digiTAL 2023

Book of Abstracts

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INTERNATIONAL CONFERENCE ON TEACHING, ASSESSMENT AND LEARNING IN THE DIGITAL AGE

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INTERNATIONAL CONFERENCE ON
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Prof Chenicheri Sid Nair (Victorian Institute of Technology, Australia)

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Preface

digiTAL 2023 is the fourth edition of the international conference on Teaching, Assessment and Learning in the Digital age and was held in Cape town, South Africa. The theme for 2023 is "Purposeful Outcomes for Digital Delivery".

The 2023 conference had, a total of 130 submissions were submitted from South Africa, Nigeria, Mauritius, Australia, Eswatini, Namibia, Ghana, Zimbabwe, Ireland, and Kenya.

In this publication the Book of Abstracts, 44 abstracts which were presented at the conference is published in this edition. The abstracts cover a number of topics digital teaching and learning; artificial Intelligence, big data, lecturer's performance and evaluation, digital transformation of teaching and learning, academic integrity, use of reflective journals, learning management analytics, digital assessment, use of smart hones ant other devices, and tools specific to discipline to enhance teaching and learning.

Professor Sid Nair (Victorian Institute of Technology, Australia)

Dr. Upasana Singh (University of KwaZulu-Natal, South Africa)

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An Evaluation of Digital and Artificial Intelligent Tools in an Electronic and Computer Engineering Curriculum at a University of Technology in South Africa

Shaveen Maharaj and Nelendran Pillay
Durban University of Technology, South Africa

Digital tools have become integral to higher education, offering a wide array of opportunities for improving the learning experience. This study explores the adoption and impact of digital tools in engineering education. The study employed a mixed-methods approach, utilizing quantitative data and qualitative data collection. Participants included both staff and students in a comprehensive analysis. The integration of technology in higher education has witnessed significant growth, encompassing educational software, learning management systems (LMS), and online platforms. In engineering education, tools like Moodle, MATLAB, Turnitin, Simulink, and MS Teams have gained prominence (Joksimović & Milosavljević, 2016). However, their effectiveness in achieving educational goals remains to be fully evaluated. One key advantage of digital tools is personalized learning. Advancements in technology, including artificial intelligence (AI), enable adaptive learning software like ChatGPT to tailor lesson plans based on individual needs. Furthermore, digital tools expand students' access to resources, such as online lectures, readings, and simulations, supplementing traditional teaching methods. They also facilitate collaborative learning and group projects through platforms like Moodle and Blackboard, enabling effective communication, document sharing, and teamwork. The findings of this study shed light on the current landscape of digital tools in engineering education. A SWOT analysis is applied to inform future strategies. The study emphasizes the need for a comprehensive evaluation of the effectiveness of these tools and their potential to transform engineering education. This research contributes to the ongoing dialogue on optimizing digital tools for personalized learning and collaborative education in engineering programs. It underscores the importance of evaluating their impact and tailoring their use to enhance the overall educational experience.

Keywords: Digital Tools, AI Tools, Moodle, MATLAB, Turnitin, Simulink

Artificial intelligence and foreign language learning: a few important advantages

Karen Ferreira-Meyers
University of Eswatini, Eswatini

Artificial Intelligence (AI) tools have revolutionised the field of student advising in Open, Distance and e-Learning (ODeL) programmes (Page and Gehlback, 2017; Alam, 2022). With the increasing adoption of online and remote learning, AI-powered advising tools have emerged as invaluable resources for providing personalised and timely guidance to students learning foreign languages. My paper highlights the key aspects of AI tools for language learning in ODeL environments. It begins by discussing the challenges associated with the learning of languages in exolingual environments. It then delves into the various AI techniques and tools, including natural language processing, data mining and predictive analytics. Highlighting the benefits of AI-powered language learning, such as improved student retention, increased academic success and enhanced student satisfaction (Shorey et al., 2019), my paper also touches on the ethical considerations surrounding the use of AI (Kohnert, 2022) in language teaching and learning, including concerns related to privacy, bias, and transparency. In my conclusion, I note the importance of human involvement in the language teaching and learning process to maintain a balance between technology and human touch (Zawacki-Richter et al., 2019). The main research method for this exploratory study is literature review, with a focus on studies undertaken in Africa, in order to distil, through discourse analysis, essential issues and elements to consider when implementing AI tools for language teaching and learning in Southern Africa.

