E-Journal of Humanities, Arts and Social Sciences (EHASS)
ISSN – Online 2720-7722 | Print 2821-8949
Volume 5 Issue 16 December 2024 pp 3087-3102
Available online at: https://noyam.org/journals/ehass/
DOI: https://doi.org/10.38159/ehass.202451632

Analysis of Lecturers' Opportunities and Challenges Regarding Formative Online Assessments at a University of Technology

Paseka Patric Mollo[1]

[1] Department of Educational and Professional Studies, Faculty of Humanities, Central University of Technology, Free State, Bloemfontein 9300 (South Africa).

ABSTRACT

During COVID-19, formative online assessments became widely employed at universities. Face-to-face academic activities were suspended, increasing the use of information and communications technology (ICT) and online assessments. University lecturers were forced to change their pedagogical strategies, teaching and learning paradigms, and evaluation procedures. The trend continued after the COVID-19 era and has become a norm at higher education institutions. This change brought about mixed feelings among lecturers as some saw opportunities while others experienced challenges. This empirical paper, therefore, discussed the opportunities and challenges experienced by lecturers when using formative online assessments. The theoretical framework of Universal Design for Learning (UDL) was used. Six purposively selected lecturers from the Faculty of Humanities at the Central University of Technology in South Africa were sampled and interviewed. The findings revealed that online formative assessments enabled lecturers to be more flexible on assessment schedules, meet various student demands and learning preferences, and give their students immediate feedback on their academic performances. The main challenges were formative online assessments' validity, reliability, dishonesty, and academic integrity. The study underscores the importance of clear communication about academic integrity, making the audience feel the need for proactive measures to ensure the integrity of online assessments. The study recommended that lecturers should, among other things, make technical assistance resources available to students, explicitly convey expectations about academic integrity and cheating, and outline clear learning objectives for each assessment. This paper provides a significant contribution to the scholarship surrounding the opportunities and challenges that lecturers face when implementing formative online assessments at a university of technology.

Correspondence
Dorah Mensah
Email: dorsah76@gmail.com

Publication History
Received:
24th October, 2024
Accepted:
29th November, 2024
Published online:
24th December, 2024

Keywords: *COVID-19, Information Communications Technology (ICT), Formative Online Assessment, Student Teachers, Teacher Education.*

INTRODUCTION

The COVID-19 pandemic has brought about a significant shift in education, with universities and colleges worldwide adopting and introducing online learning.[1][2] This abrupt shift has presented challenges

[1] Emily Nordmann et al., "Ten Simple Rules for Supporting a Temporary Online Pivot in Higher Education," *PLOS Computational Biology* 16, no. 10 (October 1, 2020): e1008242, https://doi.org/10.1371/journal.pcbi.1008242.
[2] Nordmann et al., "Ten Simple Rules for Supporting a Temporary Online Pivot in Higher Education."

for students and lecturers and opened new opportunities for integrating technology into the assessment process.[3] Gikandi, Morrow, and Davis stated that assessment is at the heart of formal higher education.[4] Online assessments have become a crucial component of remote learning, allowing lecturers to evaluate students' understanding and progress in a virtual space. As the prevalence of online learning environments continues to rise, the need for critically examining current assessment approaches has become increasingly apparent.

Concerns about the limitations of traditional assessment methods in the context of online learning have been widely documented.[5] Scholars have proposed alternative assessment approaches that better align with digital platforms' unique demands and opportunities. One such approach emphasizes the integration of cognitive evaluation, performance assessment, and portfolio assessment, each offering distinct advantages in evaluating student learning and growth.[6]

Cognitive assessment, for instance, allows lecturers to delve into the depth of students' understanding, probing their conceptual knowledge and critical thinking skills.[7] Conversely, performance assessment encourages students to demonstrate their abilities by completing real-world tasks, fostering the development of practical competencies.[8] Complementing these approaches, portfolio assessment provides a comprehensive showcase of a student's academic journey, highlighting their progress, reflections, and achievements over time.[9]

The Blending with Purpose model further underscores the importance of utilizing a multimodal approach to content delivery and instructional support.[10] While fully online courses may present challenges in facilitating social and emotional connections, a balanced integration of face-to-face and digital elements can address this gap, ensuring holistic student development.[11]

The rapid advancement of digital technologies has fundamentally transformed the landscape of higher education, introducing both new opportunities and complex challenges for lecturers in their assessment practices. The integration of formative online assessments has become a critical focus as lecturers strive to harness technology to enhance student learning while navigating the inherent complexities and potential pitfalls of this evolving pedagogical approach.

On one hand, the incorporation of formative online assessments offers significant promise, including real-time feedback, personalized learning pathways, and increased student engagement and participation in the learning process. On the other hand, effective implementation of these assessment strategies requires lecturers to thoughtfully address a variety of technical, pedagogical, and institutional considerations to ensure successful integration and maximize their impact on student outcomes.

This delicate balance highlights the essential need for a deeper understanding of the opportunities and challenges lecturers face in adopting and implementing formative online assessments, particularly within the unique context of universities of technology.

This study seeks to bridge the gap in our understanding of how university lecturers at technology-focused institutions navigate the implementation of formative online assessments. The findings will provide valuable insights into the factors that influence the effective use of technology-enhanced assessment in higher education, ultimately aiming to improve teaching and learning practices.

Specifically, this research will examine lecturers' perceptions and experiences regarding the benefits, limitations, and best practices associated with formative online assessments in the context of a university of technology. The study will highlight the opportunities these assessment strategies offer,

[3] Nabil Hasan Al-Kumaim et al., "Exploring the Impact of the COVID-19 Pandemic on University Students' Learning Life: An Integrated Conceptual Motivational Model for Sustainable and Healthy Online Learning," *Sustainability* 13, no. 5 (2021): 2546.
[4] Joyce Wangui Gikandi, Donna Morrow, and Niki E Davis, "Online Formative Assessment in Higher Education: A Review of the Literature," *Computers & Education* 57, no. 4 (2011): 2333–51.
[5] An-Chih Cheng, Michelle E. Jordan, and Diane L. Schallert, "Reconsidering Assessment in Online/Hybrid Courses: Knowing versus Learning," *Computers & Education* 68 (October 2013): 51–59, https://doi.org/10.1016/j.compedu.2013.04.022.
[6] Thomas C. Reeves, "Alternative Assessment Approaches for Online Learning Environments in Higher Education," *Journal of Educational Computing Research* 23, no. 1 (July 1, 2000): 101–11, https://doi.org/10.2190/GYMQ-78FA-WMTX-J06C.
[7] Reeves, "Alternative Assessment Approaches for Online Learning Environments in Higher Education."
[8] Reeves, "Alternative Assessment Approaches for Online Learning Environments in Higher Education."
[9] Reeves, "Alternative Assessment Approaches for Online Learning Environments in Higher Education."
[10] Anthony Picciano, "Blending with Purpose: The Multimodal Model," *Journal of the Research Center for Educational Technology* 5, no. 1 (2009): 4–14.
[11] Picciano, "Blending with Purpose: The Multimodal Model."

including their potential for immediate feedback, personalized learning, and increased student engagement. Additionally, it will address the challenges lecturers encounter in adopting and implementing formative online assessments, which may include technological, pedagogical, or institutional barriers.

