Erasmus +

Partnerships for Digital Education Readiness

Project eAssessment in VET

Literature Review Summary

About the literature review

This literature review has been undertaken in the context of the first Project Report undertaken through the Erasmus+ eAssessment in VET project. The work is focused on the context of the DigiCompEdu, seeking to characterise and understand the digital capabilities of VET teachers and trainer within the partner countries to use digital technologies for eAssessment

The report involves a literature review, desk research and a survey (questionnaires and interviews) to identify all the competences and skills needed by a VET teacher or trainer for developing and using e-assessment in vocational education and training both in the classroom and workplace.

In 2021 and 2022, the project partners from five countries undertook a literature search, creating a shared literature base in Google Drive. To date the literature base contains links and summaries of 49 items, many academic articles but also reports and videos. While not all are referenced in this summary, we seek to identify the major themes emerging from the literature we have identified.

Assessment plays a crucial role in the education system and has a significant impact on student learning outcomes (Bethany Christian College of Teachers' Education, Undated) and well as a crucial role in the educational process as it drives improvement, shapes student behavior, and provides accountability to employers and others (Appiah and Tonder, 2018) (Durham Research online, 2007).. The use of technology in assessment, commonly referred to as e-assessment, has revolutionized the way assessment is performed. With the advancement of technology, e-assessment is increasingly becoming a popular and efficient method of evaluating student learning and performance. This short report aims to provide a concise overview of e-assessment, including its drivers, benefits, and challenges and to provide a coverview of the use of ICT in assessment, including the use of technology tools for assessment, the impact of the COVID-19 pandemic on remote assessments, and the challenges and opportunities that come with the digitization of assessment.

Drivers of E-Assessment

The primary drivers of e-assessment include increased variety of assessed tasks, the provision of instantaneous feedback, increased objectivity, and resource saving (Jordon, 2013) (Durham Research online, 2007). The development of computer-marked assessment has evolved from the early use of multiple-choice questions and machine-readable forms to sophisticated online systems that incorporate interoperability and integration with other learning management systems (Jordon, 2007).

eAssessment in the UK

A report by Durham Research Online (2007) focused on the role of assessment in education systems, identified the centrality of assessment and identified drivers of assessment and their likely impact on education systems. The report described current and planned uses of high-stakes e-assessment in the UK, current uses of ICT in assessment, the potential of new technologies for enhancing current assessment and pedagogic practices, and opportunities and suggestions for future developments. Tai, J., Boud, D., Ajjawi, R., Bearman, M. & Dawson, P., (2019) have published a further article presenting key findings on research in assessment, and links to of e-assessment, aiming to stimulate debate on the role of e-assessment in assessment, teaching, and learning.

Benefits of E-Assessment

E-assessment offers considerable benefits, including improved efficiency and accuracy in grading, enhanced assessment security, and the provision of instant feedback to students (Alruwais, Wills, Wald, 2018).The use of technology in assessment also enables teachers to evaluate student performance in real-time, allowing them to intervene and support students where necessary. In addition, e-assessment provides students with a more engaging and interactive learning experience (JISC, 2018).

Challenges and opportunities of E-Assessment

However, e-assessment also presents several challenges, including issues related to technical malfunctions, security concerns, and potential biases (Alruwais, Wills, Wald. 2018), (Callan, Johnston, Clayton, Poulsen, 2016), (Widiastuti, Mantra, Sukoco, Santosa 2021), (Santos, M., Miguéns, M., Rodrigues, , A., Canelas, A., Dias, , A., Gregório, C., Gonçalves, C., Faria, E., Bertinetti, F., Miguéns, M., Félix, P., Perdigão, R., Lourenço, 2021), (Caspari-Sadeghi, 2022). To overcome these challenges, it is important to ensure that e-assessment systems are robust, reliable, and secure (Jisc, 2020) , (Pauli, 2021). In addition, the development of e-assessment should be guided by a clear understanding of its purpose, ensuring that it supports and enhances student learning outcomes (Bartolomé, Martínez, Jakobsone et al, 2018).

Digitized assessments offer both challenges and opportunities. Critics argue that the digitization of assessments has compromised integrity and opened the door to cheating and fraud (Pauli, 2021). However, comparisons suggest there has been no grade inflation (ibid(. Some professional bodies remain skeptical of the robustness of complete open-book assessments, and there is a need for the protection against cheating. The shift to open-book assessments has also highlighted the importance of academic writing skills and the need for alternative assessment formats such as videos and presentations (ibid).

Jisc (2021) sets five targets for the next five years to progress assessment towards being more authentic, accessible, appropriately automated, continuous, and secure. The five targets are:

- Authentic: assessments designed to prepare students for their careers using technology they will use in their careers.
- Accessible: assessments designed with an accessibility-first principle.
- Appropriately automated: a balance found of automated and human marking to deliver maximum benefit to students.

- Continuous: assessment data used to explore opportunities for continuous assessment to improve the learning experience.
- Secure: authoring and delivery of secure assessments.

Authentic Assessment

Sutherland (2021) highlights the importance of performance-based authentic assessment and the integration of technology tools for effective student learning assessment. In looking at assessment during the Covid 19 pandemic, Hodges, C. B., & Barbour, M. K. (2021) say common assessment types used in online instruction, including written assignments, online discussions, fieldwork, tests and quizzes, presentations, and e-portfolios, with a focus on the concepts of synchronous versus asynchronous assessments and issues related to academic integrity.