Keywords: artificial intelligence, foreign language learning, ODeL, human involvement, Africa

Assessing the Potential of Chatbots as Tutoring Tools in Engineering Education: A South African Case Study

Johannes Cronje, Lucrecia Valentine, Tinashe Tendayi, Bronwyn Swartz, Desiree Jaftha, Lilian Ganduri, Stephen Bosman, and Dennit Adams
Cape Peninsula University of Technology, South Africa

Artificial Intelligence (AI) has the potential to revolutionize education by providing personalized learning experiences to students. One promising application of AI is Chatbots, such as ChatGPT, which utilizes natural language processing (NLP) and machine learning techniques to understand and respond to student inquiries, and thereby can act as a tutor to assist students. The objective of this case study was to investigate the effectiveness of ChatGPT as a tutoring tool in one Engineering department at a University of Technology (UoT) in South Africa, using Diana Laurillard's 6 learning types as framework. The study examined how ChatGPT supported students across different learning activities, including acquisition, inquiry, discussion, practice, collaboration, and production. A survey was used to collect data from final year students (n=48) who used ChatGPT. The survey included questions related to the students' experiences and perceptions of ChatGPT's effectiveness in supporting their learning across the various learning types. Results indicate that ChatGPT is an effective tool for providing personalized tutoring to our students. We found that despite some challenges, such as AI hallucinations, ChatGPT demonstrated the ability to understand and respond to student inquiries efficiently, enhancing the overall learning experience across the different learning types identified by Laurillard's framework. These findings highlight the potential that ChatGPT has to transform Engineering Education as it caters to diverse learning needs of our students. This research contributes to the understanding of how AI tutors can enhance student outcomes and informs the integration of AI technologies in educational settings. We concluded that while AI has great potential, human tutors remain valuable but may be complemented by AI tutors for a more holistic learning experience.

Keywords: Engineering Education, Tutors, Chatbots, Artificial Intelligence

Big Data Analytics Adoption in South African Banks: Opportunities and Challenges

Sinethemba Dladla and Pelonomi Ramafi
Rhodes University, South Africa

In the era of rapid technological advancements, financial institutions, insurance companies, and banks are increasingly adopting data-driven strategies to meet customer demands and achieve their business objectives. This paper explores the potential of big data analytics (BDA) to enhance operational efficiency and customer value in the banking sector. The study aims to investigate the extent of BDA adoption by South African banks, its purposes, and the factors influencing its implementation, while providing relevant recommendations. Using a scoping review methodology, this study conducts an in-depth analysis of existing literature on BDA adoption in the South African banking sector. The findings highlight those South African banks are yet to fully leverage BDA due to sector-specific challenges. However, understanding the potential benefits that can be derived from its correct implementation remains crucial. The study reveals that big data empowers banks to explore new revenue streams and strengthen customer relationships by gaining a deeper understanding of customer preferences and needs. To fully capitalize on the advantages of big data analytics, South African banks must address the challenges they face and seek appropriate solutions. By overcoming these obstacles, banks can unlock the full potential of big data analytics and reap its benefits for improved performance and competitiveness.

Keywords: Big data analytics, data-driven strategies, South African banks, challenges, opportunities.

Beyond Enchantment: An Analysis of Educational Technology Through the Lens of Marshall McLuhan's Tetrad

Courtney Jade de Villiers
The IIE's Vega School, South Africa

"Any sufficiently advanced technology is indistinguishable from magic."

-Arthur C. Clarke

In a rapidly evolving technological landscape, "Magic" indeed provides a useful lexicon to conceptualise the extraordinary and enchanting gifts technology has facilitated: Remote teaching technologies have gifted educators and students with 'clairvoyance', researchers retrieving information through search engines and digital libraries are in essence 'scrying', netizens have become 'conjurers' and 'alchemists' through artificial intelligence and virtual reality interfaces, the internet of things makes 'telekinesis' an everyday occurrence and of course, email and instant messaging have made 'telepaths' of us all. While there is undoubtedly a huge amount of practical magic offered to the recipients and users of these technologies, this paper reflects on the concern that the widespread adoption and increasing reliance on digital educational technologies have not been fully considered, particularly in relation to the psychic well-being of students whose educational experiences are being largely mediated through technological environments. This paper employs Marshall McLuhan's theory of Media Ecology and Tetrad of Media Effects as a hermeneutic device to qualitatively analyse contemporary educational technologies - what these technologies enhance, diminish, retrieve and reverse from the individual and cultural psyche is explored. In an increasingly hybridised world, it is essential that educators and instructional designers look beyond the enchantments offered by educational technologies and consider the ways in which these types of media affect the psychic and metaphysical dimensions of learning and students' ability to generate meaning (and meaningfully) in the digital age.

Keywords: Educational Technology, Media Ecology, Marshall McLuhan, Digital Learning, Metaphysics.

