

E-Assessment of Students' Activities During Covid-19 Pandemic: Challenges, Advantages, and Disadvantages

Manal Fahid Aburumman ¹

¹, Head of Foreign Languages Department email: m_aburumman82@yahoo.com.com

<p>Article history Submitted: 01-11-2021 Revised: 05-11-2021 Accepted: 11-11-2021</p>	<p>Abstract The goals of this research are to (1) explain how instructors used E-Assessment during the COVID-19 epidemic. (2) To discuss how instructors dealt with the problems of using E-Assessment during the COVID-19 epidemic. In this study, the researcher used a Literature Review Approach to show the obstacles, benefits, and drawbacks of using E-Assessment. The findings of the study revealed that the instructors used Google Form and Google Classroom to analyse their students' online work. The researcher, on the other hand, discovered why the instructors employed such tools. The characteristics of the social networking application, for example, were simple to use and familiar to the instructors and students. Meanwhile, instructors who want to evaluate their pupils online confront a number of difficulties. Misunderstanding of the instructions provided, internet connection, and difficulty in revising, particularly in essay questions, were all concerns with online assessment in this study. Students who were experiencing issues with their internet network connection received homework in the form of Microsoft Word over WhatsApp from their teacher. The teacher prefers multiple-choice questions over essays since they are easier to correct and evaluate. Furthermore, the final time for assignment collection was specified by the teacher in order to prevent students from cheating on their tasks.</p>
<p>Keywords: <i>Covid-19,</i> <i>E-Assessment,</i> <i>Challenges,</i> <i>Google Forms,</i> <i>Google Classrooms</i></p>	

1. Introduction

COVID-19, a highly contagious illness that originated in Wuhan, began to spread throughout China around the end of 2019. The World Health Organization declared the virus's emergence a pandemic in March 2020 [1]. Until a vaccine or cure was developed, social distancing was the most effective technique for preventing the spread of the illness. Many governments explored lockdowns in schools and colleges where crowds could not be avoided in reaction to the pandemic. As a result of this tragedy, the learning pendulum has swung away from conventional face-to-face instruction and toward e-learning. E-learning makes use of information and communication technology to make online teaching materials more accessible and to create collaborative settings for students [2]. The emergence of new technology makes it possible for academic institutions to employ e-learning. Educators have made several effective attempts to continue the teaching process despite the crisis by using accessible technology. In clinical healthcare courses that need hands-on skills training, the abrupt move to e-learning is difficult [3].

The preparedness of instructors and the education institution in executing the learning process and assessment is critical to the success of online learning. Student learning assessment is a fundamental part of education [4]. Assessment in learning is used to track students' progress during their studies. The instructor plays a vital role in applying the learning framework by designing suitable instructional activities that take into account the students' development. Formative and summative assessment are the two forms of assessment that are often utilised. Formative assessment is a kind of assessment that focuses on improving learning via the use of feedback and information [5]. Summative assessment, on the other hand, is a formal assessment of learning attainment done at the conclusion of classes, projects, or courses [6]. Both of these may be used to evaluate pupils' learning progress. Those two assessments have traditionally been utilised in the classroom, but they are now used both in the classroom and online. Teachers, on the other hand, have more opportunities to undertake online assessment in this digital media age. For example, the advantages of online assessment include measuring critical life skills, enhancing the reliability of scoring and, as a result, improving the quality of the test itself, and avoiding the downsides of conventional paper-based assessment systems such as grading time [7].

It also encourages students to participate by providing feedback to a large number of students, saving time for marking, providing high-quality data for teachers and administrators, lowering printing costs, and increasing grading objectivity because the computer grades the exams regardless of the students' names, race, or culture. [7]. Although there are certain advantages to online assessment, as previously said, it also has numerous drawbacks. Online assessment, for example, is time-consuming in terms of test preparation, necessitates technology, and lacks test control [7]. The instructors thus have less control over the test environment, making it simpler for students to cheat [7]. During a pandemic, almost all teaching, learning, and assessment must be done online. COVID-19. To complete them all, the teachers used some kind of programme or application. Google Classroom is one of them. It's fascinating since they haven't been implemented in all schools. The researcher must be familiar with the online assessments utilised by the teachers in order to conduct this assessment.