The insights gathered from this investigation will inform the development of strategies and policies aimed at supporting lecturers in effectively leveraging technology to enhance student learning and assessment. This will involve identifying successful practices, addressing common challenges, and providing the necessary resources and professional development to enable lecturers to fully utilize formative online assessments in their teaching. By addressing this gap in the literature, the study will contribute to a broader understanding of how technology-enhanced assessment can elevate the quality and effectiveness of higher education.

This study is unique because it examines lecturers' perspectives at CUT to understand better their opportunities and challenges in implementing formative online assessments. The findings can inform the development of strategies and best practices to enhance the quality and effectiveness of online teaching and learning. The study delivers a comprehensive analysis of the pedagogical strategies and technological factors that influence the effectiveness of formative assessments in online learning environments. Specifically, it offers critical insights into the perceptions of both lecturers and students regarding the clarity and reliability of assessments conducted in digital spaces. Additionally, the research examines the functionality of formative assessment and the advantages it brings to teaching and learning in online contexts.

LITERATURE REVIEW

A comprehensive review of the literature on formative online assessments reveals a multifaceted landscape characterized by diverse perspectives and experiences. While some studies highlight the potential of online formative evaluations to provide timely and personalized feedback to students, others underscore the technical and logistical complexities lecturers face in incorporating these assessments into their teaching practices. As with new developments, lecturers confronted opportunities and challenges when implementing formative online assessments at universities.[12]

The incorporation of formative online assessments presents a multitude of opportunities for lecturers in the academic landscape. One of the primary advantages is the enhanced flexibility and convenience they offer.[13] Online assessments eliminate face-to-face interactions, allowing lecturers to efficiently assess and provide feedback to students at their own pace and convenience.

Additionally, integrating online technologies can enable lecturers to leverage various assessment strategies, such as discussion boards, quizzes, and multimedia-based tasks.[14] These innovative approaches can facilitate a more comprehensive evaluation of students' understanding and foster greater engagement and interaction.[15]

Furthermore, the data-driven nature of online assessments presents lecturers with valuable opportunities to gain deeper insights into their students' learning progress and patterns.[16] This information can be leveraged to tailor instructional strategies, provide personalized feedback, and identify areas where students may require additional support.[17]

[12] Terence Day et al., "The Immediate Impact of COVID-19 on Postsecondary Teaching and Learning," *The Professional Geographer* 73, no. 1 (January 2, 2021): 1–13, https://doi.org/10.1080/00330124.2020.1823864.

[13] Nenagh Kemp and Rachel Grieve, "Face-to-Face or Face-to-Screen? Undergraduates' Opinions and Test Performance in Classroom vs. Online Learning," *Frontiers in Psychology* 5 (November 12, 2014), https://doi.org/10.3389/fpsyg.2014.01278.

[14] Louise Horstmanshof and Sonya Brownie, "A Scaffolded Approach to Discussion Board Use for Formative Assessment of Academic Writing Skills," *Assessment & Evaluation in Higher Education* 38, no. 1 (February 2013): 61–73, https://doi.org/10.1080/02602938.2011.604121.

[15] Muthu Ramachandran, "Best Practice Guidelines for Technology Enhanced E-Learning," in *2016 9th International Conference on Developments in ESystems Engineering (DeSE)* (IEEE, 2016), 191–96, https://doi.org/10.1109/DeSE.2016.33.

[16] Kemp and Grieve, "Face-to-Face or Face-to-Screen? Undergraduates' Opinions and Test Performance in Classroom vs. Online Learning."

[17] Horstmanshof, L., & Brownie, S. "A scaffolded approach to Discussion Board use for formative assessment of academic writing skills." Taylor & Francis, 38(1), (2013): 61–73.

Baleni indicated that one of the opportunities lecturers have with formative online assessments is the ability to provide timely and continuous feedback to students.[18] This immediate feedback enables students to understand their strengths and weaknesses and adjust their learning strategies accordingly.[19] In the online context, these assessments offer unique opportunities for personalized feedback, immediate results, and adaptive learning techniques.[20] According to Padayachee et al., another opportunity for formative online assessments is the ability to provide personalized feedback to students.[21] This personalized feedback can help students quickly understand their strengths and weaknesses, leading to more targeted learning strategies.[22] Additionally, the immediate availability of assessment results allows lecturers to intervene promptly and provide additional support to struggling students.

In addition, online assessments can also promote active learning and engagement among students. Using interactive platforms such as Socrative and Kahoot, lecturers can create appealing quizzes and activities that assess students' knowledge and encourage active participation and critical thinking.[23] Furthermore, online assessment platforms offer lecturers the opportunity to collect and analyse data on students' performance. By utilizing the data generated from online assessments, lecturers can gain valuable insights into students' learning patterns, identify areas of improvement, and make informed instructional decisions.

Ultimately, integrating formative online assessments can empower lecturers to enhance the overall quality and effectiveness of the teaching and learning experience, contributing to improved student outcomes.[24] However, along with these opportunities, lecturers face several challenges in implementing formative online assessments. One challenge is ensuring their reliability and validity.[25] As universities have transitioned to remote delivery of degree programs, the reliance on online exams and assessments has significantly increased, raising concerns about academic integrity and the ability to measure student learning accurately.[26] The critical challenge is verifying the identity of students taking online exams and ensuring they are not engaging in academic dishonesty, such as using unauthorized resources or collaborating with others.[27] Existing research has shown that students tend to achieve higher grades on unproctored online exams than in-person exams, potentially due to increased opportunities for cheating.[28] Gamage et al. indicated that addressing this challenge requires universities to investigate and implement robust measures to safeguard the integrity of online assessments.[29] This may include proctoring software, biometric identification, and other technological solutions to monitor student behaviour during exams.

Again, universities must take a comprehensive approach that includes technological solutions, pedagogical strategies, and clear communication with students about expectations of academic integrity.[30] This may involve redesigning assessments to focus on higher-order thinking skills less susceptible to cheating, providing students with resources and training on academic honesty, and fostering a culture of academic integrity throughout the institution. Ongoing research and collaboration within the higher education community will be crucial in identifying best practices and developing

[18] Zwelijongile Gaylard Baleni, "Online Formative Assessment in Higher Education: Its Pros and Cons," *Electronic Journal of E-Learning* 13, no. 4 (2015): pp228-236.
[19] Baleni, "Online Formative Assessment in Higher Education: Its Pros and Cons."
[20] Baleni, "Online Formative Assessment in Higher Education: Its Pros and Cons."
[21] Kershee Padayachee, Mapula Matimolane, and Rita Ganas, "Addressing Curriculum Decolonisation and Education for Sustainable Development through Epistemically Diverse Curricula," *South African Journal of Higher Education* 32, no. 6 (2018): 288–304.
[22] Gikandi, Morrow, and Davis, "Online Formative Assessment in Higher Education: A Review of the Literature."
[23] Baleni, "Online Formative Assessment in Higher Education: Its Pros and Cons."
[24] Ramachandran, M. "Best Practice Guidelines for Technology Enhanced E-Learning." (2016).
[25] Gikandi, et al. Online formative assessment in higher education: A review of the literature.
[26] Baleni, "Online Formative Assessment in Higher Education: Its Pros and Cons."
[27] Kelum A.A. Gamage, Erandika K. de Silva, and Nanda Gunawardhana, "Online Delivery and Assessment during COVID-19: Safeguarding Academic Integrity," *Education Sciences* 10, no. 11 (October 25, 2020): 301, https://doi.org/10.3390/educsci10110301.
[28] Fariza Sabrina et al., "Ensuring Academic Integrity in Online Assessments: A Literature Review and Recommendations," *International Journal of Information and Education Technology* 12, no. 1 (2022): 60–70, https://doi.org/10.18178/ijiet.2022.12.1.1587.
[29] Sithara H. P. W. Gamage et al., "Optimising Moodle Quizzes for Online Assessments," *International Journal of STEM Education* 6, no. 1 (December 13, 2019): 27, https://doi.org/10.1186/s40594-019-0181-4.
[30] Johnson Opateye, "Using Proctoring Online Examination System for Building Resilient Assessment Administration: The National Open University of Nigeria Students' Readiness," in *Tenth Pan-Commonwealth Forum on Open Learning* (Commonwealth of Learning, 2022), https://doi.org/10.56059/pcf10.9382.