Determinants for Measuring Lecturers Performances in Higher Education: Students Perspectives

Amos Anele, Chinedu Wilfred Okonkwo, and Suhayl Asmal
Eduvos, South Africa

The introduction of technology such as Artificial Intelligence (AI) has caused changes in many areas of life, including education. The higher education system fosters an environment in which students can learn and lecturers can teach to achieve national development goals. Lecturers are required to prove their skills or competency by applying some set of attitudes, behaviours, and techniques in the teaching and learning environment to achieve the expected learning experiences. Understanding the factors that influence the efficiency of a lecturer during classroom activities will aid in evaluate the performance of the lecturer. The appraisal and performance management are now major concerns in higher education. A lecturer's job is demanding and competitive, necessitating an effective performance evaluation based on key determinants. This study looked at the factors that influence how lecturers are evaluated in higher education. Several factors were investigated, including concept delivery, motivation, feedback, consultation, preparedness, teaching method, learning environment, equality, and skill acquisition. A survey was conducted using a questionnaire as an instrument of data collection. The collected data was analysed using standard statistical analysis software. The findings show that most of these factors are perceived to have a significant impact on the evaluation of lecturers' performance in higher education by the participants. These findings make theoretical and practical contributions by revealing more about students' perceptions of the factors used to evaluate lecturers' performance and assisting higher education institutions with the lecturer evaluation process.

Keywords: Determinants**,** Lecturer Performance, Higher Education, Students

Developing and Testing Youth-friendly digital health application to enhance HIV PrEP uptake in the Higher Education Sector in Gauteng Province, South Africa.

Paul Potsane, Charlene Downing, and Patrick Ndayizigamiye
University of Johannesburg, South Africa

HIV prevalence in South Africa is the highest in the world at 13.7%, with approximately 8.2 million people living with HIV in 2021. Despite the introduction of Pre-exposure prophylaxis (PrEP), young people in South Africa remain vulnerable to HIV infection. PrEP medication can reduce the risk of contracting HIV by 99% if it is taken consistently. However, the traditional methods of delivering health services for PrEP have been found to be a contributing factor to the low adoption of PrEP among young people. Therefore, it is hypothesized that the development of a youth-friendly digital health application will increase the use of PrEP among young people in universities in Gauteng Province. The purpose of this study is to design, develop, test, and evaluate a youth-friendly digital health application that will increase HIV PrEP utilization among young people in universities in Gauteng Province. This study will use an iterative Design Science Research Methodology to design, develop, test, and evaluate the novel digital application. This research will use a five-phase approach: problem identification, requirements determination, conceptual framework development, application development, testing, and evaluation. The analysis of the data will be conducted using the PLS (Partial Least Squares) analysis feature available in the SmartPLS 4 software in phase one. Phases two to five will involve the application of scientific techniques in the field of design science. The integration of mHealth into healthcare systems has the potential to greatly enhance nursing care and health engagement. This research will contribute to health promotion, HIV disease prevention, and high-quality healthcare service provision. A digital campus clinic (DCC) will be developed to promote HIV prevention services to young people, providing online consultations, lab test scheduling, medicine refill requests, and educational material. The application will increase the utilization of HIV PrEP among young people in universities in Gauteng Province.

Keywords: PrEP, digital health application, mhealth, and HIV prevention

Digital Literacy: A Foreign Language for Students from Rural Schools

Winiswa Mavutha
MANCOSA, South Africa[1]
Durban University of Technology, South Africa [2]

Tshepo Mabotja
Vaal University of Technology, South Africa

Digital literacy has become an imperative part of higher education, since the Covid-19 outbreak traditional institutions had to adapt digital learning techniques. However, students from rural schools were left in the dark. Since there are still some extremely poor schools in the rural parts of South Africa, where there is still no access to electricity. Therefore, the ability to use any digital tools remains a huge challenge for such students. The transition from a rural school to an urban higher education institution that is very tech savvy and living in the 4th industrial revolution is extensively difficult. Subsequently, the success of students from rural schools gets hindered. However, this doesn't necessary mean that these students are incapable of succeeding in their respective programs. This paper aims to explore the challenges faced by students from rural schools regarding digital literacy. The research methodology will be a quantitative approach, the sample will be drawn from students in traditional universities who are coming from rural high schools. The findings of this paper will be used to recommend ways of increasing the success rate of learners from rural schools in digital literacy and skills development for traditional universities in South Africa.

