedures could also influence the outcome (Fassinger, 2005). Participants should receive adequate information before signing any consent forms in order to prevent any misunderstandings regarding the interview protocol. Participants could be sent a copy of the interview protocol to familiarize themselves with the level of confidentiality and the types of questions they will encounter as part of their study. By this method, interviewees can reflect on their personal experiences and prepare for various topics and questions (Hill, 1997).

No firm evidence exists, however, to suggest that more prompts lead to more data. Therefore, introducing different examples of introductory information to the participants before the actual interview or even just before it can promote different reactions from them; they might see it as an interesting occasion to express their opinions, while others might see it as an invasion of their privacy or a thorn in their side. As a result there is a high likelihood of some participants refusing to answer questions or to take part in the interview after reading the prospectus, especially when sensitive topics are discussed during the interview. Researchers can then contact the participants who declined to participate in the interview and learn their real reasons for doing so.

Therefore, the researchers can create a comfortable setting for the participants in order to make them more likely to participate in the study and share their perspectives. By understanding the reason for the decision, it will reduce the possibility of participants being rejected as well as encourage them to break their fears and become supportive members of the community.

3.5 Pilot study and pretesting:

During the pilot phase, a small sample of the population will be surveyed to ensure the survey reflects the entire study group. A researcher can use pre-testing to make sure the survey wording and instructions make sense (Howe, 1999). Additionally, make sure all questions are clear and

organized. There are many ways in which questions can be understood by different people, so the researchers discussed the questions of each survey (teachers, parents) with five participants to ensure that they understood each one and were able to interpret it precisely to ensure accurate data collection. Each survey includes five participants to determine validity and reliability. Researchers use this sample to determine if the survey is valid and reliable. In the case of reliability, all questions are assessing or measuring what the questions were designed to assess.

The survey can also be evaluated and examined by asking experienced educators to check the questions and provide feedback. Before conducting a survey, they can spot and identify linguistic issues as well as breakdown issues to ensure that they can be addressed. Both online surveys of the current study have been revised by two TESOL professors. As part of the revision process, they help improve the content and formality of the online survey. As a result of their comments, the researcher ends up making linguistic changes and formalizing the survey questions.

In order to cover both the positive and negative sides of using digital tools online, the study uses the commensurability mixing validity method. Validity and reliability of the survey are enhanced by the participants' ability to comprehend all the survey questions. In addition to using the conventional method of contradiction, the researcher can use the concept of triangulation to clear up their thoughts (Ivankova, 2009). It is a process of collecting and analyzing data by using different resources. A triangulation is considered one of the best methods to bolster the interpretation of a question and provide an internal validation. Moreover, it increases the validity of study instruments.

3.6 Ethical Consideration:

Using a deceptive approach when dealing with participants and conducting the study is regarded as the root of research misconduct. When researchers conduct research on improving educational policies or practices, new data is sought. Integrity and accountability are therefore extremely important factors in the research enterprise (Creswell, 2009). Research methods that could be described as misconduct include intentionally fabricating chapters of the study or committing

plagiarism, as well as interpreting results in a way that does not conform to the study's objectives.

It is the responsibility of the researchers to conduct their research properly in this respect. Apparently, it is possible to conduct research that is fraudulent due to inherent deception. Likewise, Rallis and Rossman (2009) adopt the theory of consequentialism, which adopts the concept that "end justifies means" similar to that of Howe and Moses (1998). If Rallis and Rossman theory is compared with the non-consequentialism from an ethical standpoint, then telling a lie is not correct in any situation that follows. As Bell (2005) points out, deception is liable to mislead the participants, as it can cause them to doubt the validity of the research, impacting upon safety, confidential information, privacy invasions, and anonymousness (Teddle, 2008). In order to resolve this ethical dilemma, Rallis and Rossman (2009) suggested it is the researcher's responsibility to ensure their individual responsibilities and rights. Furthermore, they should promote great respect and value for every participant throughout the research process. Consequently, Creswell (2014) advises that the importance of predicting ethical problems and devising plans to solve them should not be overlooked.

It is extremely important for researchers to keep the rights of participants in mind when undertaking research. Participant consent is obtained before answering the online surveys in the current study. Additionally, the researcher makes sure both participants are aware of all relevant details before letting them answer the questions. Briefly inform them of the research's main objective, methods, and data collection tools. Furthermore, the researcher affirms to the participants how important their privacy is and how valuable their data is considering data security and positive measures (Burgess, 2005). Researchers acknowledge that participants are free to withdraw from the study at any time so that participants are aware they have the choice to participate or not. As a result of her actions, the possibility of intrusive behavior was minimized. The researcher has a deep understanding of both the cultural context and the traditions of the United Arab Emirates.

Thus, to avoid any ethical problems, she ensures that all of the participants are aware of the study's nature and prepared to handle any ethical problem that may arise during the study.

3.7 Research questions:

According to numerous studies, digital assessment tools are highly beneficial for both teachers and learners when measuring academic progress. As a result, using technology can influence student academic achievement and performance when applied in the appropriate manner.

Based on the review of these studies, the study seeks to investigate the effectiveness of digital tools in education and the extent to which digital assessments can be transparent, reliable, and valid. Additionally, the researcher studies how educational institutions across the country are preparing their staff to utilize those tools to the fullest extent.

1. To what extent can the results of digital assessments be trustworthy, reliable and reflect the actual academic level of learner's?
2. Are teacher's being trained on how to create online assessment that shows what they have taught and who trained them?
3. In ten years from now, what will be the future of digital assessment and how it will enhance the educational pedagogy expectations?

CHAPTER FOUR (DATA COLLECTION AND RESULT)

4.1 The online teacher survey

This online survey contains fifteen questions, some of which are focused on the positive aspects of digital assessment tools and some of which are focused on the negative effects on teachers' workloads and wellbeing. The researcher in this survey remains focused on the study's main statement regarding the role of digital assessment tools on students' academic performance and engagement.

With the covid 19 pandemic transforming the educational process, teachers from all over the world began seeking ways to motivate and engage their students, and to keep their academic performance high. In the study, teachers are asked about their attitudes toward using digital tools to assess students' performance. The researcher used Google forms to create and conduct her survey, where responses would be automatically generated and analyzed. As well as understanding the possible negative effects of this enormous transformation, the survey intends to overview educators' attitudes toward these new trends in assessment methods.

The researcher summarizes the results of an analysis of the online survey responses presented below. This survey was completed by 31 teachers in total.

The teacher's online survey was completed by 31 participants, 90.3 % of whom were females and 9.7% were males. Among them, 22.6% said they were surprised by the flexibility of educational technology tools, 22.6% said they were surprised by the innovative aspects of technology tools in their classrooms, 19.4% said they were satisfied with the level of engagement and enjoyment the technology tools provided, 9.7% were surprised with the technology tools usefulness, and 9.7% were surprised with the variety of tools technology can offer.