innovative approaches to ensuring the reliability and validity of online assessments as the landscape of remote learning continues to evolve.[31]

Another challenge is the technological literacy of both lecturers and students. Not all lecturers and students may be familiar with online assessment platforms and tools, which can hinder the seamless integration of formative assessments into online learning environments. Recent studies have highlighted the paradox of the "digital native" phenomenon, where students are assumed to be inherently tech-savvy. Their digital literacy may be limited to the recreational use of digital tools.[32] This assumption can create problematic scenarios for universities, as students often struggle to apply their digital skills in the context of online assessments.[33] Universities must also focus on their lecturers' technological literacy. As teaching and assessment move increasingly online, lecturers must be equipped with the knowledge and skills to navigate these digital environments.[34] Providing comprehensive training and professional development opportunities for faculty can help ensure that they can effectively support students in the digital realm.

Additionally, technical glitches and connectivity issues can impede the smooth administration of online assessments. According to Xia et al., technical glitches and connectivity issues have emerged as significant impediments to the effective implementation of online assessments, posing substantial threats to academic integrity and student performance.[35] Deficiencies in critical factors, such as hardware, software, networks, and storage capacity, can adversely influence the quality and security of online assessments. For example, issues with the internet, such as low speeds or network instability, can disrupt live assessment sessions and prevent students from accessing assessment materials or submitting responses on time.

There is growing evidence that the COVID-19 pandemic has exacerbated these challenges, with many students, especially those from disadvantaged backgrounds, struggling to maintain consistent access to technology and reliable internet connectivity.[36] Globally, the uneven distribution of high-quality broadband infrastructure has created significant disparities in access to online education, with some students needing more support to participate in assessments due to poor connectivity.[37]

These challenges have profound implications for academic integrity, as the lack of physical invigilation and secure testing environments makes detecting and preventing cheating challenging.[38] Universities have had to rapidly develop new strategies and adopt innovative solutions to safeguard the integrity of their online assessments, such as proctoring software, randomized question banks, and time-limited exams.[39]

However, the effectiveness and feasibility of these measures are often limited by the availability and reliability of the underlying technological infrastructure. Studies have shown that students may perceive online proctoring as an invasion of privacy and find ways to circumvent the system.[40] The success of these measures is also heavily dependent on the readiness of both students and institutions to

[31] Jarret M Dyer, Heidi C Pettyjohn, and Steve Saladin, "Academic Dishonesty and Testing: How Student Beliefs and Test Settings Impact Decisions to Cheat," 2020.
[32] Andy Phippen, Emma Bond, and Ellen Buck, "Effective Strategies for Information Literacy Education: Combatting 'Fake News' and Empowering Critical Thinking," in *Future Directions in Digital Information* (Elsevier, 2021), 39–53, https://doi.org/10.1016/B978-0-12-822144-0.00003-3.
[33] Phippen, Bond, and Buck, "Effective Strategies for Information Literacy Education: Combatting 'Fake News' and Empowering Critical Thinking."
[34] Donna E. Alvermann and Margaret C. Hagood, "Critical Media Literacy: Research, Theory, and Practice in 'New Times,'" *The Journal of Educational Research* 93, no. 3 (January 2000): 193–205, https://doi.org/10.1080/00220670009598707.
[35] Xia, Y., Hu, Y., Wu, C., Ling, Y., & Lei, M. (2022, December 22). Challenges of online learning amid the COVID-19: College students' perspective. Frontiers Media, 13. https://doi.org/10.3389/fpsyg.2022.1037311
[36] John Cullinan et al., "The Disconnected: COVID-19 and Disparities in Access to Quality Broadband for Higher Education Students," *International Journal of Educational Technology in Higher Education* 18, no. 1 (December 21, 2021): 26, https://doi.org/10.1186/s41239-021-00262-1.
[37] Gamage, Silva, and Gunawardhana, "Online Delivery and Assessment during COVID-19: Safeguarding Academic Integrity."
[38] Gamage, Silva, and Gunawardhana, "Online Delivery and Assessment during COVID-19: Safeguarding Academic Integrity."
[39] Gamage, Silva, and Gunawardhana, "Online Delivery and Assessment during COVID-19: Safeguarding Academic Integrity."
[40] Opateye, "Using Proctoring Online Examination System for Building Resilient Assessment Administration: The National Open University of Nigeria Students' Readiness."

adapt to the new assessment modalities, which can be influenced by factors such as personal traits, academic disciplines, and geographical location.[41]

The above studies have contributed to online assessment research at universities, showing that online assessments offer increased flexibility and accessibility. Online assessments also introduce new complexities related to technological proficiency, student engagement, and ensuring academic integrity. The existing literature highlights several vital considerations. Online assessment can potentially address challenges faced in the teaching and learning setting.[42] This study, however, aims to investigate the specific opportunities and challenges lecturers at the Central University of Technology (CUT) in South Africa face in implementing formative online assessments to inform strategies to enhance the quality and effectiveness of online teaching and learning.

Issues such as limited internet connectivity, maintaining assessment integrity, and effectively facilitating student interaction pose significant hurdles for lecturers at CUT. Additionally, students may face unique obstacles in the online learning environment, such as challenges with their home learning setting and managing their time and resources. Effectively supporting lecturers and students will be crucial for optimizing the benefits of formative online assessments.

THEORETICAL FRAMEWORK

The paper is underpinned by Universal Design for Learning (UDL). The Universal Design for Learning (UDL) theory was developed by David H. Rose and his colleagues at the Centre for Applied Special Technology (CAST) in the 1990s. CAST is an educational research and development organization that focuses on expanding learning opportunities for all individuals, especially those with disabilities, through innovative uses of technology and instructional design. The UDL framework, which aims to provide all students with equal opportunities to learn, is grounded in the principles of neuroscience and emphasizes the need for flexible teaching strategies to accommodate diverse learners. According to Smith, "Universal learning design (UDL) offers a framework for a college instructor that can expand opportunities in the delivery of course instruction."[43] Although this theory was initially developed for inclusive education, the researcher found it relevant to this study because of its principles, which aim to create environments that can be accessed, understood, and used to the greatest extent possible by all students, regardless of their age, size, ability, or disability.[44]

The major assumptions of the UDL theory revolve around the idea that all students are unique and that teaching methods, teaching materials, and assessment approaches should be flexible enough to accommodate this diversity.[45] The diverse student population in higher education requires lecturers to respond to various learning needs and preferences.[46] When designed with the UDL principles in mind, formative online assessments can provide multiple avenues for students to demonstrate their understanding and progress.[47] UDL emphasizes the need to address the diverse needs of learners. In the context of formative online assessments, this means providing multiple ways for students to demonstrate their understanding, catering to different learning styles, abilities, and backgrounds.