Keywords: Digital Literacy, Student Success, Higher Education, Rural Backgrounds

Digital Transformation in Teaching and Learning in South African Higher Education Institutions

Vusumzi Funda and Phila Mahamba
University of Fort Hare, South Africa

This research aims to explore the transformation of teaching and learning in South African Higher Education Institutions (HEIs) through the integration of digital technologies. In an era dominated by the fourth industrial revolution, universities are under increasing pressure to enhance online teaching and learning practices and foster a culture of technological adoption. The study focuses on investigating the extent to which South African HEIs have incorporated digital technology into their teaching and learning processes. It seeks to understand the strategies, initiatives, and tools employed by these institutions to facilitate digital integration. Furthermore, the research aims to evaluate the impact of digital technology on educational quality and student outcomes. Through a comprehensive literature review the study will examine the various approaches employed by South African HEIs to integrate digital technologies into their educational practices. It will explore the implementation of learning management systems, online collaboration tools, virtual classrooms, and other digital resources. Additionally, the research will assess the effectiveness of these initiatives in improving educational quality, enhancing student engagement, and impacting student results. The findings of this research will provide valuable insights into the current state of digital integration in South African HEIs and its influence on teaching and learning outcomes. The study aims to inform HEIs, policymakers and stakeholders about successful practices, challenges, and opportunities related to digital transformation in higher education. By identifying effective strategies and recommending improvements, this research aims to contribute to the advancement of digital education in South Africa and foster a technologically driven educational landscape.

Keywords: Digital Transformation, Higher Education Institutions, Technology, Teaching, Learning, Digital Integration

Effectiveness in maintaining academic integrity while using online proctoring for online assessment

Sibongile Simelane-Mnisi
Tshwane University of Technology, South Africa

Higher education lecturers and students demonstrate an extensive bias in support of the notion that online learning environments and assessments are more conducive to academic dishonesty and that cheating is more common there. This challenge was minimised by the dramatic increase in the use of online assessment proctoring tools, which was observed at the start of the Covid-19 pandemic during remote teaching in higher education institutions. The purpose of the study was to investigate the effectiveness of maintaining academic integrity while using online proctoring for online assessment. This study was motivated by the literature's concern that the lecturers and students' perspectives of online assessment proctoring services remain unexplored. Participants in this study were 106 lecturers and 592 students from the University of Technology, Faculty of Science in South Africa. A mixed-methods study was conducted. The data was gathered using both closed-ended and open-ended questionnaires. Quantitative data were analysed using SPSS's frequency distribution. Atlas.ti was used for the qualitative data analysis. The results revealed that 99.1% of the lecturers, their modules were available on the learning management systems. The findings showed that 89% of the students accessed learning management systems with smartphones. It was also found that 83.9% of the lecturers attended proctoring tool training. It was found that some of the students felt that the proctoring tool was confusing and time consuming because they had to write the test or examination, take photos, type, and upload. The findings revealed that some of the lecturers felt that the proctoring tool in general was good; however, it still did not prevent students from copying information and cheating. Higher education should move toward authentic assessments with a student-centred approach that promotes 21st-century skills required by the future graduate to survive in the current industry driven by digital technologies.

Keywords: academic integrity, proctoring tool, online assessment, learning management system, higher education

Encounters with projective identification: Utilising group debrief sessions to contain student teachers' anxiety

Sharon Margaretta Auld and Tracey Laura Haselau
The IIE's Varsity College, South Africa

Teaching experience - in face-to-face, online, and blended educational contexts - provides student teachers with the opportunity to participate in low, mid, and high-resourced schools, in preparation for their integration into the South African educational system. Often, while at low-resource schools, student teachers report feeling ineffectual, frustrated, despondent, and overwhelmed, leading to criticism of the programme, requests to transfer to high-resource alternatives, and threats to disengage from teaching experience. Drawing on Klein's concept of projective identification, and Bion's idea of container-contained, we understand such communications as expressions of overwhelming anxiety, highlighting an urgent need for intervention. To address this need, group debrief was incorporated into teaching experience, in an attempt to enable anxiety to be tolerated, worked through, and understood, rather than evacuated defensively via projective identification. Pre- and post-debrief questionnaires were employed to track containment facilitated with fifty (50) final (4th) year student teachers. Though some resistance was expected and noted, the outcomes were largely positive, with most students reporting reporting improved emotional states, reduced anxiety, and feelings of empowerment.

Keywords: *teaching experience, emotional labour, student teachers, container/contained, projective identification*

Enhancing Teaching and Learning Approaches: The Active Role of Artificial Intelligence in Higher Education