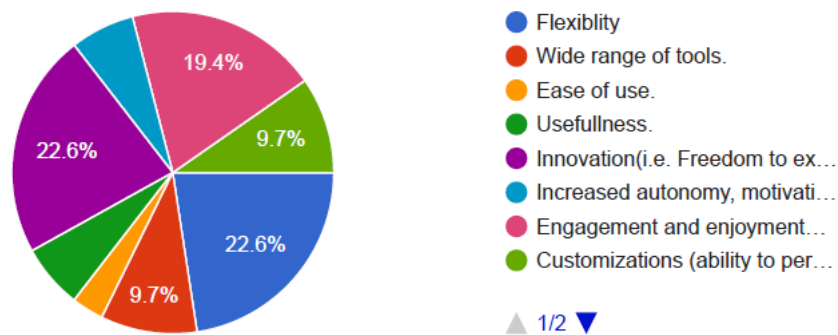


Figure 4 (Educators feedbacks on educational technology tools)

According to figure.5 below, the 31 participants responded with different percentages about the types of technologies they use with their students in order to produce and research assignments, including 58.1% allowing their students to use the internet when researching information, 45.2% allowing their students to use the school computers, 38.7% allowing their learners to use power points, and 16.1% allowing their learners to utilize video editing software.

31 responses

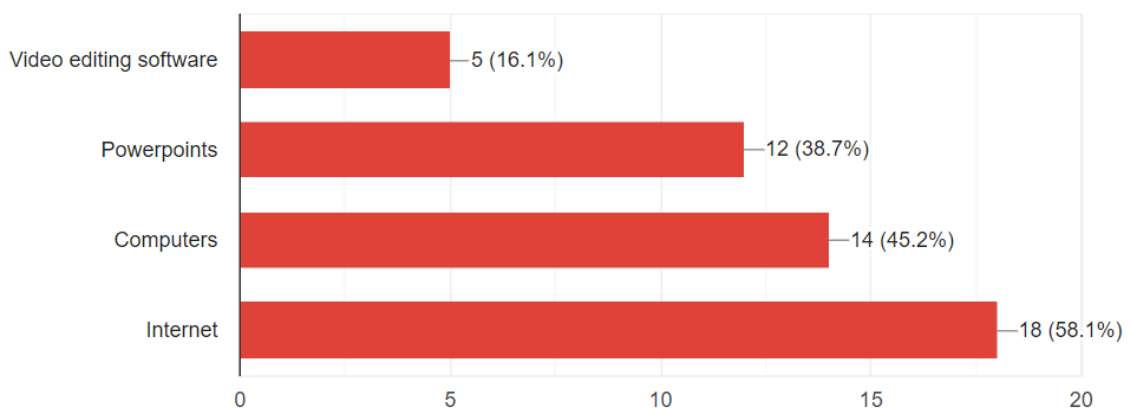


Figure 5 (available technologies in classrooms)

Participants reported that one of the biggest challenges they faced when shifting from old assessment methods to digital ones was the low digital competencies of their pupils and the increased workload at home, both affecting 35.5% of the participants, 32.3% were experiencing difficulties communicating with their pupils' parents, 29.1% faced difficulties managing their time and communicating with pupils during assessments, and 25.8% had difficulties receiving adequate support from their institutions to use these digital tools effectively, as well as managing their pupils' access to the internet during assessment. The network and the devices they were using during assessment caused problems for 22.6% of the participants, as well as a lack of understanding of how to support learners with determination during assessment. 19% had trouble assessing their learners' progress. 16.1 % of these participants struggled to engage disaffected students and keep them involved. There were 12.9% of teachers who were not fully competent in converting teaching activities into interactive ones or finding appropriate content for their learners. There is a 9.7% refusal to use digital assessment in evaluating students in schools. Students from low-income families make up 3.2% of those in disadvantaged backgrounds.

31 responses

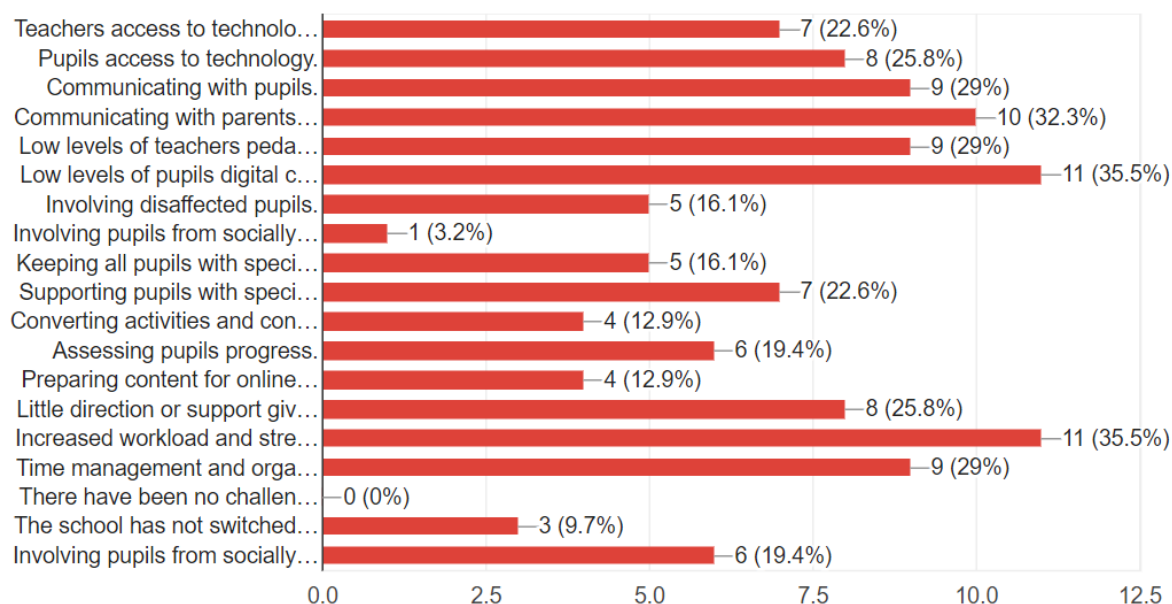


Figure 6 (Teachers struggles in using digital assessment tools)

There was a large positive impact on the teaching sector when participants explained why they considered shifting from old assessment techniques to digital ones, 71% of the participants said it was because it reduced their time spent preparing and marking paper assessments, 48.4% said it helped them offer students fast and formative feedback, and 45.2% said it meant no more lost papers. Moreover, 38.7% agreed that shifting to digital tools has made teaching and learning more fun and immersive, 22.6% stressed the benefits of digital assessment in that it allows learners to revise their work before submitting it, and 19.4% said it has prevented them from plagiarizing.