2. Assessment

The systematic process of recording and assessing information, skills, attitudes, or beliefs gained during instructional sequences with the goal of improving all aspects of student learning is known as assessment [8]. Assessment is also used to offer students with feedback on their progress and to assess their knowledge of the subject [9]. Assessment, according to Khairil and Mokshein (2018), is an aspect of the teaching and learning process that aims to develop the assessor and the person assessed [10]. Assessment also offers data that may be utilised as feedback to help teachers and students improve their teaching and learning activities. Classroom observation, class discussion, quizzes, homework, and test are all examples of assessment activities. As a result, assessment is a tool for improving educational quality by increasing lifetime learning skills and promoting performance in a variety of educational situations. Brown argues that assessment is a continuous process that covers a broad range of topics. When a student answers a question, makes a remark, or unintentionally attempts a new phrase or structure, the instructor must make an assessment [11]. Assessment is seen as the conclusion of the learning process; the assignment has been completed, and the assessor has graded the work. The assessment assignment, which requires students to show their deep comprehension and higher order thinking skills is developed and discussed by the teachers [12]. Hughes (2007) feels that the most effective adjustment to improve students' progress is feedback [13]. Assessment is used by teachers to help students concentrate on their strengths and weaknesses, as well as to enhance teaching and programme development. Gaining assessment information requires teachers to modify their thinking, attitudes, and practises in order to increase students' learning. Assessment is frequently utilised at the conclusion of a learning or teaching sequence to determine how much of a learner's knowledge can be reproduced in a test or exam setting [14].

2.1. Types of Assessment

Swearingen stated that the assessments can classify into three extensive categories, depending on their general use. They can be utilized in prior to, during, and following learning as:

1) The learner's strengths and weaknesses were discovered throughout the diagnostic assessment. This assessment can identify certain personality characteristics or traits, such as motivation for success, personality type, compatibility for specific assessments of work or trades, or allow individuals to self-value their ability to complete assignments or demonstrate knowledge of a specific subject area [15]. Diagnostic assessments, which are delivered as knowledge practise exams before a training or education programme, may be used to evaluate learner strengths and weaknesses or, in the case of filtering tests, to determine appropriate course placement [16]. Because diagnostic tests require the horde and storage of learner information for an aspect purpose, diagnostic assessments frequently include mechanisms for collecting user data and detailed reporting tools. Diagnostic tests can also be used by employers to identify individual training needs and upgrade the skills of employees at test. [17].

2) During the learning process, there is a formative assessment. In a college or training programme, formative assessments include the administration of multiple choice or short answer examinations at the conclusion of each chapter of a textbook, learning module, or other learning benchmark. Feedback is usually always supplied when or after the rating is submitted, and self-recovery chances may also be accessible. Formative assessments provide teachers with information that may be utilised to steer individual student growth, expand the curriculum, or act as a starting point for the remediation loop, which assigns particular learning modules based on the students of their assessment. Formative assessments are often thought of as a low-stakes test, and strong question composition, as well as the development of detailed prescriptive feedback, are critical for the assessment's success [18]. The goal of formative assessment is to provide students information about their progress that they may use to influence their future learning, or to give teachers information that they can use to drive course development and lesson design [19]. For one-minute papers, the muddiest point, one-sentence summary, reflection posts, quizzing, SCORM (Shareable Content Object Reference Model) modules, and multiple-choice for students' self-test and game design learning assessments, for example, e-mail and discussion boards may be utilised [6].

3) Summative Assessments are conducted in the middle or at the conclusion of a learning or evaluation programme, and they may be used for high-stakes evaluation, certification, or assessment. Summative certification, licencing, and certain cognitive ability exams are used to determine the most qualified individuals for receiving a certificate. Summative tests are nearly often sent in a proctored environment [14]. Summative evaluation results are often presented in the form of scores or grades. It takes place at the conclusion of the course and evaluates the course's overall learning.