Shamola Pramjeeth and Priya Ramgovind
The IIE's Varsity College, South Africa

Artificial intelligence (AI) is revolutionizing higher education in ways that were once thought impossible. From personalized learning to predictive analytics, AI is changing the way we learn and teach. The study sought to understand academics and teaching and learning (T&L) specialists' perceptions of the use of AI tools on T&L at a private higher education institution (PHEI) in South Africa (SA), prior to the PHEI having a formal stance on the use of these tools at the institution. The contemporary SA education landscape is faced with several challenges and opportunities, each with the propensity to grow and shape future minds. One such disruptor is AI tools, resulting in higher education institutions (HEIs) either proactively or reactively responding based on their predisposition towards technology acceptance in higher education and teaching and learning specifically. Following an interpretivist paradigm and the purposive sampling approach, 40 academics and T&L specialists at a PHEI in SA, across all 9 sites of delivery, responded to the online open-ended questionnaire that was administered via MS Forms. Using Nvivo Pro12, content and thematic analysis was performed on the raw data. Three key themes emerged from the analysis: Lack of AI use, Permission of Use and Enhanced and Efficient Use of T&L. The study found that most participants did not have exposure to AI tools but were willing to explore the possibilities of integration into T&L. Participants that did use the tools did so in their personal capacity and not in their classroom teaching. There was a favoured response towards the PHEI implementing and encouraging the use of AI in HE as it is unavoidable. Integrating AI into T&L can create an environment of working smarter and not harder if used correctly, while there were divided views on AI serving as a framework for deeper learning, creativity and innovation.

Keywords: academic, artificial intelligence, perceptions, private higher education, teaching and learning

Enhancing the learning experiences of hospitality accounting students: The use of Online Reflective Journals

Rekha Maniram
Durban University of Technology, South Africa

This paper explores the benefits of employing online reflective journals as part of the learning experience in a first year hospitality accounting module. In recent years, reflective practices have gained increased traction in teaching and learning strategies, more especially in higher education. Some studies show that the employment of reflective tools promotes learning by probing experiences with a view to effective improvement. Advocates of reflective learning argue that researchers should focus their attention to searching deeper into the learning experiences of research participants, rather than the research outcome. Conversely, while online reflective journals provide an alternate means for participants to reflect on their learning, to date, only a few qualitative studies have been conducted on their use. An exploratory qualitative case study research design was used to capture the learning experiences of Hospitality Accounting students. At the start of the research process, the participants were inducted on how to access and maintain an online reflective journal by recording their daily learning experiences of hospitality accounting, digitally. Furthermore, participants were informed on the purpose and merits of online reflection as an added benefit for self-enrichment and consolidation of knowledge Data collection process began with the narratives from the online reflective journal, followed by individual semi structured individual interviews. Data from both sources were consolidated to arrive at common themes. themes that emerged from this study, included: 'Learning to learn; Feedback; Safe learning space and Getting it right. An implication for adopting online reflective journaling not only to delve deeper into the daily thoughts and experiences of a student; it also creates opportunities for the academic to unremittingly reflect into their own research practices and assumptions.

Keywords: Online reflections, online reflective journals, hospitality, accounting, learning experiences, reflective learning

Evaluation of the Performance and Experience of the Students Learning with AI Systems

Chinedu Wilfred Okonkwo, Amos Anele, and Kranthi Shikari
Eduvos, South Africa

The introduction of AI-powered technology has created a batch of new opportunities in a variety of industries. In the education domain, AI systems are used not only to improve students' interaction skills, but also to assist teaching faculty by bringing automation. The use of AI-Systems in education improves connectivity, efficiency, and reduces uncertainty in interactions. They can easily provide a focused, personalized, and result-oriented online learning environment, which is exactly what today's educational institutions require. Despite the positive implications of AIs' impact on educational transformation, there appears to be a debate about their inherent advantages and consequent benefits in comparison to previously existing standards. Research suggested for an evaluation of the effects of AI-supported learning systems on students' performance and perceptions rather than the effectiveness of AI systems. This paper investigated students' learning experiences and perceptions of existing AI systems. Several factors were considered, including student learning performance, learning motivation, learning anxiety, self-efficacy, and cognitive load. A survey was conducted using questionnaire as instrument of data collection. The collected data was analysed with a standard statistical analytical software. The findings show that a larger proportion of the participants (higher education students) believe that using AI systems in teaching and learning is beneficial and improves their learning experiences. This paper makes meaningful contributions to the literature that explores technology acceptance in education. Firstly, it provides more insight about the students' level of experience when using AI systems for teaching and learning processes, and secondly, it may assist higher education institutions in determining how and which areas of technology implementation for educational purposes can be improved.

Keywords: Artificial Intelligence, Student performance, Learning experiences, Perceptions, Education

Evolution in online learning: Implications for South African higher educational institutions in the post Covid-19 period

Itumeleng Judith Maome, Sam Erevbenagie Usadolo, and Bukelwa Belinda Mbinda

Durban University of Technology, South Africa

The Covid-19 pandemic has accelerated the shift to online learning, leading to significant changes in higher education institutions all across the world, including those in South Africa. The importance of online learning has increased, and institutions are now challenged with providing a high quality, adaptable, and accessible education in a digital setting. In order to fully embrace online teaching and learning, this demands institutions to make investments in digital infrastructure and reevaluate pedagogical practices. In this theoretical paper, I examine the discipline of online teaching and learning and the strategies used by universities to bridge the socioeconomic barrier during the epidemic, as well as the strategies used in the post pandemic period. I explore how the Covid-19 epidemic has altered the online learning environment in South African higher education institutions. Through literature survey, I established that in order to provide high-quality education to students across the country, South African higher education institutions can provide flexible and accessible education by investing in digital infrastructure, rethinking pedagogical methodologies, and implementing best practices in online learning. I recommend that higher institutions, policymakers, and stakeholders must work together to ensure that online learning remains a viable and successful modality of instruction in the post-Covid-19 era.