31 responses

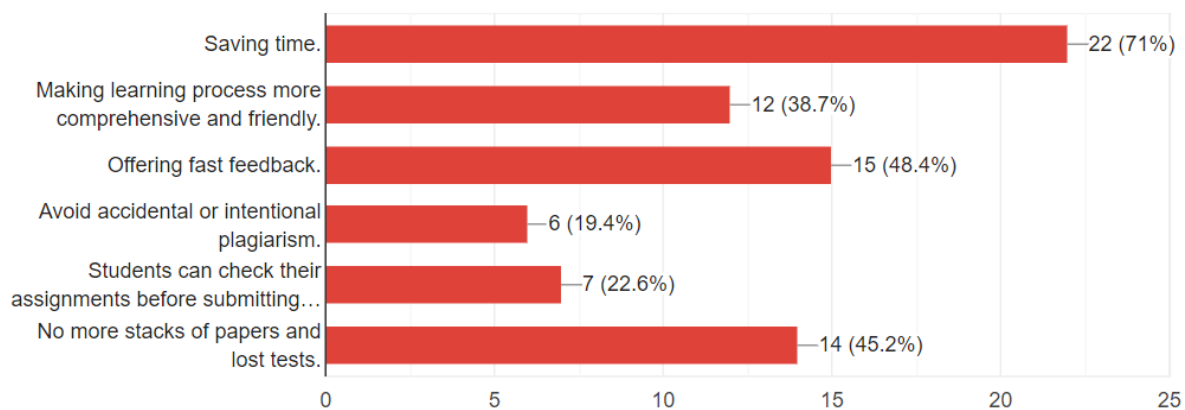


Figure 7 (positive impacts of shifting to digital assessment)

According to the figure below, the majority of educators feel that digital assessment has a positive impact on their wellbeing, workloads, professional development, and information technology skills. In contrast, a small portion of those educators reflected that this change had a negative impact on their lives and work. Nevertheless, some of these teachers viewed this change as being neutral and not having an impact on their work or personal lives.

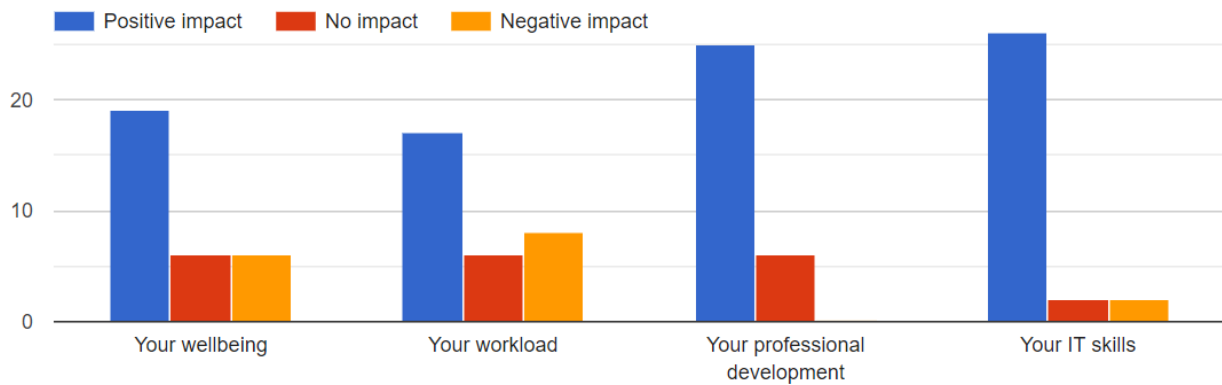


Figure 8 (Impact of digital assessment on Educators)

In terms of digital assessment's influence on pupils' engagement, wellbeing, cognitive development, and academic achievement, the majority of participants said that it had a positive impact, about five participants considered this impact a negative one, and between three to five participants said that digital assessment does not have any impact on pupils' learning experiences.

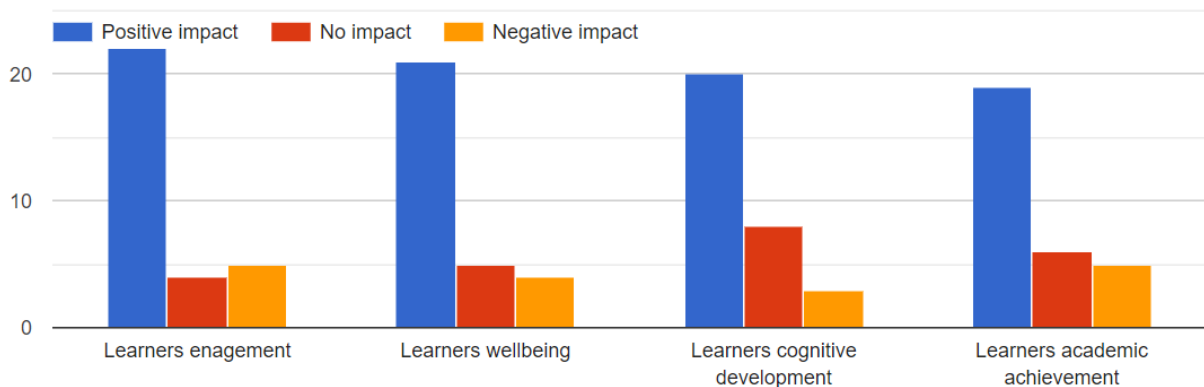


Figure 9 (Digital assessment impact on pupils learning)

In conclusion, the survey collects teachers' perspectives regarding the massive shift in the educational system that requires them to constantly evaluate their students and track their academic progress using digital technologies. Educators agree that these massive shifts in assessment techniques have significantly improved their information technology skills and professional development. Additionally, most individuals perceive this shift as a pragmatic factor affecting their workloads, and wellbeing. Furthermore, educators around the world maintain that this shift in educational systems has an extraordinary influence on pupils' engagement, wellbeing, academic progress, and cognitive development. In spite of the positive reflection on the effects of digital assessments, stakeholders in the educational sector acknowledge that some areas need to be improved to achieve the maximum benefits of these new technologies.

4.2 The online Parents Survey:

In the online survey, 45 parents of students reflected on their own experiences with digital technologies used to assess their children. During the first part of that experience, it was a little messy and they were not familiar with these tools, particularly with their young children. As soon as these parents receive the proper support from their children's schools or become familiar with these new technologies, the whole process becomes easy and useful.

The figure below shows parents' perceptions of the role that digital tools play in motivating their children to learn and gain new knowledge, 46.7% of parents say digital tools have a profound effect on their children's learning, 24.4% said it was slightly positive, and 15.6% said there were no differences whatsoever. However, 11.1% of parents felt that technology had a small negative impact on their children's progress, and a small percentage reported that it had an extremely negative impact.