Furthermore, the online environment presents unique challenges regarding the validity and reliability of assessments.[48] The UDL framework can guide the design of formative online assessments, ensuring they

[41] Opateye, "Using Proctoring Online Examination System for Building Resilient Assessment Administration: The National Open University of Nigeria Students' Readiness."

[42] P. Padayachee, S. Wagner-Welsh, and H. Johannes, "Online Assessment in Moodle: A Framework for Supporting Our Students," *South African Journal of Higher Education* 32, no. 5 (October 2018), https://doi.org/10.20853/32-5-2599.

[43] Frances G Smith, "Analyzing a College Course That Adheres to the Universal Design for Learning (UDL) Framework," *Journal of the Scholarship of Teaching and Learning*, 2012, 31.

[44] Aibhin Bray et al., "What next for Universal Design for Learning? A Systematic Literature Review of Technology in UDL Implementations at Second Level," *British Journal of Educational Technology* 55, no. 1 (2024): 113–38.

[45] Therese M Cumming and Megan C Rose, "Exploring Universal Design for Learning as an Accessibility Tool in Higher Education: A Review of the Current Literature," *The Australian Educational Researcher* 49, no. 5 (2022): 1025–43.

[46] Mairead Seymour, "Enhancing the Online Student Experience through the Application of Universal Design for Learning (UDL) to Research Methods Learning and Teaching," *Education and Information Technologies* 29, no. 3 (February 14, 2024): 2767–85, https://doi.org/10.1007/s10639-023-11948-6.

[47] Lyman L. Dukes, Mark A. Koorland, and Sally S. Scott, "Making Blended Instruction Better: Integrating the Principles of Universal Design for Instruction into Course Design and Delivery," *Action in Teacher Education* 31, no. 1 (April 2009): 38–48, https://doi.org/10.1080/01626620.2009.10463509.

[48] Gikandi, Morrow, and Davis, "Online Formative Assessment in Higher Education: A Review of the Literature."

serve their intended purposes while accommodating students' diverse needs.[49] Also, integrating formative assessment into online and blended learning environments can provide valuable feedback to students and lecturers.[50] The UDL framework can help ensure that this feedback is delivered in ways that are accessible and engaging for all learners.[51]

It also encourages the use of varied assessment methods, particularly in online settings where traditional formats may not be as effective.[52] Again, UDL's multiple means of engagement principle highlights the importance of keeping students motivated and interested. Formative, engaging, relevant online assessments can help sustain student interest and participation.[53] One of UDL's core assumptions is that barriers to learning often reside in the design of the curriculum rather than within the learners. Formative online assessments designed with UDL principles in mind can help identify and minimize these barriers, such as those related to accessibility issues, by providing alternative ways to access information and demonstrate knowledge.[54]

Another principle of this theoretical framework is its proactive approach to designing learning experiences, which aligns well with the need to create inclusive assessments from the outset.[55] By anticipating potential challenges students might face with online assessments, lecturers can design more accommodating formative assessments, thereby reducing the need for modifications and accommodations later. Also, UDL is relevant to this study because it promotes the effective use of technology to create adaptable and personalized learning experiences. In online assessments, technology can offer tools and platforms that support varied assessment formats, provide immediate feedback, and allow for adjustments based on student performance, thus enhancing the overall effectiveness of formative assessments.[56]

Lastly, online formative assessments are meant to provide ongoing feedback to both students and lecturers.[57] Therefore, UDL's focus on continuous improvement and adaptability supports using online formative assessments to inform teaching practices and help students track their progress, making learning more dynamic and responsive.[58] Overall, the UDL framework offers a robust and comprehensive approach to analysing the opportunities and challenges of formative online assessments in higher education.[59] The UDL principles of multiple means of representation, action, expression, and engagement provide a holistic lens through which to examine the critical issues surrounding formative online assessments in the context of increasingly diverse student populations and evolving educational landscapes.

[49] Gikandi, Morrow, and Davis, "Online Formative Assessment in Higher Education: A Review of the Literature."
[50] Xian Tang, "Course Teaching Reform Research of English Academic Paper Writing for English Majors Based on Blended Learning," 2021, https://doi.org/10.2991/assehr.k.211011.091.
[51] Ravindra Kumar Kushwaha and Chandan Singh, "Building Teacher Capacity for Inclusive Education: A Professional Development Model Using Technology and UDL," *IJRAEL: International Journal of Religion Education and Law* 2, no. 2 (August 1, 2023): 97–104, https://doi.org/10.57235/ijrael.v2i2.499.
[52] Bray et al., "What next for Universal Design for Learning? A Systematic Literature Review of Technology in UDL Implementations at Second Level."
[53] Beth S Fornauf and Joy Dangora Erickson, "Toward an Inclusive Pedagogy through Universal Design for Learning in Higher Education: A Review of the Literature.," *Journal of Postsecondary Education and Disability* 33, no. 2 (2020): 183–99.
[54] Bray et al., "What next for Universal Design for Learning? A Systematic Literature Review of Technology in UDL Implementations at Second Level."
[55] Fornauf and Erickson, "Toward an Inclusive Pedagogy through Universal Design for Learning in Higher Education: A Review of the Literature."
[56] Cumming and Rose, "Exploring Universal Design for Learning as an Accessibility Tool in Higher Education: A Review of the Current Literature."
[57] Cumming and Rose, "Exploring Universal Design for Learning as an Accessibility Tool in Higher Education: A Review of the Current Literature."
[58] Ritanjali Panigrahi, Praveen Ranjan Srivastava, and Dheeraj Sharma, "Online Learning: Adoption, Continuance, and Learning Outcome—A Review of Literature," *International Journal of Information Management* 43 (December 2018): 1–14, https://doi.org/10.1016/j.ijinfomgt.2018.05.005.
[59] David H. Rose et al., "Universal Design for Learning in Postsecondary Education: Reflections on Principles and Their Application.," *Journal of Postsecondary Education and Disability* 19, no. 2 (2006): 135–51.

METHODOLOGY

Research Paradigm

This research was guided and underpinned by an interpretive paradigm. The interpretive research paradigm, or interpretivism, is a philosophical method for understanding and interpreting the significance of human experiences and social phenomena.[60] It contrasts with the positivist paradigm, which emphasizes objective measurement and quantitative facts. The interpretive research paradigm tries to comprehend the complexity, nuance, and subjective nature of human experiences.[61] It emphasizes context, meaning-making, and knowledge co-construction using qualitative approaches, intending to provide a deep, rich understanding of social processes.[62]

Research Design

The paper used a qualitative study design that aligned with the identified paradigm. A qualitative research approach primarily investigates and identifies issues related to a poorly understood topic.[63] This research approach was chosen for this paper because it is relevant to the interpretive paradigm. The interpretive paradigm requires the researcher to be an active participant and observer who engages in activities and differentiates the meanings of actions as they are expressed within specific social contexts.[64]

Population and Sample

This study focused on lecturers' perceptions from the Central University of Technology in South Africa. To collect thorough data from this demographic and get a more detailed picture of the issue under investigation. The target population consisted of lecturers in the humanities faculty, and six lecturers were approached and interviewed to respond to open-ended, self-administered questions. Purposive sampling is mainly used in qualitative research to enable the researcher to focus on characteristics of a population that are of interest and can help the researcher answer the research questions. This type of sampling is also known as judgemental, selective, or subjective.[65] Again, the purposive sampling approach was chosen because it is widely used in qualitative studies. This approach is used in applied research, and non-probability methods are used to select the sample.[66]

This study was steered by two primary research questions, which were used to establish the lecturers' opportunities and challenges regarding online formative assessments. The main research questions were: "What is your opinion on the benefits of incorporating formative online assessments in university courses?" and "What are the main challenges lecturers face when implementing formative online assessments?" Data for this paper was collected through interviews.

