

EFL E-Assessment in Higher Education: A Review

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Abstract

With the growing adoption of technology in the educational environment, e-assessment is an emerging field in the context of online teaching and learning. The current study is a review of 24 articles concerning EFL e-assessment in higher education that were published from 2020 to 2022. The purpose of this study is to make a new contribution to the literature review on EFL e-assessment in higher education during COVID-19 by focusing on teachers', students', staff's, and managers' perceptions of EFL e-assessment, teachers' practices of EFL e-assessment, cheating and other challenges of EFL e-assessment, and the role of technology in EFL e-assessment. EFL e-assessment may be effective if the assessment procedure is credible and teachers make a deliberate effort to provide assessments that are valid, reliable, fair, and practical for real-world situations. EFL e-assessment may also be used to evaluate higher-order assessment assignments.

Keywords: Review, EFL, E-Assessment, Higher Education

Introduction

Assessment is regarded as an essential component of learning (Gilbert et al., 2011). It is a measure used to assess an individual's performance and improvement. Improving student learning, recognizing student weaknesses and strengths, analyzing and assessing the success of various teaching methods and curricular programs, and enhancing teaching effectiveness are the primary goals of implementing assessment in learning. Moreover, effective assessment requires that results be accurate and valid (Way, 2012).

Since the introduction of e-assessment, the learning process has changed. E-assessment has improved the measurement of students' learning outcomes and enabled them to get rapid and direct feedback (Gilbert et al., 2011). There are several forms of e-assessment, including automated administrative procedures, the digitization of paper-based systems, and online exams using multiple-choice and problem-solving tests (Ridgway et al., 2004). Also, Sitthisak et al (2008) indicated that e-assessment also involves computer-assisted assessments, such as those employing web-based assessment tools.

Methodology

The studies in this literature review ranged in publication dates between 2020 and 2022. The research topic of EFL e-assessment has been investigated globally. Most of the studies took the form of mixed methods or qualitative research methods, while the rest of them adopted

quantitative research methods. Based on our in-depth analysis of the literature, there are four main themes in our review. We first examine EFL stakeholders' perceptions of e-assessment amidst COVID-19. Next, we discuss EFL teachers' practices of e-assessment. Cheating and other challenges of EFL e-assessment, and the role of technology in EFL e-assessment are the last two topics that we will investigate in this research.

Results and Discussion

HEI stakeholders' perceptions of EFL e-assessment

Teachers' perceptions of e-assessment

Examined studies have emphasized that the perceptions of most teachers about e-assessment are relatively positive, although several problems seemed troublesome to them at first (Abduh, 2021). For instance, one of the newest studies included in this review by Abduh (2021) concentrated on investigating teachers' perceptions of e-assessment. As this study has found, a great majority of EFL teachers had positive attitudes towards e-assessment ($M = 3.04$) and its techniques/methods ($M = 3.8-3.11$) owing to such benefits as: improving their technological skills, assessing and grading techniques; measuring accurate learning outcomes; identifying individual differences among students, the management, pedagogical and technical support to enhance teacher's performance, etc. Furthermore, the study revealed no significant variation in male and female teachers' perceptions about e-assessment. Similar findings were published in a more recent study by Alghammas (2020), who indicated that teachers of both genders were favorable to e-assessment utilization (e.g. short answer: male 10.8% and female 4.3%; essay: male 27.5% and female 18.8%; multiple-choice questions: male 41.2% and female 47.8%; True/False: male 15.7% and female 18.8%; fill in the blank: male 2.9% and female 7.2%; matching: male 2% and female 2.9%). However, the data showed that male and female teachers expressed different perceptions towards e-assessment. Unlike Abduh (2021), there was a gender disparity in teachers' perceptions of e-assessment in this study (e.g. male: $M = 3.56$ and female: $M = 3.78$). They varied in the impressions of four e-assessment-related dimensions, namely (1) validity, (2) practicality, (3) reliability, and (4) security. Likewise, in separate research conducted by Chung and Choi (2021), more than half of EFL teachers were delighted with the recently devised type of sustainable language evaluation ($M = 2.8$) because of their students' growth in independent learning capacities.