Only summative evaluations, such as graded discussion questions, participation, weekly assignments, quizzes, and examinations, have traditionally been used in online courses [20]. Incorporating testing and synthesis projects is another example. Multiple-choice, matching, and completion tasks may be included in quizzes and tests [6]. However, prior to the summative evaluation, formative tests are required to evaluate for student knowledge in the online classroom [21]. Swearingen stated that the assessments can classify into three extensive categories, depending on their general use. They can be utilized in prior to, during, and following learning as:

2.2. E-Assessment

Electronic Assessment refers to the many ways in which information technology is used to evaluate and quantify student learning. The concept of e-assessment was introduced to address all of the shortcomings of conventional pen-and-paper evaluation methods [22]. The employment of Web-specific evaluation tools leads to electronic assessment. It may be used to examine both theoretical and practical knowledge (through e-testing software) [23]. It can also be used to assess practical skills (using e-portfolios or simulation software). It's also known as online/computer-based assessment, and it involves using information technology to measure students' academic progress [24].

2.3. E-Assessment tools

1) Google Forms

A Google form is a free online tool that allows users to create surveys, polls, and quizzes. Educators may use Google forms to evaluate pupils at the start of class and determine their prior knowledge. It can evaluate and create learning objectives for its own pupils, as well as gather data. To begin, the instructor must first sign up for a Google account in order to use Google Forms to create, access, or share material. In Google Forms, you may ask a variety of questions, including short answer, paragraph response, multiple choice, checkboxes, dropdown, linear scale, and multiple choice grid. A teacher may also use photos and video to add to a form. After students hit submit on Google forms, the data from the students is immediately available. Because all of the students' answers are collected in one spreadsheet, it's simple to obtain a rapid picture of how well they're grasping the material. Multiple versions, question banks, time limits, and other features are available in Google forms [25].

2) Google Classroom

Lecturers may submit resources on the topic being taught in Google Classroom. Lecturers may submit some teaching materials, offer students assignments, and upload the students' grades so that they can view the results of the course right away. Furthermore, Google Classroom may be used to postpone sessions when lecturers are out of town or unavailable during class hours. Google Classroom may also save expenses by using less expensive stationery and other supplies, as well as reduce time-released energy [25].

3) Kahoot

Kahoot is a free student response tool that enables instructors to conduct games such as multiple-choice answer quizzes on any platform. Teachers may develop their own questions or locate, utilise, and remix public quizzes, which include visuals and video to appeal to a wider range of learners. Students may see their previous results, stop or restart individual quizzes, and complete homework problems using the mobile app on a personal device. There's also a team option, which enables a group of pupils to collaborate or compete against other groups [25].

4) Moodle

Moodle is a web-based evaluation tool. Providing the finest tool for the educator to control and enhance learning. It's a free and open-source Course Management System (CMS), sometimes known as a Learning Management System (LMS) or a virtual learning environment. Moodle is an online evaluation system that gives pupils continuous feedback on their progress. Moodle's built-in learning management system features are another significant component of online assessment. It also encompasses the ability to manage teaching, student learning, and all aspects of assessment [26].

3. The Challenges and How to Manage in E-Assessment

The E-Assessment procedure may not always go well. If the online evaluation isn't well-measured, it's a sign that the instructors are having trouble with the procedure. Here are some of the difficulties in evaluating pupils' development [27].

1) Selecting the appropriate assessment for the evaluation's purpose

This element of the difficulty is how instructors must choose the appropriate assessment based on the evaluation's key aims and the sorts of courses being reviewed [28]. It is the method through which the instructor selects an assessment technique for the pupils depending on the evaluation goal. For example, there are a variety of ways for assessing students' self-evaluation, therefore the instructor must figure out how to acquire the best assessment for the job.

2) Developing a successful evaluation technique

The assessment tool will determine if an online evaluation system succeeds or fails. Evaluators often make mistakes including drafting forms that are too lengthy, too short, or with ambiguous questions or phrasing [28]. The aim of a design is crucial. It's extremely important for formative assessments to make the paperwork and the whole procedure straightforward. The assessment should be concise and focused on analysing very particular topics or periods. While the procedure for summative assessments might be lengthy and examine the whole experience, several assessment methodologies are available. That is the teacher's task, whether it is formative or summative evaluation, to determine the most effective assessment for the pupils.

3) Posing the appropriate queries

This challenge focuses on certain tactics in the development of a real-world assessment tool. It may be difficult for the instructor to ask the questions since the pupils' replies will influence what feedback and action will be offered. These worldwide regions are often the subject of evaluation tools, which may concentrate on many different aspects of educational activities [28]. First and foremost, contentment with the teacher. Second, content contentment. Third, to what degree does the participant believe they have learned and how will their behaviour or life be affected as a result of it? Fourth, satisfaction with environmental concerns and logistics (for example, creature comforts, registration, confirmation, and time of day/week). Fifth, what did the participant like the most and dislike the least? Sixth, what additional courses would the participant want to see offered, and seventh, would the participant suggest this programme to a friend or institution, and if so, why or why not? Then there's the question of how they found out about the initiative. Then, is the course structure (distance, online, etc.) appropriate for them as learners, and are they comfortable with it? Finally, how useful were the texts and extra materials, as well as chat rooms and other features?