Data Collection

This study collected data through individual interviews, following the interpretive paradigm. Interviews were conducted face-to-face between February and April 2024. Individual interviews were employed because they were suitable for collecting the qualitative data required. Interviews were chosen because they characterise the interpretive paradigm. Interviews are critical within the interpretive paradigm because, according to King and Horrocks, interpretive research is mostly idiographic. Idiographic means "describing aspects of the social world by offering a detailed account of specific social settings, processes or relationships."[67] Semi-structured interviews were preferred over structured and unstructured interviews because they allow the researcher to vary the structure of questions, allowing for greater flexibility.[68] Ten semi-structured questions were developed in advance, encompassing themes like the investigation.

---

[60] Husam Helmi Alharahsheh and Abraham Pius, "A Review of Key Paradigms: Positivism VS Interpretivism," *Global Academic Journal of Humanities and Social Sciences* 2, no. 3 (2020): 39–43.
[61] Ma Junjie and Ma Yingxin, "The Discussions of Positivism and Interpretivism.," *Online Submission* 4, no. 1 (2022): 10–14.
[62] Alharahsheh and Pius, "A Review of Key Paradigms: Positivism VS Interpretivism."
[63] L. Cohen, L. Manion, and K. Morrison, *Research Methods in Education* (New York, NY: Routledge, 2018).
[64] Cohen, Manion, and Morrison, *Research Methods in Education*.
[65] Cohen, Manion, and Morrison, *Research Methods in Education*.
[66] Cohen, Manion, and Morrison, *Research Methods in Education*.
[67] N. King and C. Horrocks, *Interviews in Qualitative Research* (Los Angeles: SAGE Publications, 2011).
[68] Denzin K. Norman and Yvonna S Lincoln, *The Sage Handbook of Qualitative Research* (Chicago: SAGE Publications, 2017).

Interviews were chosen for this paper to understand the social settings, processes, or relationships that lecturers find themselves in. Face-to-face individual interviews were conducted at the lecturers' offices, and data was captured using an audio recorder. Participants were interviewed once, each lasting 45 to 60 minutes per session. The study complied with the ethical requirements of the university, which stipulates that participants should sign consent forms, have the right to withdraw from the research, and use pseudonyms to protect the participants' identities. Also, in compliance with the ethical requirement, participants were assured that their data would only be used for this study and stored electronically. The acquired data was reduced and analyzed by determining themes, looking at emerging patterns, and noting the reflections. Also, codes organized the information drawn from field notes, interviews, and information from different sources. Lastly, patterns were identified, noting generalizations, commonalities, and differences.

Data Analysis

Data for this study was analyzed using a thematic data approach. Thematic data analysis can be a valuable approach to understanding the opportunities and challenges experienced by lecturers regarding formative online assessments. Thematic analysis is a flexible and widely used qualitative research method that involves identifying, analysing, and interpreting patterns or themes within data.[69] This approach can help uncover lecturers' lived experiences and perspectives, which is crucial for improving online assessment practices and supporting educators during disruption.[70]

One essential step in thematic analysis is conducting inductive coding, where the researcher remains open to emerging themes based on the data collected rather than imposing pre-determined categories.[71] This aligns well with the exploratory nature of the research prompt, as it allows for the capture of unanticipated insights and a deeper understanding of the lecturers' experiences.[72]

The analytical process typically involves several iterative steps, including familiarizing oneself with the data, generating initial codes, searching for themes, reviewing and refining the themes, and finally, defining and naming the themes.[73] By systematically organizing and interpreting the data, the researcher can identify patterns and draw meaningful conclusions about the lecturers' perspectives on formative online assessments.[74]

The findings from this thematic analysis can provide valuable insights to inform the development of effective online assessment strategies, support lecturers in navigating the challenges of remote teaching, and ultimately enhance the quality of online learning experiences for students and lecturers at the CUT and other higher education institutions.

PRESENTATION OF FINDINGS AND DISCUSSIONS

The study's findings shed light on the multifaceted landscape of formative online assessments for lecturers at CUT. The opportunities identified, such as personalized feedback, immediate results, and adaptive learning techniques, underscore the potential for enhancing student learning experiences. The ability to tailor feedback to individual students in real time fosters a sense of ownership over their learning journey and empowers them to address specific areas of improvement. However, the challenges highlighted in the study bring to the forefront the complexities accompanying the integration of formative online assessments. Technological barriers, such as access to reliable internet connections and navigating

[69] Sonali Bhattacharya, Venkatesha Murthy, and Shubhasheesh Bhattacharya, "The Social and Ethical Issues of Online Learning during the Pandemic and Beyond," *Asian Journal of Business Ethics* 11, no. 1 (June 20, 2022): 275–93, https://doi.org/10.1007/s13520-022-00148-z.

[70] Azrul Che Yusof, Sara Chinnasamy, and Shifa Faizal, "COVID-19 Pandemic and Online Distance Learning (ODL) Issues among Malaysian Secondary School Teachers," *International Journal of Academic Research in Business and Social Sciences* 13, no. 4 (April 30, 2023), https://doi.org/10.6007/IJARBSS/v13-i4/16677.

[71] Che Yusof, Chinnasamy, and Faizal, "COVID-19 Pandemic and Online Distance Learning (ODL) Issues among Malaysian Secondary School Teachers."

[72] Iryna Sharaievska et al., "'Messy Transitions': Students' Perspectives on the Impacts of the COVID-19 Pandemic on Higher Education," *Higher Education*, April 20, 2022, https://doi.org/10.1007/s10734-022-00843-7.

[73] Bhattacharya, Murthy, and Bhattacharya, "The Social and Ethical Issues of Online Learning during the Pandemic and Beyond."

[74] Kholoud Imhammad Al-Mseidin, "Post Pandemic Readjustment to Traditional Education System: Analyzing Difficulties of University Students and Recommendations," *International Journal of Childhood, Counselling and Special Education* 5, no. 1 (June 2023): 1–7, https://doi.org/10.31559/CCSE2023.5.1.1.

online assessment platforms, impede the seamless implementation of online assessments. Also, lecturers and students face issues around technological literacy challenges.

Investigating lecturers' perceptions of opportunities and challenges regarding online assessments yielded seven main themes. These themes included pedagogical integration of online assessments, customization of assessments to individual learning needs, integration of formative feedback mechanisms, personalized feedback strategies, addressing technological challenges, academic integrity measures, and continuous professional development.

On the theme of "pedagogical integration of online assessments," the investigation revealed that many lecturers are integrating online assessments with pedagogical principles to create a more interactive and engaging learning environment. For instance, one lecturer reported that:

> "*Online assessments enable me to utilize a variety of question formats, including multiple-choice, short-answer, and interactive drag-and-drop exercises to cater to different learning styles and promote active participation."*

By aligning the assessments with learning outcomes and course objectives, lecturers can ensure that the assessments effectively measure students' understanding and mastery of the material. Additionally, incorporating multimedia elements, such as videos, audio clips, and interactive simulations, enhances the authenticity of assessment tasks and provides a richer learning experience for students.