Keywords: online learning, higher educational institutions, South Africa, Covid-19

Exploring the heart of peer review of teaching: a qualitative study in a private higher education institution.

Mandy Heine
The IIE's Varsity College, South Africa

This qualitative study explored the experiences and reflections of lecturers and reviewers who participated in peer review of teaching practices in a private higher education institution in South Africa. A peer review of teaching is a supportive process in which a lecturer's teaching effectiveness is evaluated by a peer who provides feedback towards improved teaching practice. A social constructivist lens that places dialogical relationships as central to learning was used as the theoretical starting point to explore the dynamics of the relationships between lecturers and their peer reviewers. The aim of the study was to investigate how the lecturers and reviewers worked with the current system of peer review of teaching and to explore how a relational model could complement this learning and create opportunities for learning by both parties. Eight lecturers and eight reviewers (who had been paired) were individually interviewed. This was followed by two focus group interviews with the lecturers and reviewers respectively. Data were collected and recorded using Microsoft Teams technology in lieu of face-to-face collection and analysed using a thematic approach. Findings demonstrate that whilst the intention of the current peer review process at the institute is to be a collaborative, formative process committed to the development of professional practice, the data from the study highlight that the intersubjective nature of the relationship and provision for dialogue around reviewer feedback are significant determinants in the peer review process being experienced as valuable. Recommendations advocate that change is needed for the practice of peer reviewing to have a sustained effect on lecturers' professional development. Relational assessment practices are gaining momentum in higher education and provide a valuable platform for learning and growth, as recommended within a social constructivist theoretical position. The peer review process should be re-positioned within a relational framework to foster dialogical relationships and enhance learning opportunities for both lecturers and peer reviewers as part of professional practice development.

Keywords: peer review of teaching, dialogical relationships, professional development, social constructivism, online qualitative data collection.

Exploring the Landscape of Student Online Collaborations: Unveiling Benefits, Challenges, and Design Principles for Effective Integration

Anneke Venter
University of South Africa, South Africa

Supporters of online learning assert that engaging in collaborative activities within online groups contributes positively to the learning journey of students. However, existing academic literature also acknowledges a contrary aspect, highlighting the possibility of unproductive or unfavourable outcomes stemming from student interactions in online settings. To comprehensively comprehend the nuances of student collaborations in the digital sphere, a qualitative research study was undertaken. This involved conducting in-depth interviews and focus group discussions to gather primary data from students enrolled in Open Distance Learning (ODL) programmes at a university in South Africa. The findings of this study unveiled a multifaceted spectrum of outcomes related to learning, intricately intertwined with student collaborations in the online domain. These outcomes encompassed both advantages and drawbacks associated with such interactions. The existing body of scholarly work concerning online collaborations aligns with the idea of examining the potential for detrimental student engagements, thus prompting a need for a more nuanced perspective on the nature of student interactions in the digital realm. Drawing upon social theoretical frameworks, this article presents guidelines for designing online learning experiences. These guidelines aim to aid educators and practitioners in identifying strategies to alleviate the adverse effects of online collaborations while fostering constructive and beneficial forms of interaction that enhance the overall learning journey. In addition to its practical implications, this paper also points towards avenues for prospective research endeavours that delve into the intricate nature of student collaborations in online settings. Through its insights, this article contributes to a deeper understanding of the intricate dynamics involved in online student collaborations and provides a foundation for further exploration in this realm.

Facilitating effective cross-cultural collaborative research.

Nicola Pallitt, *Rhodes University & e/merge Africa, South Africa*
Alice Barlow-Zambodla*, e/merge Africa, South Africa*
Hannah Grossman, *University of California, Los Angeles (UCLA), United States*
Leah Sikoyo, *Makerere University, Uganda*
Juhong Christie Liu, *James Madison University, Virginia, United States*
Nompilo Tshuma, *Stellenbosch University, South Africa*
Neil Kramm, *Rhodes University, South Africa*