4) Communicating suggestions and ensuring that they are followed up on

Providing feedback online is difficult by a number of constraints: A text-only environment, particularly in brief or harsh e-mails, might lead to miscommunication between the student and the teacher [28]. When the online learning environment is new and the course material is complicated and challenging for the students, it might be an issue. The absence of opportunity for a real-time discourse with back-and-forth exchanges and nonverbal indications, such as in face-to-face classroom settings, may also impede these misunderstandings from being resolved quickly. Last but not least, technological communication has a built-in time lag that might slow things down.

4. The Advantages and Disadvantages of E-Assessment

4.1. The Advantages

Online assessments, according to Seifert and Feliks (2018), reduce paper and time spent printing assignments [29]. It removes the barriers to evaluating student performance in class. Its advantages include accessibility from anywhere, at any time, on any device, superb rapid feedback, automatic grading, and reporting. The use of online assessment in learning might improve outcomes, decrease administrative time, encourage fast feedback, offer grades and progress with a single click of a button, and provide several chances to draw a range of questions. According to Khairil and Mokshein (2018), online evaluation has a number of benefits [10]:

a) Automatic labelling

Educators may design their own online assessment platform or use one that is freely accessible online. The use of an online exam also eliminates the possibility of human mistake when creating questions [30].

b) Positive feedback and lively debate

From the online evaluation, the instructor and students may provide more detailed and detailed comments on their performance in answering the question. In addition, the educator may be able to give important feedback and accountability.

c) Measurement that is both reliable and valid

In an online assessment, the questions and grading are credible and genuine. According to international recommendations on computer-based testing, an equal test score for traditional paper-based testing should be created (PBT).

d) Economic and environmental considerations

The use of online evaluation might eliminate the need for paper, making it more environmentally friendly and cost efficient. The cost of doing an online assessment is relatively inexpensive since time and resources are saved, and all data collection and analysis is done automatically. Reducing paper use reduces energy consumption indirectly.

e) Applicable Online testing may be done at any time and from any location, depending on the instructors. It also allows for a more flexible learning pace. The computer can also handle many bigger objects than can be printed on paper, as well as pull at random from item pools. Students' motivation and attitudes might be affected by online classes and assessments, which can create a unique situation. Online assessment is more original, enjoyable, and completely fits the expectations of the twenty-first century. Individual differences in motivation and accomplishment have an impact on successful pupils.

Meanwhile, according to Gaytan and McEwen (2007), there are some advantages to using online assessment, including the ability to immediately enter grades into an electronic grade book, students having faster access to results, assessment fostering a student-centered learning environment, and online assessment allowing for more accurate measurement of learning [31]. Aside from that, online assessments offer the following advantages: they can be administered on demand, they can accommodate a large number of students at the same time, they can boost efficiency and lower costs, they can be flexible, and they can provide immediate feedback [32].

4.2. Disadvantages

Based on [28] students suffer various disadvantages, including: a) Online assessments provide a greater demand on particular abilities, including as typing, utilising numerous screens to remember a passage, mouse navigation, and the usage of combinations.

b) Reading text on a computer screen causes some individuals to get more tired than reading material on paper.

c) Reading a long section on a computer screen may be more challenging.

d) It's difficult to view a full issue on screen at once since certain elements need horizontal and vertical scrolling to fit a whole visual on the page. e) Students with visual impairments experience significant challenges while using graphic user interfaces.

f) Web tools like HTML and document converters are always being updated and improved. As a result, certain features may not be available to everyone.

5. Findings Discussion

The first result of the study is that Google Form should be used as the social networking tool to assist online assessments since it is simple to use and known to students. It also contains an automated tool for calculating the results of multiple-choice questions. Because all of the students' answers are in one spreadsheet, it's simple to obtain a rapid overview of how well they comprehend. Multiple versions, question banks, time limits, and other features are available in Google forms [25].