Second, when addressing the theme "customization of assessments to individual learning needs," a closer examination of the strategies employed by lecturers in implementing formative online assessments reveals a strong emphasis on customization to cater to individual learning needs. Lecturers reported utilizing adaptive assessment tools that adjust the difficulty level based on students' performance, providing personalized learning pathways tailored to each student's progress. One of them said

"*It affords me an opportunity to use adaptive tools to cater to special learning needs."*

This customization aligns with the principles of differentiated pedagogy, allowing for accommodating diverse learning paces and styles within a single assessment framework. Moreover, incorporating branching scenarios in assessments will enable students to explore various decision paths, promoting critical thinking and problem-solving skills while providing immediate feedback based on their choices.

Examining the implementation strategies under the "integration of formative feedback mechanisms." it became evident that lecturers have embraced the integration of formative feedback mechanisms within online assessments to enhance the learning process. By rubrics, comments, and multimedia annotations, educators can provide insightful feedback beyond merely correcting answers, focusing on guiding students toward more profound understanding and improvement. Furthermore, integrating peer review and self-assessment components in online assessments empowers students to actively evaluate their learning progress and engage in constructive discussions with their peers.

An in-depth exploration of "personalized feedback strategies" uncovers lecturers' diverse approaches to providing personalized feedback through online assessments. Most lecturers mentioned using rubrics, audio feedback, and detailed written comments to offer tailored guidance to students. For instance, one lecturer mentioned that:

> *"These assessments made me easily provide feedback to students at different levels of understanding."*

Another one said that.

> *"I was able to provide feedback to individual students who needed special attention."*

The use of rubrics not only conveys clear expectations but also facilitates consistent and constructive feedback. Leveraging audio feedback enables lecturers to convey tone and emphasis, fostering a more personal connection with students. Moreover, integrating peer feedback mechanisms through online platforms was highlighted as a powerful strategy to enhance collaborative learning and develop students' critical evaluation skills.

When enquiring about the theme "addressing technological challenges," it became apparent that lecturers are implementing various strategies to mitigate these obstacles. The CUT has established technology support teams to assist lecturers in troubleshooting technical issues and navigating online assessment platforms. However, since South Africa is a third-world country, technical glitches and connectivity issues have emerged as significant impediments to the effective implementation of online assessments, posing significant threats to academic integrity and student performance. Adopting alternative assessment platforms that accommodate offline submissions and asynchronous assessments has circumvented some connectivity issues. Lecturers have also emphasized the importance of fostering digital literacy among students, equipping them with the skills to navigate online assessment environments effectively.

The technological challenges associated with online assessments demand proactive measures to ensure a seamless and equitable learning environment. Higher education institutions must prioritize infrastructure upgrades and accessibility initiatives to bridge the digital divide and provide all students with consistent access to online assessment tools. Additionally, offering technical support services and training programs can empower lecturers to navigate online assessment platforms effectively and troubleshoot potential issues, fostering a more confident and proficient teaching community.

In response to concerns about academic integrity, a closer examination revealed that lecturers employ multifaceted approaches to minimize the risk of cheating in online assessments. One of the lecturers said:

> *"I use different strategies to curb cheating during online tests, but students need to find a way to do it.*"

Another said:

> *"We plan thoroughly to avoid cheating by students, but they are, in most cases, ahead of us."*

Even though the success rate in curbing cheating during online assessments is not high, lecturers indicated that they use randomized question banks and adaptive assessment algorithms to create personalized assessment experiences for each student, reducing the likelihood of unauthorized collaboration or cheating. Moreover, integrating technology-enhanced academic integrity tools, such as plagiarism detection software and secure browser settings, reinforces online assessments' ethical conduct and validity.

Mitigating concerns about academic integrity and assessment security requires a multi-faceted approach. Implementing robust proctoring solutions, integrating plagiarism detection tools, and establishing clear guidelines on ethical conduct in online assessments are vital steps in promoting academic honesty and upholding the integrity of the evaluation process.

Lecturers' responses regarding "continuous professional development" proved that lecturers actively engage in continuous professional development to refine their skills in designing and implementing formative online assessments. Participation in workshops, webinars, and peer mentorship programs enables lecturers to stay abreast of emerging assessment strategies and technological advancements. Moreover, collaborative learning communities within the CUT provide a platform for lecturers to share best practices and learn from each other's experiences, fostering a culture of innovation and continuous improvement.

Collaborative initiatives and knowledge-sharing platforms are pivotal in promoting professional growth and innovation among educators. Encouraging cross-disciplinary collaboration and the exchange of best practices can foster a vibrant community of practice where lecturers can draw inspiration from diverse perspectives and collectively strive for excellence in online assessment practices.

RECOMMENDATIONS

This study provides valuable insights that can help higher education institutions, faculty, lecturers, and students navigate the evolving landscape of online learning and assessment. The key conclusion drawn from the literature is that while online assessments offer significant advantages, such as improved student engagement and flexible learning opportunities, they also present unique challenges for lecturers. These challenges include ensuring instructional clarity, facilitating meaningful student-lecturer interactions, and mitigating technological barriers that hinder the learning experience.

To address these challenges and optimize the benefits of formative online learning, this study recommends, among other things, that higher education institutions implement quality assurance measures to ensure that lecturers' oral, written, and content clarity is consistently high. Research indicates a mismatch between lecturers' perceptions of their instructional clarity and students' experiences. Lecturers should be provided with training and resources to effectively facilitate student-centred interactions online, as research suggests that such interactions can enhance the learning experience.

Furthermore, fostering a culture of collaboration and knowledge-sharing among lecturers through cross-disciplinary initiatives and best practice exchange can create a vibrant community of practice. This collaborative approach can enable lecturers to draw inspiration from diverse perspectives and collectively strive for excellence in online assessment practices.

Institutions should prioritize investment in robust and reliable technological infrastructure to support online learning and assessment, as issues with internet access and platform stability can undermine the effectiveness of online learning. Both lecturers and students should receive comprehensive training and support to ensure efficient use of technology in the online learning environment, as research indicates that early-stage exposure to appropriate education and training is crucial for the successful implementation of online learning.

Also noteworthy is that using data analytics and learning management systems offers valuable insights into student progress, learning patterns, and areas of improvement. By leveraging these tools, lecturers can identify at-risk students, tailor interventions to specific learning needs, and track the effectiveness of their instructional methods. This data-driven approach enhances individual students' learning experience and allows lecturers to continuously refine and optimize their assessment strategies for overall student success.

By addressing these recommendations, educational institutions can empower lecturers to harness the full benefits of online assessments while mitigating the associated challenges. This will pave the way for a dynamic and inclusive learning environment catering to today's students' diverse needs and aspirations.

CONCLUSION

The research findings presented in this paper provide valuable insights into the opportunities and challenges that lecturers face when integrating formative online assessments into their teaching practices at the University of Technology. The study revealed that while online platforms offer several advantages, such as timely feedback and personalized learning experiences, significant challenges must be addressed to ensure effective implementation. One key opportunity identified is the potential for online formative assessments to boost student engagement and motivation. By offering frequent and immediate feedback, instructors can assist students in pinpointing areas for improvement and adapting their learning strategies as needed. Moreover, the flexibility and convenience of online assessments enhance accessibility for students, particularly those with diverse learning needs or varying schedules. The study has also underscored various challenges that lecturers face when implementing these assessments. Key concerns revolve around reliability and validity, especially in maintaining academic integrity and preventing cheating. Additionally, integrating online assessments into current pedagogical strategies presents a considerable challenge; lecturers must thoughtfully design assessments that align with intended learning outcomes and foster meaningful learning experiences. To tackle these challenges, the research recommends that higher education institutions offer comprehensive support and training for lecturers. Such training would equip them to design, implement, and evaluate formative online assessments more effectively. Furthermore, institutions should invest in a strong technological infrastructure and robust cybersecurity measures to maintain the integrity and reliability of these assessments.