45 responses

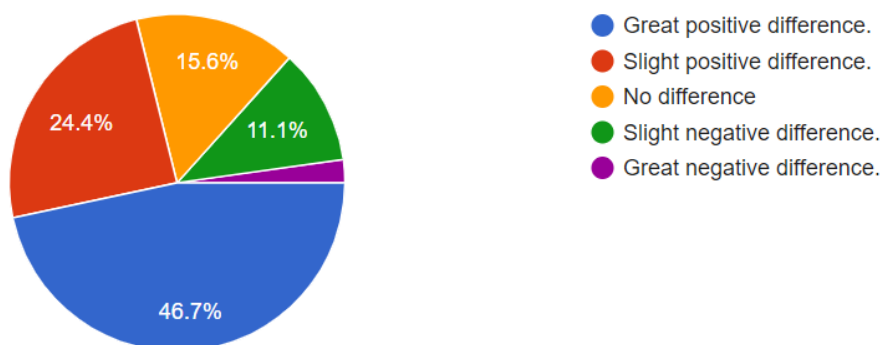


Figure 10 (Parents feedback on the impact of technology on their kids learning)

When the parents were asked if their kids were facing challenges during assessment using digital tools as shown in the figure below. 47.7% said there were some obstacles faced them such as the language barriers and communication with the exam coordinator. However, 25% of the 45 participants said it was a comfy experience and they were able to access the assessment and finish it easily. 27.3% of these participants said it was easy and fast sometimes and other times they were struggling to finish the assessment due to the complexity of the assessment requirement.

44 responses

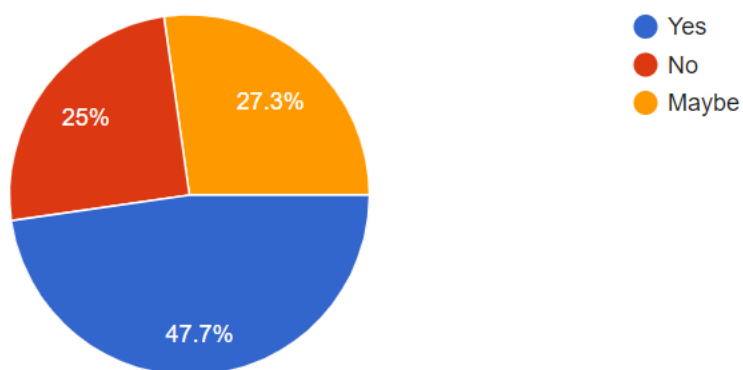


Figure 11 (Academic struggles faced learners)

The figure below reflect the satisfaction of students parents on the support provided to their children's during using the digital assessments and if this kind of assessment was helping in preparing their children's for the next academic year. 48.9% believed these digital assessments helped their kids in some ways to get ready for the coming academic year by enhancing their technological skills and offering them differentiated activities, 33.3% said that digital assessment does not have any effect on their children's academic progress. In contrast, 17.8% believed that digital assessment boost their children's academic progress to motivating them and offer them individualize learning activities.

45 responses

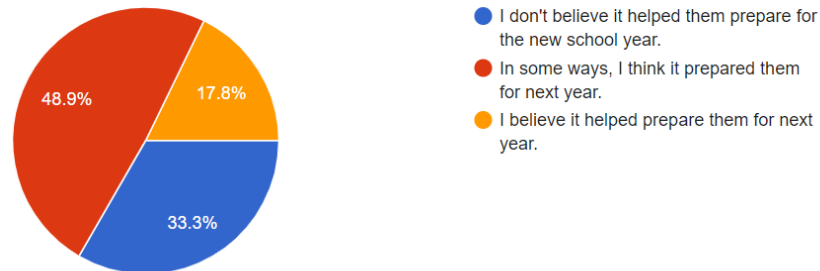


Figure 12 (Parents responses on effect of digital on their kids future)

Following is a diagram that shows the types of activities that parents felt were helpful for their children as they prepared for the digital assessment. 53.3% of the 45 participants described live discussions as the most helpful and supportive activity, while 24.4% recommended worksheets as the most helpful method of assessing their children. About 20% of the participants preferred answering questions and problem-solving activities, while only a very small portion felt reading activities helped their children pass the online assessments.

45 responses

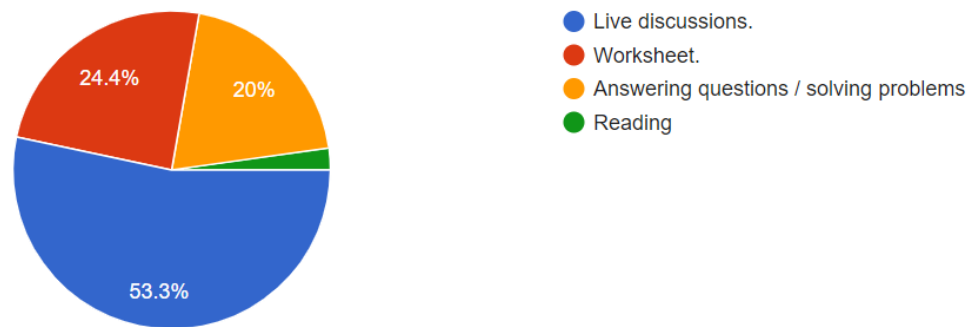


Figure 13 (best types of activities for digital assessment)

According to the pie chart below, 45 parents were satisfied with how their children were communicated with and supported by their teachers, and how frequently they received formative feedback to advance their learning. About 45.5% of participants felt there was a sufficient amount of communication and that it was as expected, while the same percentage felt that there was less communication than needed one and that it should be improved. Alternatively, 9.1% of parents report that their children's schools are doing well and providing significant support to their children.

44 responses

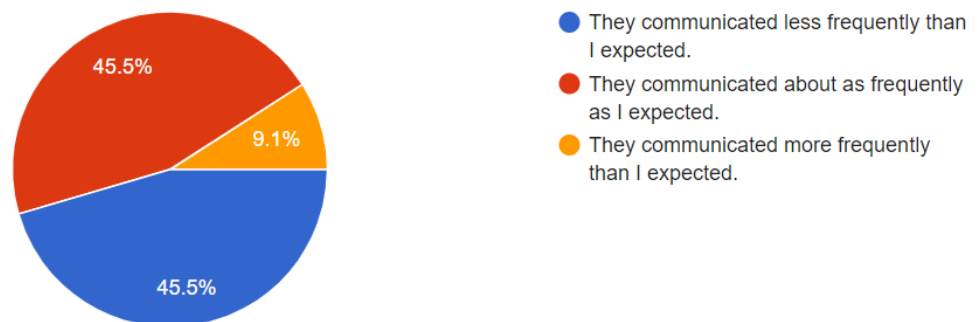


Figure 14 (Teacher-learners communications)

Concerning the struggles learners face while using technology tools for an assessment, nearly half of respondents reported that their biggest challenge was not having access to all the assignments needed to complete the assessment on time. There were 28.6% of respondents who said their children had language barriers and had difficulty understanding the assignments, 14.3% said their children got bored most of the time and weren't able to keep up for the whole assessment , 9.5% complained that their children felt isolated since they were not working physically with their classmates.