With good reason: Google Classroom is more effective and straightforward to use than other social networking tools, and it has a number of features that facilitate online evaluation. Furthermore, Google Classroom may be used to postpone sessions when lecturers are out of town or unavailable during class hours. Google Classroom may also save expenses by using less expensive stationery and other supplies, as well as reduce time-released energy [33]. The second issue statement's study revealed that all of the instructors employed Mary and Scott's theory to address the problems they experienced while employing online assessment. The following are some of the difficulties in evaluating pupils' development [33]:

a) Selecting the appropriate assessment for the evaluation's purpose

This element of the difficulty is how instructors must choose the appropriate assessment based on the evaluation's key aims and the sorts of courses being reviewed [28]. It is the method through which the instructor selects an assessment technique for the pupils depending on the evaluation goal. For example, there are a variety of ways for assessing students' self-evaluation, therefore the instructor must figure out how to acquire the best assessment for the job.

b) Developing a successful evaluation approach

The assessment tool will determine if an online evaluation system succeeds or fails. Evaluators often make mistakes including drafting forms that are too lengthy, too short, or with ambiguous questions or phrasing [28]. The aim of a design is crucial. It's extremely important for formative assessments to make the paperwork and the whole procedure straightforward. The assessment should be concise and focused on analysing very particular topics or periods. While the procedure for summative assessments might be lengthy and examine the whole experience, there are several assessment methodologies to choose from. That is the teacher's task, whether it is formative or summative evaluation, to determine the most effective assessment for the pupils.

d) Posing the appropriate queries

This challenge focuses on certain tactics in the development of a real-world assessment tool. It may be difficult for the instructor to ask the questions since the pupils' replies will influence what feedback and action will be offered. These worldwide regions are often the subject of evaluation tools, which may concentrate on many different aspects of educational activities [28].

First and foremost, contentment with the teacher. Second, content contentment. Third, to what degree does the participant believe they have learned and how will their behaviour or life be affected as a result of it? Fourth, satisfaction with environmental concerns and logistics (for example, creature comforts, registration, confirmation, and time of day/week). Fifth, what did the participant like the most and dislike the least? Sixth, what additional courses would the participant want to see offered, and seventh, would the participant suggest this programme to a friend or institution, and if so, why or why not? Then there's the question of how they found out about the initiative. Then, is the course structure (distance, online, etc.) appropriate for them as learners, and are they comfortable with it?

d) Providing suggestions and including follow-up There are numerous inherent challenges to communicating feedback online: A text-only environment, particularly in brief or harsh e-mails, might lead to miscommunication between the student and the teacher [28]. When the online learning environment is new and the course material is complicated and challenging for the students, it might be an issue. The absence of opportunity for a real-time discourse with back-and-forth exchanges and nonverbal indications, such as in face-to-face classroom settings, may also impede these misunderstandings from being resolved quickly.

6. Research Implications

The researcher's key recommendations are as follows, based on the findings of this study.

1. For educators According to the findings of the study, while giving an online evaluation, instructors do not ask for student participation or opinion. As a result, it is preferable if professors cooperate on their concepts and students' comments to make the online assessment more enjoyable. Then, in an online setting, instructors should seek for fresh innovations in the learning process. It is preferable if they make the instructions detailed because of the difficulties they experience. Teachers may make this explicit in the task's instructions. Furthermore, they have the option of making the deadline longer than normal in order to avoid technical issues such as a faulty network connection.
2. Because technology has advanced fast at the institution, additional professors should be included in the online or blended learning model to offer new learning opportunities. It is preferable if the institution encourages innovation by providing enough resources.
3. This study examines the tactics used by instructors who do online assessments in general for future researchers. It is preferable for other researchers who will perform a comparable study like this one to focus on just one aspect of the subject. For example, they might assess attention on the sites or social networking tools that teacher's use, or how the instructor determines rubric criteria in depth, using the seven concepts discussed in this discussion.