The International Research Collaborative for Established and Emerging Scholars (IRCEES) in Educational Technology is a collective of researchers and practitioners based in Africa and the United States. This initiative started in 2018 as a collaboration between the e/merge Africa, an online professional development network for educational technology practitioners, and researchers, and the Culture, Learning and Technology (CLT) division of the Association for Educational Communications and Technology (AECT). Our mentors and mentees have diverse backgrounds in terms of specialist expertise and work contexts and collaborate online across geographic distance and time zones. Sub-groups emerged, varied by areas of interest. The authors have been working together for over three years. We have co-designed and conducted an interview protocol and survey for educational technology users working in African universities, co-presented for conferences, recently co-authored a book chapter and continue reflecting on and refining our understanding of doing cross-cultural and culturally situated research through doing the research together. As members of the sub-group focused on supporting historically marginalized and underserved learners, we regularly reflect on our collaborative practices simply as part of our research process. We also interrogate the dimensions of our local contexts that both enable and constrain our abilities to connect and collaborate. These will be discussed followed by recommendations based on what we are learning about our own practices to ensure committed and sustained engagement in collaborative research online as a group. Our presentation will feature the voices of members who are present in digiTAL2K and voice clips from those in other countries. A lot of definitions of co-research do not acknowledge the complexities involved in co-creating supportive collaborative processes. Few studies investigate collaborative processes and strategies for building supportive relationships that can better enable collaboration. Our research on supporting historically marginalized and underserved learners uses a team ethnography approach which requires us to examine our research practices together. This work combines interpersonal and process-based principles which both need attention. In the presentation we share our research process and the lenses, ethos, and practices that we use to design that process. This is followed by sharing emerging principles based on what we are learning about our own practices, to ensure committed and sustained engagement in collaborative research online, in South Africa, Uganda, and the United States.

Keywords: cross-cultural, collaborative research

Integrating Adaptive Intelligent Tutoring Systems into Private Higher Educational Institutes

Novashnee Gounder, Victor Faniran, and Samuel Faloye
The IIE's Varsity College, South Africa

The role of tutoring in higher educational institutions cannot be over-emphasized as it aims to provide students with a more personalised and coaching approach to learning. The literature shows that students learn and remember information better using different learning styles and preferences, although, it is not always a feasible option for educators to adapt their tutorials to each student's learning styles or preferences using face-to-face human tutors. With the rapid spread of technology over the years, many educational institutions have begun to incorporate artificial intelligence (AI) into their teaching and learning architecture and to enhance the functionalities of their information systems. An example of such AI is an adaptive Intelligent Tutoring System (ITS). An adaptive ITS provides students with a "one–on–one tutor" (the ITS) focusing solely on their learning needs and preferences and thus enhancing their learning experiences. According to the literature, despite the many ITSs that have been created over the years, there is little or no evidence showing an ITS focused on adapting to students' cognitive and learning styles for various general subjects. This study aims to contribute to the literature by investigating that. Many students absorb information easily when presented in a preferred manner. The cognitive fit theory supports this reasoning, as a low cognitive load (mental effort) yields better results in terms of performance. Hence, the conceptual framework used for this study is the Cognitive Fit Theory. This study employs a quantitative approach to support the positivist paradigm adopted, by delivering online questionnaires to students to understand students' learning styles, cognitive styles, and views of ITSs. Descriptive and inferential statistics will be obtained based on the normality of the data collected and analysed. This study is a work in progress, hence, discussions and conclusions have not been made yet.

Keywords: Tutoring, adaptive tutoring, intelligent tutoring systems, learning preferences, artificial intelligence

Investigations into ChatGPT using first level programming MCQs

Anitta Thomas
University of South Africa, South Africa

Understanding the possibilities and implications of artificial intelligence (AI) tools for teaching and learning is essential for educators in this era of AI growth. In this study, multiple-choice questions (MCQs) that are relevant to first-level programming courses are analysed from the perspective of educators to determine the strengths and limitations of ChatGPT, a generative AI tool that has taken centre stage in recent months due to its incredible knowledge capabilities in numerous fields. This research aims to determine how well ChatGPT can respond to typical MCQs, how accurate its explanations are, how well it can identify the questions' Bloom's taxonomy level, and its capacity to generate questions of a similar nature. This study examines ChatGPT in an exploratory setting using a self-study methodology using forty first-level programming MCQs from the Canterbury QuestionBank. Recommendations for educators are developed based on the outcome of the investigations into ChatGPT for designing and formulating MCQs in first-level programming. The paper also offers recommendations for educators on ethical concerns related to the use of ChatGPT. This research aims to promote much-needed discussions about utilising ChatGPT and other AI tools for teaching and learning, specifically in programming courses.