42 responses

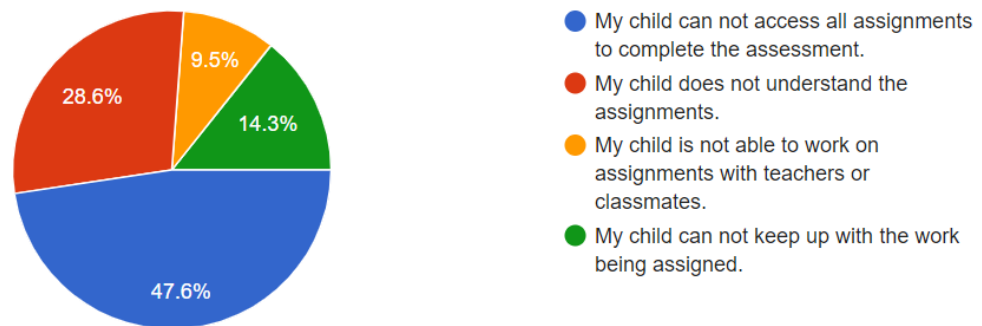


Figure 15 (learners struggles during digital assessment)

In an overall evaluation, 45 parents evaluated their kids experience with digital assessments. As demonstrated in the figure below, 56.8% said that it was a beneficial experience for their children and they would like to expose them to a wide range of digital assessment types, while 27.3% felt it was inadequate due to the obstacles they encountered in using these technologies. It was agreed by 27.9% that sometimes their students had a great experience while other times they struggled to access and complete their assignments.

44 responses

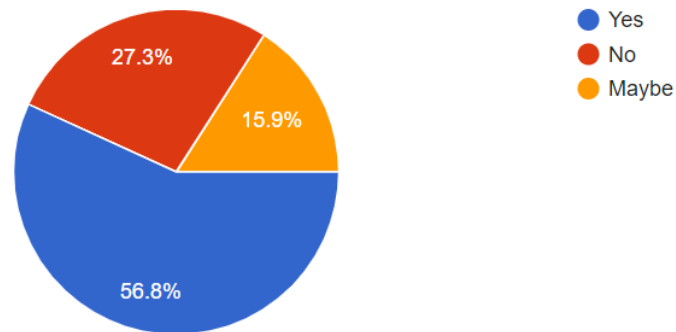


Figure 16 (overall evaluation of digital assessment experience)

In conclusion, the survey reflects parents' perceptions and satisfaction with using digital assessments tools to evaluate their children's academic performance and progress, as well as the effectiveness of these technologies in engaging and motivating their children in differentiated and individualized activities to assess their learning outcomes continuously. The vast majority of parents think this change in assessment methods should have been implemented much earlier since it has a profound impact on their children's motivation. Although many parents were somewhat lost when they started guiding their kids to use new technologies, after receiving support from their children's schools, they saw how using these modern tools enhanced their kid's engagement and cognitive development. In the future, parents will be able to evaluate their kids' learning experiences with the latest technology and provide them with a range of differentiated learning activities.

4.3 Senior leadership staff interviews:

Based on the answers in management staff interviews, themes and codes are derived. An analysis of the five participants' responses uses a thematic deductive approach. All five interviews have been transcribed by the researcher. As well as the main research questions, she emphasized the

concerns of the main concerns, namely student performance and engagement. A researcher reviews the coded data then compares and contrasts the responses of management staff members. The transcription of qualitative research is not standard. The researcher in the current study will have an opportunity, therefore, to settle on data that will be relevant to the main objective of the study. The researcher also excludes irrelevant answers and focuses on relevant elements of data and themes relating to the questions that are best suited to the research questions. In accordance with the consent form, the researcher provides pseudonyms for the interviews in order to ensure participant privacy and confidentiality.

Five staff managers from different charter schools were interviewed for this study. These interviews are conducted in order to answer research questions, mainly focused on how digital tools are used in assessing and evaluating pupils' learning experiences, as well as to assess the effectiveness of the tools in enhancing students' engagement and performance. Teachers were encouraged to evaluate their students' learning experiences with the use of different digital techniques, making sure they allow their students to make decisions about their success criteria to motivate them and increase self-regulation. During a professional development workshop, the researcher discussed the new assessment techniques with teachers at her school, as well as introduced them to some new platforms that can be used to enhance students' individual learning experiences and measure their competencies. Introducing three new learning platforms allows learners to practice learning as well as to gain new knowledge through a variety of opportunities based on their prior knowledge and diagnostic assessments. Moreover, the researcher discussed the importance of using these technologies for her Master's dissertation. The platforms are Edmentum-Exact Path, Mathletics, and Pearson realize.

In order to ensure reliability and validity, the five participants had the same structure and order of the interview questions. The ten questions-interview, like the online surveys, sought to determine how students and teachers can contribute to developing and implementing new assessment techniques using the latest technological developments.

Using new techniques to assess students' learning was considered significant by all five participants. They considered digital tools to be a key factor in boosting pupils' motivation, a practical way for teachers to provide immediate feedback, as well as a way to reduce the time

spent composing and marking exams. Despite the effectiveness of these assessment tools, management members stressed that all students must have a basic understanding of how to use digital devices, while teachers must receive a continuing education program that allows them to develop and implement assessment strategies that suit them and their students, which will improve academic performance and both sides wellbeing.

98% of management staff interviewed agreed that they should involve pupils in the assessment process and teach learners how to use assessment as a learning tool by teaching them how to value their own work and teaching them how to use rubrics to judge both their own work and that of their peers or group members. Also, assist them in reflecting on their work and editing it to improve the quality of their work, as well as sharing their results and feedback with their mentors. Various digital tools can be used to accomplish this, such as Edmentum exact path, Seesaw, and Savvas. Leaders have unanimously agreed that educators must utilize digital assessment tools as a tool for continuous assessment, where they can monitor their students on a day-to-day basis and adapt their instruction based on the students' needs, providing them with immediate and particular feedback that helps them improve their instruction.

Across eight different charter schools, all of the five management members agree that using new assessment methods and digital tools motivates pupils to make more efforts in increasing their academic performance, especially when there are interactions between these students and other students worldwide to compete among themselves in getting higher levels of knowledge and learning new material. The management members recognize that learners at different levels are looking forward to using these tools of the latest technology which provide them with the flexibility and freedom to study and learn at their own pace. Since these digital tools provide learners with access to a massive database of learning activities, they can even gain new knowledge higher than expected. The majority of participants concurred that these digital tools are user friendly and fun, interactive, and provide sounds, videos, drawing, writing, and editing features as well.

The leadership teams believe that involving students in the assessment process enhances their sense of self-esteem and cognitive development, by empowering learners with assessment options, including them in classroom-based assessment planning, requiring peers to evaluate and

score peers' work. Staff members emphasize how important it is to ensure the validity of online assessments by aligning them with the learning outcomes and students assignments. When it comes to validity of assessment results, alignment is one of the most important considerations. In order to achieve student learning outcomes, instructional activities should be designed to support students achievement of those outcomes, and assessment instruments should be used to measure student achievement.