Another study by Zhang et al (2021) demonstrated that stronger motivation and an open mind towards novel testing techniques are essential variables in integrating e-assessment based on the qualitative data. Some of the EFL teachers possessing these characteristics tended to make more adjustments to fulfill the requirements of e-assessment. Others, on the other hand, made fewer ones. It could be stated that EFL teachers were originally confronted with various technological, educational, emotional, and administrative challenges. Nonetheless, when the course began, they managed to actively identify solutions and comfortably adjust such problems to e-assessment practices in the new situation (Ghanbari and Nowroozi, 2021).

Students' Perceptions of E-assessment

Several studies revealed a positive relationship between examination results and various evaluation modalities [75% (Olga and Victor, 2021); 58.65% (AlTameemy et al., 2020); 30.5% (Hidalgo-Camacho et al., 2021); no percentage (Chen et al., 2021; Hanafiah et al., 2022)]. This assertion was supported by the reviews of (Rofiah and Waluyo, 2020; Nguyen, 2021). The findings of Ghoulali and Cecilia (2021)'s study indicate that the majority of students learnt just

as much in virtual classes as they would in face-to-face ones. Such collaborative tools as virtual platforms, forums, blogs, or real-time worksheets are said to help increase their interest and participation in the subjects. Thus, students' academic performance in online learning was enhanced. However, some students claimed that although they had put more effort in studying online, their learning outcomes remained the same, as in traditional courses (Hidalgo-Camacho et al., 2021).

For the most part, online tests are preferred by today's students over paper-based exams [56.6% (AlTameemy et al., 2020); 64.1% (Chung and Choi, 2021); no percentage: (Olga and Victor 2021; Chen et al. 2021)]. Test takers agreed that taking online examinations was less stressful than in-person exams. Take-home tests save time and make them feel more comfortable. In the online format, the test security, time management, or the politeness of the examiners, as well as creative approaches to productive skills assessment were highly praised by students (AlTameemy et al., 2020; Olga and Victor 2021). They also valued all online testing procedures, such as test orientation ($M = 4.61$), test guidance ($M = 4.55$), proctors' support ($M = 4.62$) (Poonpon et al., 2021). Thus, students emphasized the need of applying digital assessment tools in language testing (AlTameemy et al., 2020; Rofiah and Waluyo, 2020). Nonetheless, Hidalgo-Camacho et al (2021) reported that 37% of students in their study remained indifferent regarding online learning since they do not favor either modality in terms of affective aspects such as viewpoint, favorites, readiness to study English virtually, or courage gained in class. AlTameemy et al (2020) revealed a conclusion that test takers' gender has a substantial impact on their attitudes towards and effects of adopting e-assessment. Male students have a more favorable approach to e-assessment than female students due to differences in technological implementation ability (AlTameemy et al., 2020), and more proficient learners were more inclined to accept online testing (Rofiah and Waluyo, 2020).

Nevertheless, students expressed definite concern about online learning that would hinder their progress and test results (Olga and Victor, 2021; Hanafiah et al., 2022; Poonpon et al., 2021). As Hidalgo-Camacho et al (2021) cautioned, the lack of equipment, unstable internet connection, or other possible technical challenges can negatively affect their emotional state. Students in Saleem et al (2021)'s study were reluctant to take online assessments as they claimed to have faced numerous issues during test time. Yet, they preferred close-ended test items for virtual assessments as they are less time-consuming and require no typing. The major issue students usually engaged in was unstable internet connection. Plus, they perceived online assessment was unfair and prone to cheating. Another problem was teacher's technology incompetency regarding handling of while-testing technological issues. Additionally, during online examinations, students are prone to get distracted by their surroundings. For example, other test takers turned on microphones to converse with the proctor. Students even complained about aching eyes and anxiety of time-consuming when scrolling up and down long reading paragraphs (Poonpon et al., 2021). In Olga and Victor (2021)'s study, a few students stated that online communication with examiners was more burdensome for them due to psychological concerns such as lack of nonverbal communication or eye contact, as well as the inability to create emotional touch with testers. Some also expressed dissatisfaction with abrupt changes in the schedule throughout the online event, as well as their inability to get feedback from examiners. It is obvious that the issues encountered during virtual assessments will cause students both mental and physical exhaustion. Even though there were some contentious issues of online assessment, it has

been viewed by students as a favorable alternative method to continuing the educational process in the framework of COVID-19.