A video of a Webinar discusses the impact of COVID-19 on remote assessments (McGraw Hill, 2021). The COVID-19 pandemic has posed extraordinary challenges for higher education institutions, forcing them to conduct assessments remotely. The current model of examination, which favors students with strong memory and recall skills, is being questioned, and there is a need for practice-based assessments (Santos, M., Miguéns, M., Rodrigues, A., Canelas, A., Dias,et al, 2021). The shift to digitize assessments has raised opportunities and challenges, such as digital poverty and the need for digital literacy skills. However, Neil Selwyn, Chris O'Neill, Gavin Smith, Mark Andrejevic, Xin Gu (2021) are critical that the COVID-19 pandemic has seen the rapid but sometimes controversial take-up of 'online examination proctoring' systems by universities keen to maintain their assessment schedules during times of campus closure. Through analysis of interviews, documents, news, social media and marketing materials, they examine "the 'appropriation', 'objectification', incorporation' and 'conversion' of proctoring technology from the perspective of commercial providers, university authorities, university staff and student groups."

Research from Australia, New Zealand and Portugal

Vocational education and training (VET) organizations and external auditors in Australia have expressed their views on the key issues in the current and future delivery of e-assessment through a comprehensive study that included 48 interviews, 10 focus groups, and 2 industry workshops (Callan, Johnston, Clayton, Poulsen, 2016). The study found that practitioners and auditors with in-depth experience in e-assessment and audit practices emphasized the importance of e-assessment in supporting and enhancing learning. el Asame, M., Wakrim, M., & Battou, A. (2021) identified challenges in the design of e-assessment and the need for improvement to achieve the desired pedagogical objectives in e-learning environments.

A project a team of vocational educators from New Zealand (Ako Aotearoam, 2019) created a set of guidelines for the development and implementation of e-assessments for learning in VET. The guidelines were based on seven sub-projects that implemented e-assessments for learning activities using various pedagogical approaches and digital tools. These e-assessments supported feedback mechanisms to learners, providing them with accessible e-feedback through digital technologies.

A similar study conducted by the Portuguese National Board of Education (Santos, M., Miguéns, M., Rodrigues, A., Canelas, A., Dias,et al, 2021) focused on addressing the

difficulties faced by schools during the Covid-19 pandemic and the strategies and solutions implemented by schools and local and central authorities to overcome these difficulties. The study aimed to identify changes that could contribute to the improvement of school organizations, pedagogical practices, and the quality of learning. The National Board of Education recommended strategies and measures to reduce the socio-educational impacts of the pandemic and promote the development and progress in learning of children and young people.

Competency-based Approach (CBA) and Objective-based Approach (OBA)

In recognition of the changes to typical patterns of working life, education institutions around the world are placing great emphasis on competence-based learning (Ilahi-Amri, M., Cheniti-Belcadhi, L., & Braham, R. 2017). However, critical issues still need to be addressed to fully realize the potential of lifelong learning in VET, universities and workplaces. This study proposes a semantic model for competence-based assessment to support the visibility of formal and informal learning competencies. The model is based on a sub-models architecture and carried out through the use of Web Services, with experimentation results supporting the research goals (ibid).

In order to achieve the desired pedagogical objectives in e-learning environments, a hybrid pedagogical framework has been proposed that includes a set of principles for competencies assessment design based on the Competency-based Approach (CBA) and Objective-based Approach (OBA (el Asame, M., Wakrim, M., & Battou, A., 2021). This framework aims to support teachers in creating assessment activities that are suited to student competency levels in a guided, controlled, and easy way. The explicit use of pedagogical approaches in e-assessment design is crucial for successful guidance and effective e-assessment design.

Student Feedback Literacy

Carless, D., Boud, D. (2018), in a paper on student feedback literacy, emphasized the importance of students having the understandings, capacities, and dispositions needed to make sense of information and use it to enhance work or learning strategies. The paper reviewed student responses to feedback and discussed several barriers to student uptake of feedback. The paper proposed a framework underpinning students' feedback literacy, consisting of four inter-related features: appreciating feedback, making judgments, managing affect, and taking action. The paper also discussed two well-established learning activities, peer feedback and analyzing exemplars, to illustrate how the framework can be operationalized. Teachers were identified as playing an important role in promoting student feedback literacy through curriculum design, guidance, and coaching. The implications and conclusion of the paper summarized recommendations for teaching and set out an agenda for further research.

Inclusive Integrated Assessment Framework

To address the differential learning outcomes of students, a report by Zhu, X., Winstone, N., Balloo, K., Hughes, A., & Bright, C. (2019) propose an institutional approach that uses a research-informed inclusive integrated assessment framework. This framework emphasizes the importance of ongoing evaluation and the need for assessment training to be owned by the disciplines. The success of this approach also requires investment in leadership at all

levels, enabling all staff and students to develop agentic assessment practices that allow them to make informed choices about the best use of time and resources.

Conclusion

To sum up the literature, assessment has a profound influence on student learning, and the digitization of assessments has both its challenges and opportunities. eAssessment can be seen a valuable tool in the education system, offering numerous benefits, including improved efficiency and accuracy, enhanced assessment security, and the provision of instant feedback. However, the development of e-assessment must be guided by a clear understanding of its purpose and must overcome the challenges posed by technology-related issues, biases, and security concerns. Investment in leadership, assessment training, and ongoing evaluation is crucial for the successful implementation of e-assessment and to ensure that it supports and enhances student learning outcomes.

With further advances in technology and pedagogic guardrails, there is optimism that the challenges can be met, and the opportunities leveraged to deliver authentic, accessible, appropriately automated, continuous, and secure assessments. Authentic assessment, online discussions, e-portfolio, video projects, and teamwork, are online learning activities that can help support these targets. While assessment remains central to the learning process, there is a need to focus on its practice and the use of technology to deliver the best possible outcomes for students.

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