Additionally, educators should ensure that assignments and assessments match the varied ways in which pupils learn, both to avoid overreliance on tests with trivial questions to measure low levels of cognitive domains and to ensure that they assess all levels of cognitive domains. Furthermore, all students must have equal opportunities to acquire new knowledge and be ready for assessment, where school leaders are responsible for determining what accommodations are needed in order to ensure that students of all abilities can learn.

The leadership members agree totally on the importance of knowing what students know and don't know in order to pick the right digital tool to assess them, as well as plan the next steps in teaching. Students are assessed both formally and informally so that information on their learning patterns can be gathered. As a result of numerous surveys and studies they have conducted to improve their performance both internally and externally for the purpose of highlighting the obstacles that are facing their students, they find out that the best practice for preparing their pupils for assessment, teachers should begin in the classroom by using practice tests which can serve as a review of test-taking skills for bullied students. In addition, teachers must use the benchmark assessments as diagnostic tools for guiding their teaching and learning. Moreover, teachers should employ some strategies to prepare students with diverse learning needs for testing as well, such as small-group instruction, peer tutoring, and using the Internet for instruction.

All management staff agree that digital assessment can have a bright future if implemented effectively with pupils being able to choose how they are assessed. Schools are seeking a broader selection of assessment methods that would motivate students more, enabling them to select the best method that fits their learning styles and maximizes their chances of success. Additionally, all participants stressed the importance of incorporating assessment into student learning through

using self-assessment strategies, which can help students identify knowledge gaps and provide insight into their true comprehension. For students to be able to assess their own learning, they must develop their judgment skills so that they can determine what makes a piece of work good or bad. By practicing self-evaluation, pupils are able to objectively reflect on their own progress and skill development, identify areas for improvement, work independently, and develop critical thinking skills.

In addition to training their students in the use of digital assessment tools, all senior management members believe it's important that they reflect on their progress and adjust their plans as necessary to meet their own learning needs and goals. Learners take ownership of their own progress by tracking their own performance in the classroom and developing the skills to act with agency by setting appropriate goals and being responsible for their own progress.

Both students and teachers agree that taking the time to prepare, administer, and score exams is well worth the effort. The teacher can use assessment to understand how effective their teaching is, which has a positive effect on students achievement.

A school's management emphasizes that the main purpose of assessing a student is to promote teaching excellence and hold them accountable for learning. As well as they consider a formative and summative assessment system aimed at demonstrating a student's learning abilities and knowledge and demonstrating how close they are to meeting the learning outcomes.

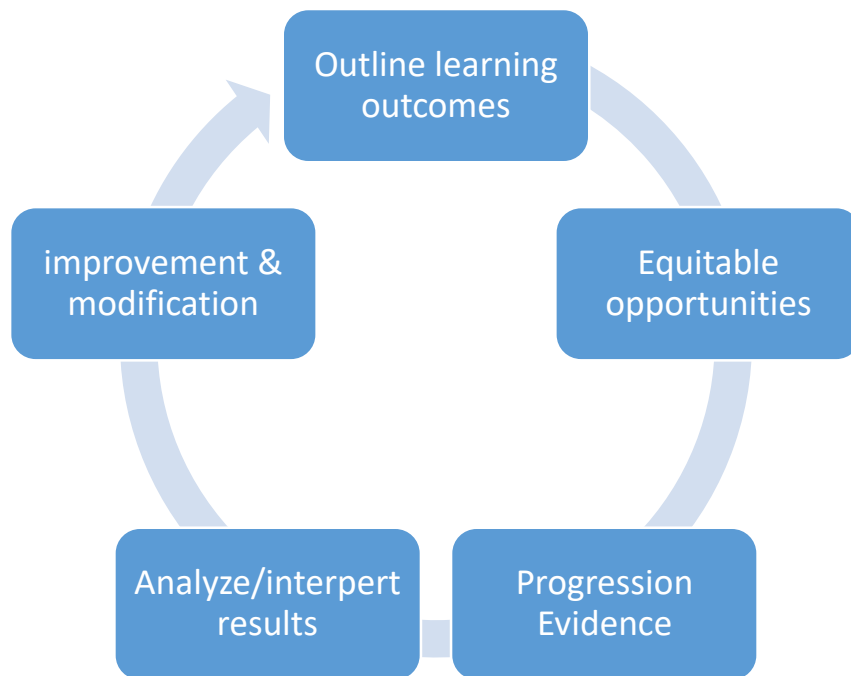


Figure 17: Digital assessment cycle

CHAPTER FIVE (DISCUSSION)

Evaluation is a crucial component of improving the overall quality of education. The way students learn is heavily influenced by how they perceive their assessment will be. While all assessments involve some level of student learning, the key challenge is to stimulate the right kind of learning. Hence, assessment practices must be designed in a way that sends the right signals to students regarding their learning goals.

In addition to providing feedback on learning, assessment facilitates improvement, measures achievement, motivates learning, and maintains standards. Besides, improving the quality of students learning, well-designed assessment tasks will influence how they approach a given problem. Consequently, student engagement and time commitment are directly related to the degree to which students believe they will benefit from participating in the learning experience. Assessments should employ strategies that maximize student learning opportunities. (Boud, 2000).

Assessing tasks and teaching-learning activities should be structured in accordance with constructive alignment theory in order to facilitate learning and promote cognitive development at different levels. Aiming to assess a particular topic, the teacher must align assessment tasks with the learning outcomes. A student's achievement of learning outcomes should be measured by appropriate assessment tasks. An assessment that is well-designed inaugurates clear expectations, establishes reasonable workloads, and allows students to practice and rehearse while receiving feedback. However, if they are poorly designed, they can hinder students thinking and learning. Learners should be able to receive feedback on their progress and identify their readiness to move on to the next stage in their learning journey through assessment (Darling-Hammond, 2013).

Many scholars argue that formal assessment also needs to reflect authentic feedback, and that it is the teacher's primary responsibility to conduct formal assessments. However, despite the use of peer reviews and self-assessment strategies as assessment tools, facilitators remain in charge of demonstrating whether students are competent and whether remediation is necessary (Biggs, 2003). The ability to apply the principles that underpin effective e-assessment will enable educators to use a range of technologies for assessment and feedback, thereby offering students

at various stages of learning and with a range of learning styles a variety of assessment strategies.