Staff and Managers' Perceptions of E-assessment

In addition to teachers, several vendors, process managers, system managers, and administrators of e-learning departments at various universities are also experiencing several obstacles in monitoring the effectiveness of e-assessment in HEI amidst COVID-19 (Chirumamilla and Sindre, 2021; Hamdan et al., 2021).

Chirumamilla and Sindre (2021) investigated what three groups of stakeholder groups (11 vendors, system managers and one process manager in Norwegian universities) regarded as the essential aspects of e-exam systems and how they are decided. There was broad consensus concerning functional and non-functional aspects of online examination systems, with system administrators emphasizing security and interoperability. In terms of security, stakeholders honestly accepted that even though systems were adequate, more cheating was occurring outside the digital examination equipment, for instance, traditional cheating methods using paper notes or hi-tech cheating methods. In terms of interoperability, they widely acknowledged that the long-term goal ought to be a shift towards a digital environment in which open standards and Application Programming Interfaces would enable a seamless combination of various automated tools. However, amidst COVID-19, lots of integrations were tricky in using third-party tools during the tests or transmitting data between online examination systems and other tools, such as Learning Management Systems (LMS). The study's results may be country-specific due to a limited research location (Norway). Nevertheless, all e-examination system vendors also have clients in different countries. As a result, the difficulties associated with e-examination system requirements specification, security, and interoperability are likely to be of much more significant concern. In another study, Hamdan et al (2021) investigated the contribution of the e-learning departments in several HEIs of Palestine in analyzing instructional activities amidst COVID-19 to achieve the learning outcomes consistent with students' standard capabilities. The preliminary study results revealed that these HEIs recognized e-assessment as a challenging problem during the epidemic. Furthermore, two of the top problems university teachers confront using e-assessment are plagiarism and fake identities. Consequently, e-learning departments have sought and implemented alternative learning - assessment methods, such as face-to-face testing, tests using multiple-answer random questions, or synchronous examinations demanding the use of webcams, and so on. Based on this, it is strongly claimed that the basis for a new goal of movements towards e-education in Palestinian HEIs has been built. To facilitate this blended learning even after COVID-19 isolation, HEIs must promote the implementation of sensible policies on e-assessment.

In Gungor and Gungor (2021)'s research, a view of test designers about the development of test adaptation, implementation, technology, and emerging contradictions for future language assessment practices is provided. The study showed that to prepare for future disruptions, ensuring fair and economic access to the tests as some macro remote testing policies should be made in advance, and test offices should be strengthened for upcoming preparation. In addition, test-coordinators should be provided with dynamism and independence in emergency contexts. Active communication skills in assessment community members, as well as speedy decision-making capacity of test designers are critical in removing teachers' stress and students' technical barriers. Moreover, technology-enabled testing support should be accessible to teachers in unprecedented situations (Saleem et al., 2021).

EFL Teachers' Practices of E-assessment

Some of the reviewed studies have proved that a combination of technology and teachers' practices can play in an overall assessment program amidst COVID-19 (Abduh, 2021; Alghammas, 2020; Chung and Choi, 2021; Zhang et al., 2021; Ghanbari and Nowroozi, 2021; Olga and Victor, 2021; Chen et al., 2021; Nguyen, 2021; Chirumamilla and Sindre, 2021; Hamdan et al., 2021; Gungor and Gungor, 2021; Mahapatra, 2021; Wu and Wang, 2021; Zou et al., 2021; Andujar 2020). Owing to the more reliant and crucial function that e-education plays during this pandemic, teachers have encountered several barriers in various areas when executing their online teaching plan.

Wu and Wang (2021) have reported, for instance, that Business English teachers, based on their beliefs about online performance assessment, had the opportunity to widely adopt various types of e-assessment, including written tests, oral presentations, simulations, and essay writing in a Chinese university during the pandemic. Similarly, in some HEIs of Bangladesh, India, and Nepal, according to Mahapatra (2021), some EFL teachers actively carried out a variety of online formative assessment (OFA) in their classrooms amidst COVID-19. Some of the OFA practices which they adopted are rubrics, self-and peer-assessment, checklists, quizzes, tests using ICT tools/ platforms to evaluate students' English skills. For some theoretical subjects like ICC, the study done by Nguyen (2021) showed that the obstacles in "syllabus and design" along with "teaching and assessing" make it challenging to meet the subject objectives. To overcome these obstacles, EFL teachers coped with some project-based assessment strategies: (1) to increase intercultural awareness for students by deeply inquiring into varied cultural knowledge materials, for example, books, newspapers, brochures, etc., then exchanging them with classmates, specialists on Zoom or other e-learning apps and testing their insight on quiz webs; (2) to reinforce intercultural competence for students by creating an ICC-learning environment with real-life video recordings and role-plays; (3) to improve students' skills by participating in hypothetical intercultural problems and applying cultural expertise to resolve them; (4) and to enhance students' motivation by making their lessons more practical, diverse with visual aids or implementing a flipped classroom approach.