7. Conclusion

Based on the results, the instructors evaluated their students' online work using Google Form and Google Classroom, two social networking applications. Because Google Classroom was more easy and straightforward to utilise than alternative options. The social networking tool's features were simple to use. Furthermore, the instructor may establish courses, distribute assignments, award grades, offer comments, and see all of this information in one location. The instructors responded that they picked the kind of online assessment that will be used in their classrooms on their own. Furthermore, they limited their usage of their social networking platform to multiple-choice and essay questions. According to the previous chapter, instructors experienced many obstacles while evaluating their pupils online. The majority of the obstacles are tough in correcting essay questions and providing equal answers, particularly in multiple-choice questions, network connectivity, and students' comprehension of the teacher's instructions. Students who were experiencing issues with their internet network connection received homework in the form of Microsoft Word over Whatsapp from their teacher. The teacher prefers multiple-choice questions over essays since they are easier to correct and evaluate. Furthermore, the final time for assignment collection was specified by the teacher in order to prevent students from cheating on their tasks.

References

- [1] M. T. Rajeh et al., "Students' satisfaction and continued intention toward e-learning: a theory-based study.," *Med. Educ. Online*, vol. 26, no. 1, p. 1961348, Dec. 2021, doi: 10.1080/10872981.2021.1961348.
- [2] I. V. Rossi, J. D. de Lima, B. Sabatke, M. A. F. Nunes, G. E. Ramirez, and M. I. Ramirez, "Active learning tools improve the learning outcomes, scientific attitude, and critical thinking in higher education: Experiences in an online course during the COVID-19 pandemic.," *Biochem. Mol. Biol. Educ. a Bimon. Publ. Int. Union Biochem. Mol. Biol.*, vol. 49, no. 6, pp. 888–903, Nov. 2021, doi: 10.1002/bmb.21574.
- [3] R. A. Abumalloh et al., "The impact of coronavirus pandemic (COVID-19) on education: The role of virtual and remote laboratories in education.," *Technol. Soc.*, vol. 67, p. 101728, Nov. 2021, doi: 10.1016/j.techsoc.2021.101728.
- [4] L. R. Kearns, "Student assessment in online learning: Challenges and effective practices," *J. Online Learn. Teach.*, vol. 8, no. 3, p. 198, 2012.
- [5] B. D. Arend, "Course assessment practices and student learning strategies in online courses," *J. Asynchronous Learn. Networks*, vol. 11, no. 4, pp. 3–17, 2007.
- [6] J. P. Sewell, K. H. Frith, and M. M. Colvin, "Online assessment strategies: A primer," *MERLOT J. online Learn. Teach.*, vol. 6, no. 1, pp. 297–305, 2010.
- [7] H. Alsadoon, "Students' Perceptions of E-Assessment at Saudi Electronic University.," *Turkish Online J. Educ. Technol.*, vol. 16, no. 1, pp. 147–153, 2017.
- [8] S. Koç, X. Liu, and P. Wachira, *Assessment in online and blended learning environments*. IAP, 2015.