However, some scholars stress the importance of providing pupils with opportunities for active learning, enabling them to make connections between new concepts and prior knowledge, rather than passively receiving information as the teacher transmits it (McLoughlin, 2002). In constructivist learning, the key principle is that humans learn best by collaborating, interacting, or participating peripherally while learning (Lave, 1991). A constructivist education is learner-centered and utilizes individuals inherent autodidactic ability to encourage individuals to actively co-construct their own learning experiences. As a result, knowledge emerges as individuals interact and synthesize previous learning with new experiences and newly discovered ways to know which are treasured by local learning communities. The best case scenario is that online learning combined with digital assessment techniques can be used to synthesize the principles of constructivism, learner-centeredness and learning that is authentically based and an emphasis on cognitive apprenticeships (Swan, 2006).

CHAPTER SIX (CONCLUSION):

Achieving sustainable development for communities by educating and training the next generation of leaders. New strategies in digital assessment and learning are required to meet the changing trends in business education and online learning. Though the assessment process has evolved since Socrates, the foundation remains the same. Effective implementation and use of e-learning tools and methods are crucial for developing and improving learning outcomes and development occurrences within andragogy.

In this study, the researcher explored ways to implement the latest technologies and e-learning tools for an efficient, accurate, and realistic evaluation of students learning experiences through e-learning and technology implementation. How to utilize web-based assessment tools with groups of students, peers, and facilitators, identifying seven principles for creating an effective digital assessment. Throughout this study, teachers and parents are surveyed to assess their perceptions of various digital assessment tools. From a principle and outcome standpoint, this illustrates the importance of web-based assessment for the tripartite.

During the iterative process, facilitators and parents agree that e-assessments accurately reflect the principles outlined in the paper, which provides diagnostic, formative, and summative feedback during the process to enhance student learning. The concept of assessment in e-assessment analogical practices comes from the Latin root *assidere*, meaning "to sit beside". The idea that students play an indispensable role in generation and transfer of knowledge is widely accepted by education researchers and practitioners.

As peer-reviewing and self-assessment become increasingly common methods of assessing students, teachers are still primarily responsible for identifying students' competencies and determining whether remediation is required. In contrast to this, some researchers claim that students gain the most understanding when they actively construct their understanding through interpreting information in relation to prior knowledge instead of simply receiving feedback passively. To equip learners with future-proof competencies, international business educators must devote more time to providing them with opportunities to reflect on the quality of their work, as well as planning and implementing opportunities for learners to make their own evaluations.

By integrating new technology into assessment andragogy, educators will be able to provide a wider scope of assessment andragogy tools to meet the needs of learners with a variety of learning styles and a range of developmental types. It is possible to adapt the digital assessment to the digital environment, as well as the philosophical basis for developing and evaluating the now ubiquitous practice of web-based assessment.

As technology advances, it is important to be deliberate about learning new tools. Instructors who are digitally literate will be able to help students succeed in digital assessments. In the 21st century, education professionals must maintain and enhance their digital literacy skills, both personally and through educational institutions contributing to their development. At the same time, educators should rethink mundane features of online communication, such as email, while fostering digital literacy.

Provide the student with a learning experience beyond traditional face-to-face instruction, such as feedback, collaboration, and teaching constructivist concepts. Measure the learners problem-solving and decision-making abilities and authentically observe how learning proceeds through intimate familiarity with digital assessment management systems. An in-depth literature review coupled with an evaluation of the constructive nature of education and the most appropriate formative and summative assessment methods could enhance the evaluation of online counselor education learner abilities and skills.

Using digital tools to implement assessment methodologies allows students to receive constructive feedback in a variety of formats, allowing them to better their practices and demonstrate their learning in a variety of ways. Digital assessment allows students to explore new technologies by picking, using, and troubleshooting the latest technological trends. Learners are taught the importance of digital citizenship by understanding and respecting others rights, as well as the obligations related to using and sharing intellectual property. Students will also be expected to plan and implement effective research techniques to locate information and other resources and to evaluate information, media, data, and other sources based on accuracy, relevance, perspective, and credibility. Students can also benefit from using assessment tools to improve their ability to curate information from various digital sources, using tools to assemble artifacts and build connections to demonstrate their knowledge.

The use of digital assessment tools also facilitates the development of a new generation of communicators capable of solving authentic problems and generating new ideas, resulting in innovative products. By educating youth about their obligations in the digital world, digital technology develops the next generation of knowledge creators, innovators, and creative communicators.

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APPENDIX A- PILOT INTERVIEW QUESTIONS

Q1- What is your position?

Q2- How long have you worked in education?

Q3- What is the purpose of digital assessment?

Q4- How can the assessment be used by learners as a learning tool and by teachers as the basis for learning?

Q5- To what extent will students participate in the assessment design and process?

Q6- To what extent will this assessment be valid?

Q7- How can you identify what students know and don't know and what next steps they need to take?

Q8- Will there be multiple assessment formats from which students can pick?

Q9- What will your students do to ensure that their self-evaluations are correct? How will they track their progress toward the target?

Q10- Would the time it takes to prepare, administer, and score the test pay off for students and teachers?

APPENDIX B- PARENTS SURVEY

The utilization of digital assessment techniques in K-12 education- Parents Survey

I am a student at the British university of Dubai, pursuing a master's degree in education and information & communication technology. As part of my master's dissertation, I am conducting this study to gain insight from parents on the effectiveness of digital assessment tools in assessing their children's academic progress and well-being. This Survey is for research purposes only, your answers will be treated in confidence. Please answer all the questions as accurately as you can.

Q1- How many of your children attend school?

Mark only one oval.

- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4
- ☐ Other

Q2- How comfortable are you with supporting your children's digital learning?

Mark only one oval.

- ☐ I am extremely confident
- ☐ I am very confident
- ☐ Feeling somewhat confident
- ☐ I'm not so confident
- ☐ I am not confident at all

Q3- Would you like your child to be able to access additional digital content at home to complement what is being taught at school?

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Maybe

Q4- To what extent do you think digital technology increases students' learning?

Mark only one oval.

- ☐ Great positive difference.
- ☐ Slight positive difference.
- ☐ No difference
- ☐ Slight negative difference.
- ☐ Great negative difference.

Q5- Does your child/ren feel academically challenged by the use of digital assessment tools?

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Maybe

Q6- Do you believe the assignments and support provided to your child/ren to use digital assessment tools adequately prepared them for next school year?

Mark only one oval.

☐

|| Don't believe it helped them prepare for the new school year.

☐

In some ways, I think it prepared them for next year.

☐

I believe it helped prepare them for next year.

Q7- How much time did your child spend each week on assignments and activities?

Mark only one oval.

☐

The amount of time my child spent on assignments each week was less than I expected.

☐

The amount of time my child spent on assignments generally matched my expectations for the week.

☐

The amount of time my child spent on assignments each week was more than I anticipated.

Q8- How easy was it to access school assignments?

Mark only one oval.

☐

It was easier than I expected.

☐

It was the same as I expected.

☐

It was more difficult than I expected it to be.

Q9- What activities were most helpful for your child when it came to online assignments?

Mark only one oval.

Live discussions.

- ☐ Worksheet.
- ☐ Answering questions / solving problems
- ☐ Reading
- ☐

Q10- How frequently did your child receive communication from his/her teacher?