In another study, Chung and Choi (2021) discovered that a majority of EFL teachers in a private South Korean university employed multimodal projects to measure their students' outcomes. These projects enable students to participate in real-world contact and show their creative concepts, or opinions by utilizing online digital tools with numerous modes, for example, sounds, images, speech, etc.

Alghammas (2020) explored the type of questions favored by EFL teachers for Blackboard exams. For e-assessment, Blackboard presently provides seventeen different sorts of questions. However, not all varieties are suitable for English majors. This study found that EFL teachers expressly favored objective forms of the question to subjective ones owing to the ease and automaticity of grading, for example, multiple-choice, matching, true or false questions, short answers, blank filling, or essay writing.

According to Ghanbari and Nowroozi (2021), EFL teachers first encountered numerous barriers in e-assessment, such as technological, pedagogical, affective, and institutional barriers. However, they eventually discovered strategies to execute e-assessment techniques for the students amidst COVID-19. Along with increasing the students' formative assessment load, they evaluated students using synchronous and asynchronous devices and consistently enhanced their online competency. Especially, to solve pedagogical barriers, including

cheating, they developed multiple-choice e-exams, polling options, LMS's function of limiting the test time, essay-type items, and other system alternatives.

Overall, despite the difficulties of the rapid transition to online education amidst COVID-19, EFL teachers attempted to cope with some selective practices of e-assessment to assure students' learning outcomes. Besides, to continue to adopt blended-learning programs after the pandemic, university officials must as soon as feasibly assess and implement online education professional development programs for teachers.

Notwithstanding, new types of alternative computer-assisted language evaluation may now be used to verify student learning outcomes and utilization [formative assessment (Chen et al., 2021); dynamic assessment (Andujar, 2020); presentation: (Olga and Victor, 2021); project-based assessment (Nguyen, 2021); sustainable assessment (Chung and Choi, 2021)]. According to Chen et al (2021), a different pedagogy of online formative assessment with regular assignments, mini-tests, or exams, would offer an insight into the virtual teaching practices, particularly real-time meetings as a swift reaction to emergent educational settings. Andujar (2020) demonstrated that mobile instant messaging (MIM) application apps were found to be particularly useful for performing a pedagogical dynamic assessment method since the instructors and students may engage "on the move." Teachers may respond to the most recent messages delivered by any of the participants at any time. And those messages were retained within the program, allowing them to be tracked, as well as enabling more succinct and personalized learning. In addition, the implementation of project-based evaluation or online presentations is thought to have measurable benefits on students' attitudes, motivation, and skill development (Olga and Victor, 2021; Nguyen, 2021). Chung and Choi (2021) went further to illustrate that other instructors also used multimodal projects or sustainable assessment forms, such as portfolios and language learning journals, to evaluate their students' learning progress. In general, these methods of evaluation are more current and relevant for today's digital learners. The flexibility and interactivity of such instructional innovations capture students' attention and increase their drive to study.

Cheating and other challenges of EFL e-assessment

The COVID-19 pandemic posed unexpected barriers to HEI throughout the world; for example, unforeseen institution closing caused a sudden shift to online education. A substantial number of studies have also identified e-assessment-related issues that ELF instructors are now facing. According to specific reviewed research (Alghammas 2020; Zhang et al. 2021; Hamdan et al. 2021), cheating is the most common issue among ELF teachers who use e-assessment. According to Alghammas (2020), this frustration drives teachers to prefer Blackboard for e-assessment since they feel it is safer for online exams. Another study done by Abduh (2021) revealed that cheating is one of the severe problems in EFL e-assessment. Other drawbacks noted in this study include lack of physical engagement, teamwork skills, difficulties in speaking and translating e-tests, plagiarism, technological challenges, etc. Nevertheless, no adequate solutions have been proposed.