In conclusion, the results of this multifaceted study highlight the intricate nature of incorporating formative online assessments within the higher education landscape. While these assessment methods offer considerable potential, their practical implementation necessitates a comprehensive approach that accounts for technological and pedagogical considerations. Educational institutions and instructors must proactively address challenges, such as maintaining academic integrity and ensuring alignment of assessments with learning outcomes, while capitalizing on opportunities for improved student engagement, personalized feedback, and flexible access. By embracing this multidimensional strategy,

institutions and educators can collaborate to provide high-quality, engaging, and impactful formative assessments that significantly enhance student learning and promote academic success.

LIMITATIONS AND FUTURE RESEARCH

One of the study's primary limitations is its narrow focus on a single institution, which may limit the generalizability of the findings to other universities or educational contexts. The study could be expanded to include a broader range of institutions, potentially across different regions or educational systems, to provide a more comprehensive understanding of the challenges and opportunities associated with formative online assessments.

Additionally, the study primarily relied on qualitative data, such as interviews, which may not capture the full range of lecturers' experiences and perspectives. Future research could incorporate quantitative methods, such as surveys, to gather a larger sample of data and provide a more robust statistical analysis of the factors influencing lecturers' perceptions and practices.

Furthermore, the study did not explore the potential impact of formative online assessments on student learning outcomes or academic performance. Future research could investigate the relationship between the implementation of formative online assessments and student success and any potential differences in the effectiveness of these assessments across different subject areas or student demographics.

Overall, the research article provides a valuable starting point for understanding the opportunities and challenges associated with formative online assessments in the context of a South African technology university. However, further research is needed to expand the scope and depth of the findings and explore the potential impact of these assessment practices on student learning and academic success.

DECLARATIONS

Author Contributions: PPM contributed to the study's conception and design, data collection, analysis and interpretation, and drafting and revision of the article. As the sole author, I have read and approved the publishing of the article's final version.

Funding: "This research did not receive any external funding.

Acknowledgments: I would like to thank the lecturers from the Faculty of Humanities at CUT for agreeing to participate in this study and my family for their unwavering support.

Conflicts of interest: None.

BIBLIOGRAPHY

Al-Kumaim, Nabil Hasan, Abdulsalam K Alhazmi, Fathey Mohammed, Nadhmi A Gazem, Muhammad Salman Shabbir, and Yousef Fazea. “Exploring the Impact of the COVID-19 Pandemic on University Students’ Learning Life: An Integrated Conceptual Motivational Model for Sustainable and Healthy Online Learning.” *Sustainability* 13, no. 5 (2021): 2546.

Al-Mseidin, Kholoud Imhammad. “Post Pandemic Readjustment to Traditional Education System: Analyzing Difficulties of University Students and Recommendations.” *International Journal of Childhood, Counselling and Special Education* 5, no. 1 (June 2023): 1–7. https://doi.org/10.31559/CCSE2023.5.1.1.

Alharahsheh, Husam Helmi, and Abraham Pius. “A Review of Key Paradigms: Positivism VS Interpretivism.” *Global Academic Journal of Humanities and Social Sciences* 2,no.3(2020):39–43.

Alvermann, Donna E., and Margaret C. Hagood. “Critical Media Literacy: Research, Theory, and Practice in ‘New Times.’” *The Journal of Educational Research* 93, no. 3 (January 2000): 193–205. https://doi.org/10.1080/00220670009598707.

Baleni, Zwelijongile Gaylard. “Online Formative Assessment in Higher Education: Its Pros and Cons.” *Electronic Journal of E-Learning* 13, no. 4 (2015): pp228-236.

Bhattacharya, Sonali, Venkatesha Murthy, and Shubhasheesh Bhattacharya. “The Social and Ethical Issues of Online Learning during the Pandemic and Beyond.” *Asian Journal of Business Ethics* 11, no. 1 (June 20, 2022): 275–93. https://doi.org/10.1007/s13520-022-00148-z.

Bray, Aibhin, Ann Devitt, Joanne Banks, Sergio Sanchez Fuentes, Marta Sandoval, Katerina Riviou, Darren Byrne, Margaret Flood, Jean Reale, and Silvia Terrenzio. “What next for Universal Design for Learning? A Systematic Literature Review of Technology in UDL Implementations at Second

Level." *British Journal of Educational Technology* 55, no. 1 (2024): 113–38.
Che Yusof, Azrul, Sara Chinnasamy, and Shifa Faizal. "COVID-19 Pandemic and Online Distance Learning (ODL) Issues among Malaysian Secondary School Teachers." *International Journal of Academic Research in Business and Social Sciences* 13, no. 4 (April 30, 2023). https://doi.org/10.6007/IJARBSS/v13-i4/16677.
Cheng, An-Chih, Michelle E. Jordan, and Diane L. Schallert. "Reconsidering Assessment in Online/Hybrid Courses: Knowing versus Learning." *Computers & Education* 68 (October 2013): 51–59. https://doi.org/10.1016/j.compedu.2013.04.022.
Cohen, L., L. Manion, and K. Morrison. *Research Methods in Education*. New York, NY: Routledge, 2018.
Cullinan, John, Darragh Flannery, Jason Harold, Seán Lyons, and Dónal Palcic. "The Disconnected: COVID-19 and Disparities in Access to Quality Broadband for Higher Education Students." *International Journal of Educational Technology in Higher Education* 18, no. 1 (December 21, 2021): 26. https://doi.org/10.1186/s41239-021-00262-1.
Cumming, Therese M, and Megan C Rose. "Exploring Universal Design for Learning as an Accessibility Tool in Higher Education: A Review of the Current Literature." *The Australian Educational Researcher* 49, no. 5 (2022): 1025–43.
Day, Terence, I-Chun Catherine Chang, Calvin King Lam Chung, William E. Doolittle, Jacqueline Housel, and Paul N. McDaniel. "The Immediate Impact of COVID-19 on Postsecondary Teaching and Learning." *The Professional Geographer* 73, no. 1 (January 2, 2021): 1–13. https://doi.org/10.1080/00330124.2020.1823864.
Dukes, Lyman L., Mark A. Koorland, and Sally S. Scott. "Making Blended Instruction Better: Integrating the Principles of Universal Design for Instruction into Course Design and Delivery." *Action in Teacher Education* 31, no. 1 (April 2009): 38–48. https://doi.org/10.1080/01626620.2009.10463509.
Dyer, Jarret M, Heidi C Pettyjohn, and Steve Saladin. "Academic Dishonesty and Testing: How Student Beliefs and Test Settings Impact Decisions to Cheat," 2020.
Fornauf, Beth S, and Joy Dangora Erickson. "Toward an Inclusive Pedagogy through Universal Design for Learning in Higher Education: A Review of the Literature." *Journal of Postsecondary Education and Disability* 33, no. 2 (2020): 183–99.
Gamage, Kelum A.A., Erandika K. de Silva, and Nanda Gunawardhana. "Online Delivery and Assessment during COVID-19: Safeguarding Academic Integrity." *Education Sciences* 10, no. 11 (October 25, 2020): 301. https://doi.org/10.3390/educsci10110301.
Gamage, Sithara H. P. W., Jennifer R. Ayres, Monica B. Behrend, and Elizabeth J. Smith. "Optimising Moodle Quizzes for Online Assessments." *International Journal of STEM Education* 6, no. 1 (December 13, 2019): 27.https://doi.org/10.1186/s40594-019-0181-4.
Gikandi, Joyce Wangui, Donna Morrow, and Niki E Davis. "Online Formative Assessment in Higher Education: A Review of the Literature." *Computers & Education* 57, no. 4 (2011): 2333–51.
Horstmanshof, Louise, and Sonya Brownie. "A Scaffolded Approach to Discussion Board Use for Formative Assessment of Academic Writing Skills." *Assessment & Evaluation in Higher Education* 38, no. 1 (February 2013): 61–73. https://doi.org/10.1080/02602938.2011.604121.
Junjie, Ma, and Ma Yingxin. "The Discussions of Positivism and Interpretivism." *Online Submission* 4, no. 1 (2022): 10–14.
Kemp, Nenagh, and Rachel Grieve. "Face-to-Face or Face-to-Screen? Undergraduates' Opinions and Test Performance in Classroom vs. Online Learning." *Frontiers in Psychology* 5 (November 12, 2014). https://doi.org/10.3389/fpsyg.2014.01278.
King, N., and C. Horrocks. *Interviews in Qualitative Research*. Los Angeles: SAGE Publications, 2011.
Kushwaha, Ravindra Kumar, and Chandan Singh. "Building Teacher Capacity for Inclusive Education: A Professional Development Model Using Technology and UDL." *IJRAEL: International Journal of Religion Education and Law* 2, no. 2 (August 1, 2023): 97–104. https://doi.org/10.57235/ijrael.v2i2.499.
Ndlovu-Gatsheni, S. *Coloniality of Power in Postcolonial Africa: Myths of Decolonisation*. Dakar:

Council for the Development of Social Science Research in Africa, 2013.
Nordmann, Emily, Chiara Horlin, Jacqui Hutchison, Jo-Anne Murray, Louise Robson, Michael K. Seery, and Jill R. D. MacKay. "Ten Simple Rules for Supporting a Temporary Online Pivot in Higher Education." *PLOS Computational Biology* 16, no. 10 (October 1, 2020): e1008242. https://doi.org/10.1371/journal.pcbi.1008242.
Norman, Denzin K., and Yvonna S Lincoln. *The Sage Handbook of Qualitative Research*. Chicago: SAGE Publications, 2017.
Opateye, Johnson. "Using Proctoring Online Examination System for Building Resilient Assessment Administration: The National Open University of Nigeria Students' Readiness." In *Tenth Pan-Commonwealth Forum on Open Learning*. Commonwealth of Learning, 2022. https://doi.org/10.56059/pcf10.9382.
Padayachee, Kershee, Mapula Matimolane, and Rita Ganas. "Addressing Curriculum Decolonisation and Education for Sustainable Development through Epistemically Diverse Curricula." *South African Journal of Higher Education* 32, no. 6 (2018): 288–304.
Padayachee, P., S. Wagner-Welsh, and H. Johannes. "Online Assessment in Moodle: A Framework for Supporting Our Students." *South African Journal of Higher Education* 32, no. 5 (October 2018). https://doi.org/10.20853/32-5-2599.
Panigrahi, Ritanjali, Praveen Ranjan Srivastava, and Dheeraj Sharma. "Online Learning: Adoption, Continuance, and Learning Outcome—A Review of Literature." *International Journal of Information Management* 43 (December 2018): 1–14. https://doi.org/10.1016/j.ijinfomgt.2018.05.005.
Phippen, Andy, Emma Bond, and Ellen Buck. "Effective Strategies for Information Literacy Education: Combatting 'Fake News' and Empowering Critical Thinking." In *Future Directions in Digital Information*, 39–53. Elsevier, 2021. https://doi.org/10.1016/B978-0-12-822144-0.00003-3.
Picciano, Anthony. "Blending with Purpose: The Multimodal Model." *Journal of the Research Center for Educational Technology* 5, no. 1 (2009): 4–14.
Ramachandran, Muthu. "Best Practice Guidelines for Technology Enhanced E-Learning." In *2016 9th International Conference on Developments in ESystems Engineering (DeSE)*, 191–96. IEEE, 2016. https://doi.org/10.1109/DeSE.2016.33.
Reeves, Thomas C. "Alternative Assessment Approaches for Online Learning Environments in Higher Education." *Journal of Educational Computing Research* 23, no. 1 (July 1, 2000): 101–11. https://doi.org/10.2190/GYMQ-78FA-WMTX-J06C.
Rose, David H, Wendy S Harbour, Catherine Sam Johnston, Samantha G Daley, and Linda Abarbanell. "Universal Design for Learning in Postsecondary Education: Reflections on Principles and Their Application." *Journal of Postsecondary Education and Disability* 19, no. 2 (2006): 135–51.
Sabrina, Fariza, Salahuddin Azad, Shaleeza Sohail, and Sweta Thakur. "Ensuring Academic Integrity in Online Assessments: A Literature Review and Recommendations." *International Journal of Information and Education Technology* 12, no. 1 (2022): 60–70. https://doi.org/10.18178/ijiet.2022.12.1.1587.
Seymour, Mairead. "Enhancing the Online Student Experience through the Application of Universal Design for Learning (UDL) to Research Methods Learning and Teaching." *Education and Information Technologies* 29, no. 3 (February 14, 2024): 2767–85. https://doi.org/10.1007/s10639-023-11948-6.
Sharaievska, Iryna, Olivia McAnirlin, Matthew H. E. M. Browning, Lincoln R. Larson, Lauren Mullenbach, Alessandro Rigolon, Ashley D'Antonio, et al. "'Messy Transitions': Students' Perspectives on the Impacts of the COVID-19 Pandemic on Higher Education." *Higher Education*, April 20, 2022. https://doi.org/10.1007/s10734-022-00843-7.
Smith, Frances G. "Analyzing a College Course That Adheres to the Universal Design for Learning (UDL) Framework." *Journal of the Scholarship of Teaching and Learning*, 2012, 31–61.
Tang, Xian. "Course Teaching Reform Research of English Academic Paper Writing for English Majors Based on Blended Learning," 2021. https://doi.org/10.2991/assehr.k.211011.091.

ABOUT AUTHOR

Dr. Paseka Patric Mollo serves as a senior lecturer in the Department of Educational and Professional Studies within the Faculty of Humanities at the Central University of Technology (CUT) in Free State. He earned his Doctor of Education (D.Ed.) degree from CUT. Dr. Mollo teaches at the undergraduate level and supervises Master's and Doctoral students. He has presented numerous papers at both national and international conferences, published in various journals, and contributed to book chapters. His research interests center on teacher education and development, with a particular focus on the integration of Information Communications Technology (ICT) in teaching and learning, micro-teaching, assessment, and TVET college education. Prior to his tenure at CUT, Dr. Mollo held several positions in the education sector, beginning as a teacher and Head of the Department for Mathematics and Technology. He later served as a lecturer at a College of Education and a part-time lecturer at the former University of the North (Qwaqwa Branch). Subsequently, he advanced to the role of First Education Specialist and then Senior Education Specialist at the Free State Department of Education, where he was responsible for in-service training and the professional development of teachers. Dr. Mollo was later appointed Deputy Chief Education Specialist for the Department of Higher Education and Training (DHET), overseeing TVET college management and institutional development.