Mark only one oval.

- ☐ They communicated less frequently than I expected.
- ☐ They communicated about as frequently as I expected.
- ☐

They communicated more frequently than I expected.

Q11- What was the most effective method of communication for you and your child?
(Please select all that apply)

Check all that apply.

- ☐ Phone calls.
- ☐ Emails.
- ☐ Text messages.
- ☐ E-learning platforms.
- ☐ Video conferencing.
- ☐ Seesaw class.

Google classroom.

Q12- The challenges my child faces when using digital technology tools are:

Mark only one oval.

- ☐ My child cannot access all assignments to complete the assessment.
- ☐
- ☐ My child does not understand the assignments.
- ☐ My child is not able to work on assignments with teachers or classmates.
- My child cannot keep up with the work being assigned.

Q13- How would you rate the quality of feedback you received from the teacher compared with a typical day in school?

Mark only one oval.

	1	2	3	4	5	
Very poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Very high

Q14- Does your child's school provide adequate support so that his or her emotional needs are met prior to and during the digital assessment process?

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Maybe

Q15- Would you say that your child's digital assessment experience was overall satisfactory?

Mark only one oval.

Yes

- ☐ No
 - ☐ Maybe
 - ☐
-

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APPENDIX C- TEACHERS SURVEY

The utilization of digital assessment techniques in K-12 education- Teacher Survey

I am a student at the British university of Dubai, pursuing a master's degree in education and information & communication technology. I am conducting this survey to determine how implementing digital assessment tools impacts teacher job satisfaction and teaching staff wellbeing as part of my master's thesis. This Survey is for research purposes only, your answers will be treated in confidence. Please answer all the questions as accurately as you can.

Q1- Age:

Mark only one oval.

- ☐ 29 and under
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59

Q2- Gender:

Mark only one oval.

- ☐ Female
- ☐ Male

Q3- How many years of teaching experience will you have at the end of this school year?

Mark only one oval.

1-3 years

- ☐ 4-10 years
- ☐ 11-15 years
- ☐ 16+ years
- ☐

Q4- Your position or title

Mark only one oval.

- ☐ Classroom teacher (prek-12).
- ☐ IT support personal/ technology integration specialist.
- ☐ Curriculum coordinator.
- ☐ Specialist teacher (e.g. Art, P.E, music).
- ☐ Librarian.
- ☐ Principal / assistant principal.

Q5- What subjects do you teach (pick up to three).

Check all that apply.

- ☐ Science
- ☐ Mathematics
- ☐ English language Arts
- ☐ Social studies
- ☐ Foreign languages
- ☐ Special education
- ☐ Technology
- ☐ Music
- ☐ Physical education

Q6- What have you found to be pleasantly surprising about educational technology as an educator?

Mark only one oval.

- ☐ Flexibility
- ☐ Wide range of tools.
- ☐ Ease of use.
- ☐ Usefulness.
- ☐ Innovation (i.e. Freedom to experiment with teaching practice)
- ☐ Increased autonomy, motivation, self-determination, self-regulation among learners
- ☐ Engagement and enjoyment of pupils
- ☐ Customizations (ability to personalize learning for students).
- ☐ I haven't had any experience with educational technologies.
- ☐ Nothing

Q7- Please answer the questions below by selecting: Strongly Agree, Agree, Disagree, and Strongly Disagree.

Mark only one oval per row.

	Strongly Agree	Agree	Disagree	Strongly Disagree
I feel confident matching digital resources to the learning goals I set for my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am concerned about how to use digital resources creatively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often edit digital resources to fit my specific classroom context.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have trouble finding the right digital assessment tool.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I use digital tools to reinforce concepts that I have already introduced.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I received adequate training on the use of digital tools in my precertification program.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am skilled at using technology tools to assess my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I often have technical problems when I try to use digital tools(i.e computer or connectivity problems).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8- What technologies are available to and used by students for the purposes of producing and researching assignments?

Check all that apply.

- ☐ Video editing software
- ☐ PowerPoint
- ☐ Computers
- ☐ Internet

Q9-How often do you utilize digital resources (online lesson planning, simulations, wikis, social media, etc.).

Mark only one oval.

- ☐ Never
- ☐ 1-5 times a week.
- ☐ 6-10 times a week.
- ☐ More than 10 times a week.

Q10- What, in your opinion, are the biggest challenges teachers face when switching to online assessments? Choose up to five options.

Check all that apply.

Teachers access to technology (computers, software, stable internet connection, etc.).

Pupils access to technology.

- ☐ Communicating with pupils.
- ☐ Communicating with parents/caregivers.
- ☐ Low levels of teachers pedagogical digital competence.
- ☐ Low levels of pupils digital competence.
- ☐ Involving disaffected pupils.
- ☐ Involving pupils from socially disadvantaged homes.
- ☐ Keeping all pupils with special needs or disabilities.
- ☐ Supporting pupils with special needs or disabilities.
- ☐ Converting activities and content into online distance learning.
- ☐ Assessing pupils progress.
- ☐ Preparing content for online and distance learning.
- ☐ Little direction or support given by the school.
- ☐ Increased workload and stress working from home.
- ☐ Time management and organization.
- ☐ There have been no challenges.

The school has not switched to digital assessment

Q11- What would most help teachers to support web-based assessment during the schools closure?

Check all that apply.

Professional development: quick courses on online teaching.

- ☐ Easy contact with experts (e.g. a more experienced online-learning teacher, an
- ☐ ICT technical expert).
- ☐ Clear guidance from the Ministry of Education.
- ☐ More educational TV programs by the national media organizations.
- ☐ Video clips/ lesson plans of good practice.
- ☐ More free resources and tools from education technology companies.
- ☐ Webinars and teach meets for teachers to share ideas and challenges.
- ☐ Websites with lists of useful resources.

Q12- In your opinion, due to the current circumstances created by the COVID-19 Virus, when schools fully reopen, will online/ distance teaching remain part of school practice?

Mark only one oval.

- ☐ Yes
- ☐ No
- ☐ Maybe

Q13- Why, in your opinion, are digital assessments better than paper ones?

Check all that apply.

- ☐ Saving time.
- ☐ Making learning process more comprehensive and friendly.
- ☐ Offering fast feedback.
- ☐ Avoid accidental or intentional plagiarism.
- ☐ Students can check their assignments before submitting before submitting them.

No more stacks of papers and lost tests.

Q14- From your point of view as an educator, to what extent does the shifting to web-based assessments impact the following:

Mark only one oval per row.

	Positive impact	No impact	Negative impact
Your wellbeing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your workload	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your professional development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your IT skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q15- From your point of view as an educator, to what extent you think shifting to web-based assessments impacted the following:

Mark only one oval per row.

	Positive impact	No impact	Negative impact
Learners enagement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learners wellbeing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learners cognitive development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learners academic achievement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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