On investigating test takers, scholars have proven the ease of cheating occurrence when online assessments are administered utilizing technical instruments [$M = 3.75$ (AlTameemy, 2020), no percentage (Mustafa and Raisha, 2021)]. In Mustafa and Raisha (2021)'s study, students having tests on Moodle are reported to have completed all 30 reading comprehension questions in under 10 minutes and received extremely good marks. The teacher assumed they had probably exchanged answers or translated questions using Google Translate. However, no evidence of cheating or plagiarism was found by Blackboard users.

Possibly the teachers used certain applications to make it impossible for learners to cheat (AlTameemy, 2020). Yet, more adept students were less inclined to cheat during exams [28]. The findings of Rofiah and Waluyo (2020)'s study reveal that most students (42.1%) felt quite easy to cheat on virtual platforms like Socrative, which led them (40.3%) to prefer Socrative quizzes over paper ones. Nonetheless, students (48.4%) did not use specific cheating tactics during Socrative tests and sensed that the teacher would find out if test takers cheated or not. Although such online platforms provide a wide range of benefits for teaching and learning, they showed a low level of security which might lead to students' cheating activities during tests.

Other studies have also found the following e-assessment challenges for ELF teachers (Chung, and Choi, 2021; Zhang et al., 2021; Ghanbari and Nowroozi, 2021; Nguyen, 2021; Mahapatra, 2021; Wu and Wang, 2021; Zou et al., 2021; Afshar and Ranjbar, 2021). Firstly, the lack of teachers' knowledge about IT and language assessments cannot be overlooked. This challenge can impact the capacity to apply knowledge in assessment practices (Afshar and Ranjbar, 2021; Mahapatra, 2021; Zou et al., 2021). In one study researchers investigated assessment literacy of technical English language teachers who teach English in engineering. They were divided into 2 groups: English teachers and technical teachers who teach specialized English. In Group 1, only 26% teachers passed the cut-off score of the assessment literacy test, while in Group 2, none of the teachers passed the test. Through the further interview, teachers who passed the assessment literacy test stated that in practice they failed to apply their testing knowledge into practice for some reasons. They were unable to apply new and progressive assessment forms. This raises the question of whether teachers have adequate training in testing knowledge in English language teaching (Afshar and Ranjbar, 2021). Additionally, some teachers well-versed in different modes of assessment were also unable to make significant changes in the traditional summative assessment techniques regulating English lessons owing to overcrowding, lack of time, and other factors. Therefore, English teachers should focus on ICT use and integration as a part of their professional development to ensure the quality of English teaching and testing in different frameworks. The policymakers, curriculum writers, managers, and others also ought to offer proper e-assessment training for teachers. Secondly, EFL teachers complained about the time taken to create e-assessment activities (Chung and Choi, 2021; Wu and Wang, 2021). This creation requires definite time and experience for EFL teachers as they must make sure these exercises remain of high quality, thus causing certain stress and affecting the teachers' well-being or mental health (Ghanbari and Nowroozi, 2021). The third challenge observed by the teacher in one experiment was the large class size and poor internet connection. Due to this, teachers were unable to supervise their classrooms properly. They did their best, however, to pick and execute online assessment techniques based on policy, contextual factors, as well as their own academic experience and perspectives (Zhang et al., 2021). Last but not least, the lack of alignment between the substance of instructions and outcomes of e-assessment posed a challenge on teachers' e-assessment practice. For example, in the case of some specialized disciplines, including intercultural communication competence (ICC), the course material concentrates on theory, while the learning outcomes of e-assessment rely on practice (Nguyen, 2021).