- [9] M. Orleans, Cases on critical and qualitative perspectives in online higher education. IGI Global, 2014.
- [10] L. F. Khairil and S. E. Mokshein, "21st century assessment: online assessment," *Int. J. Acad. Res. Bus. Soc. Sci.*, vol. 8, no. 1, pp. 659–672, 2018.
- [11] H. D. Brown and P. Abeywickrama, *Language assessment: Principles and classroom practices*. Pearson Education White Plains, NY, 2010.
- [12] M. Z. Alksasbeh, A. A.-H. Al-Dala, and B. A. Y. Alqaraleh, "Factors that Influence the Success of Knowledge Management Implementation in Jordanian Higher Education Institutions," *Res. J. Appl. Sci. Eng. Technol.*, vol. 15, no. 7, pp. 249–260, 2018.
- [13] P. Hughes, *Learning and Teaching for the Twenty-First Century*. Springer, 2007.
- [14] S. Alaaraj, "Knowledge Management Capability, Trust, and Performance of Manufacturing Companies in Emerging Economies," *Int. J. Manag. Appl. Sci.*, vol. 4, no. 8, pp. 45–53, 2018.
- [15] A.-H. Al-Dalaïen, S. M. Drus, and H. Kasim, "A conceptual model of motivational factors of knowledge transfer for hospitals," *Int. J. Eng. Adv. Technol.*, vol. 9, no. 1, pp. 2313–2319, 2019.
- [16] A. A. A. H. Al-Dalaïen, S. M. Drus, H. Kasim, and A. T. Al-Oqaily, "Investigate the extrinsic and intrinsic motivational factors of knowledge transfer in the hospitals," *J. Comput. Sci.*, vol. 16, no. 1, pp. 92–104, 2020.
- [17] S. Alaarj, Z. A. Mohamed, and U. S. A. Bustamam, "Knowledge Management Capabilities, Environment Uncertainties; Their Influence on Organizational Performance.," 2016.
- [18] S. Alaarj, Z. Abidin-Mohamed, and U. S. B. A. Bustamam, "Mediating role of trust on the effects of knowledge management capabilities on organizational performance," *Procedia-Social Behav. Sci.*, vol. 235, no. 1, pp. 729–738, 2016.
- [19] D. Douglas, *Understanding language testing*. Routledge, 2014.
- [20] E. Bergquist and R. Holbeck, "Classroom Assessment Techniques: A Conceptual Model for CATs in the Online Classroom.," *J. Instr. Res.*, vol. 3, no. 1, pp. 3–7, 2014.
- [21] S. Alaarj, A. M. Zainal, and U. Bustamam, "The effect of knowledge management capabilities on the performance of Malaysian large-scale organizations: an empirical study," *Adv. Glob. Bus. Res.*, vol. 12, no. 1, pp. 1024–1038, 2015.
- [22] A. Gupta, K. Gupta, A. Joshi, and D. Sharma, "Tools for E-Assessment Techniques in Education: A Review," in *Handbook of Research on E-Assessment in Higher Education*, A. Azevedo and J. Azevedo, Eds. Hershey, PA, USA: IGI Global, 2019, pp. 28–52.
- [23] M. C. Mora-Aguilar and J. L. Sancho-Brú, "Diagnostic and Formative E-Assessment in Engineering on a Moodle-Based VLE," in *Handbook of Research on E-Learning Standards and Interoperability: Frameworks and Issues*, F. Lazarinis, S. Green, and E. Pearson, Eds. Hershey, PA, USA: IGI Global, 2011, pp. 378–398.
- [24] A. Helfaya and J. O'Neill, "Staff Reflections on Using E-Assessment Feedback in the Digital Age," in *Handbook of Research on E-Assessment in Higher Education*, A. Azevedo and J. Azevedo, Eds. Hershey, PA, USA: IGI Global, 2019, pp. 386–414.
- [25] Y. Chaiyo and R. Nokham, "The effect of Kahoot, Quizizz and Google Forms on the student's perception in the classrooms response system," in *2017 International Conference on Digital Arts, Media and Technology (ICDAMT)*, 2017, pp. 178–182.
- [26] P. Padayachee, S. Wagner-Welsh, and H. Johannes, "Online assessment in Moodle: A framework for supporting our students," *South African J. High. Educ.*, vol. 32, no. 5, pp. 211–235, 2018.
- [27] A. A.-H. Al-Dala'Ien, M. A. Mahmoud, and M. S. Ahmad, "A model for measuring articles knowledgeability levels," *J. Theor. Appl. Inf. Technol.*, vol. 88, no. 1, pp. 1–10, 2016.
- [28] M. Hricko and S. L. Howell, *Online Assessment and Measurement: Foundations and Challenges*. Information Science Publishing, 2006.
- [29] T. Seifert and O. Feliks, "Online self-assessment and peer-assessment as a tool to enhance student-teachers' assessment skills," *Assess. Eval. High. Educ.*, vol. 44, no. 2, pp. 169–185, 2019.
- [30] S. Alaaraj, Z. A. Mohamed, and U. S. Ahmad Bustamam, "External growth strategies and organizational performance in emerging markets," *Rev. Int. Bus. Strateg.*, vol. 28, no. 2, pp. 206–222, Jan. 2018, doi: 10.1108/RIBS-09-2017-0079.
- [31] J. Gaytan and B. C. McEwen, "Effective online instructional and assessment strategies," *Am. J. Distance Educ.*, vol. 21, no. 3, pp. 117–132, 2007.
- [32] M. Bahar and M. Asil, "Attitude towards e-assessment: Influence of gender, computer usage and level of education," *Open Learn. J. Open, Distance e-Learning*, vol. 33, no. 3, pp. 221–237, 2018.
- [33] M. Inoue and W. Pengnate, "Belief in foreign language learning and satisfaction with using Google classroom to submit online homework of undergraduate students," in *2018 5th International Conference on Business and Industrial Research (ICBIR)*, 2018, pp. 618–621.