The role of technology in EFL e-assessment

The reviewed studies provided evidence suggesting that tech-based tools of e-assessment have gained popularity in the online education environment amidst COVID-19. E-assessment

can be delivered in two ways: web-based and download delivery. The studies mentioned above presented various types of e-assessment tools working for both delivery ways, such as Skype (Olga and Victor, 2021; Hanafia et al., 2022); CCTalk (Chen et al., 2021; Zou et al., 2021); MuClass (Chen et al., 2021); Moodle (Chung and Choi, 2021; Ghouali and Cecilia, 2021; Poonpon et al., 2021; Mahapatra, 2021); Webex (Chung and Choi, 2021); Safe Exam Browser (SEB) (Poonpon et al., 2021); Zoom (Nguyen 2021; Poonpon et al. 2021; Wu and Wang 2021); Blackboard (Alghammas, 2020; Abduh, 2021; AlTameemy et al., 2020; Chirumamilla and Sindre, 2021); Canvas (Chirumamilla and Sindre, 2021); SPOC (Zhang et al., 2021); WhatsApp (Mahapatra, 2021; Zou et al., 2021); Socrative (Rofiah and Waluyo, 2020); Google Meet, Microsoft Teams, Google Forms, Google Docs and Facebook (Mahapatra, 2021); WeChat, Microsoft Word tools, QQ Messenger (Zou et al., 2021), and so on. Various authors indicate that while Moodle or Blackboard support conduct real-time quizzes and interactions (Abduh, 2021; Alghammas, 2020; Chung and Choi, 2021; AlTameemy et al., 2020; Chen et al., 2021; Rofiah and Waluyo, 2020; Ghouali and Cecilia, 2021; Poonpon et al., 2021; Saleem et al., 2021; Chirumamilla and Sindre, 2021; Mahapatra, 2021; Mustafa and Raisha, 2021), Skype and Zoom are effective tools to test students' speaking or presentation abilities (Olga and Victor, 2021; Hanafia et al., 2022; Nguyen, 2021; Poonpon et al., 2021; Saleem et al., 2021). These live streaming platforms also served as proctoring systems in conjunction with SEB (Poonpon et al., 2021). Researchers observed 72.9% of students stated had no problems using e-assessment via computers (AlTameemy et al., 2020), and even converted quite smoothly or naturally their language skills into the online format, with no negative outcomes (Olga and Victor, 2021). However, in Poonpon et al (2021)'s study, several students reported technology-related concerns, such as mismatched computer specs, an outdated Windows program, or an inconsistent speed of Internet. Due to the lack of pre-test orientation or test manual instructions, a handful of students were unaware that they needed to install the program prior to the test day.

The study at three HEIs in India, Nepal, and Bangladesh by Mahapatra (2021) showed that teachers' selection of online tools for performing OFA was majorly influenced by teachers' expertise, students' accessibility, affordability, internet speed available to learners, etc. These EFL teachers' most used feedback tools were Google Forms and WhatsApp. The second most popular online tools were Facebook and Google Docs. Also, they chose Google Meet, Microsoft Teams and Moodle as their critical platforms for sharing course content and live interactive presentations with students.

The research by Zhang et al (2021) mentioned about the assessment tools some Chinese EFL teachers applied in online teaching during the pandemic. For instance, these teachers effectively utilized the SPOC platform and decided to continue operating it even after the COVID-19 lockdown owing to the recognition of crucial alignment between teaching, learning, and assessment in virtual environments.

Another study by Alghammas (2020) focused on using Blackboard-based assessment to evaluate students' language skills in Saudi universities. It is known as one of the widely used commercial LMSs for e-assessment. Despite the fact that universities had established their LMSs long before the pandemic, in some studies (Abduh, 2021; Chung and Choi, 2021; Zhang et al., 2021; Ghanbari and Nowroozi, 2021; Chirumamilla and Sindre, 2021; Hamdan et al., 2021; Mahapatra, 2021), this system is regarded as an option to boost their students' assessment rather than completely replace it. This is due to a lack of technology or a constraint in the LMS's ability to provide what the teachers require for online EFL assessment.

Additionally, Wu and Wang (2021) reported on the benefits of social media, citing how some of the twenty-two EFL teachers had integrated individual feedback in their testing practices, and they perceived feedback as an inseparable convenient step of the e-assessment process. Overall, technology infrastructure enables higher capacities for learning delivery, but it requires comprehensive supervision and instructions.

Conclusion

During COVID-19, higher education has made significant progress in integrating e-assessment, as shown by the review's wide variety of evidence on the effectiveness and implementation of EFL e-assessment. The widespread adoption of creative new assessment techniques may be enhanced in the future due to their benefits for teachers and students. Also, cheating continues to be a major concern for university administrators and teachers. Therefore, it is anticipated that this review will provide an overview for future researchers who intend to conduct studies on EFL e-assessment and for university administrators and teachers who intend to continue applying e-assessment in blended learning.

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