Keywords: ChatGPT, first-level programming, multiple-choice questions (MCQs), Canterbury QuestionBank, programming assessment

Lecturer adoption of learning management systems. The importance of understanding the LMS basics. A Private Higher Education case study

Lieza van der Vyver and Ilze Breedt
The Independent Institute of Education's Varsity College, South Africa

In an educational environment, all stakeholders deserve an exceptional experience. Not only does this include classroom delivery and practical application, but also the ability to incorporate educational technology efficiently and effectively. In a tertiary environment, the application of a learning management system or LMS is essential, and this proved even more so under pandemic conditions as experienced worldwide in 2020 and 2021. An LMS enables lecturers to engage with students, and students to engage with lecturers. It is a software application system that incorporates the automation and delivery of educational resources, access to material either through master data or lecturer uploads, assessment submission, and the application of the system as an online marking tool. The role players in the setup, application, and use of an LMS, involve multiple stakeholders such as lecturers, students, and administrators. Students tend to be more resilient when it comes to adopting technology. This is specifically the case when referring to Generation Z students. However, lecturers are not typically Generation Z, and would commonly use an LMS as a dumping group for information. This is not an effective use of the system and renders a system that can be a beneficial extension of teaching and learning, obsolete. The purpose of this study was to analyze how lecturers apply an LMS, by focusing on their basic understanding and application, and to understand how effectively the LMS is used. Is it an extension of teaching and learning or merely a way to share large amounts of information in a time-efficient manner? Also, if the knowledge gained through training and experience, is shared with other stakeholders. A quantitative methodology was applied, and data was collected using an online questionnaire. The questionnaire was distributed to lecturers of a Private Higher Education site. The study found that although lecturers are aware of the LMS, and make use thereof, it is mainly in the capacity of an online marking tool, rather than an extension of the classroom beyond brick-and-mortar venues. The analysis of the data using a PowerBI statistical analysis, confirms these findings and further indicates that although lecturers confirm that they did receive sufficient training, the LMS knowledge and experience gained are minimally shared with other stakeholders.

Keywords: Learning management systems, Private Higher Education, Educational technology.

Leveraging Blackboard Analytics for Subject Review and Improvement: A Reflective Study

Bronwyn Swartz and Sweta Patnaik
Cape Peninsula University of Technology, South Africa

In Higher Education (HE) institutions, identifying and addressing subjects at risk is vital for improving student outcomes and ensuring academic success. This paper presents the reflection of two university lecturers on Blackboard Analytics during the development of a subject review process. At the university where our study takes place, a subject is regarded as 'at risk subject' if the pass rate for the subject is below 50% or if a downward trend is observed for three years. The university policy states that academic interventions need to be designed for any subject that is 'at risk'. However, at present, there is no formal process to manage a subject identified as 'at risk'. Consequently, interventions based on empirical evidence are not designed to change the status of the 'at risk' subject. Our study involved the evaluation of Blackboard analytics such as course submission summary, activity matrix, comparisons and benchmarks, student progress tracking, and predictive analytics to identify patterns in student submission behaviours. This analysis revealed areas of concern such as low submission rates and late submissions. Moreover, the examination of login frequency, discussion board contributions, identified areas where students exhibited low engagement. This enabled the identification of strategies to address topics or activities requiring improvement. By leveraging various analytics functions within Blackboard, the lecturers gained insights on student performance and lecturer and student engagement and were ultimately able to identify gaps in course delivery. The reflections of the two lecturers on the process that they followed, are reported on by this study and provides the data to develop a framework for a subject review process that can be used by other university lecturers for 'at risk' subjects. Essentially, we found the predictive analytics capabilities of Blackboard Analytics plays a crucial role in forecasting student success and identifying at-risk students and subjects. The insights gained through reflecting on different ways in which data analytics can be used, informs evidence-based decision-making, fosters data-driven instructional design, and is believed to have the potential to enhance student success rates. Our reflections and experiences provide practical recommendations for instructors and institutions seeking to optimize their subject review processes using Blackboard Analytics.

Novice teachers' views on the effective integration of the TPACK framework into the teacher education curriculum

Alane Naidoo and Ilze Breedt
The IIE's Varsity College, South Africa

TPACK stands for Technology, Pedagogical and Content Knowledge. Technology Knowledge means that an educator understands educational technology well enough to integrate it into their teaching. Pedagogical Knowledge refers to the act of teaching. Finally, Content Knowledge refers to an understanding of the curriculum/ content well enough to teach it effectively. The TPACK framework outlines how content (what is being taught) and pedagogy (how the teacher imparts that content) must form the foundation for any effective educational technology integration in teaching and learning. This is important because the technology being implemented must communicate the content and support the pedagogy to enhance students' learning experience. This aim of this study is to critically analyze novice teachers' views on the effective integration of the TPACK framework into the teacher education curriculum. This topic is relevant, because if novice teachers are expected to be able to seamlessly integrate the TPACK framework into teaching and learning and to create an effective basis for teaching using educational technology, then teacher education institutions must adequately prepare pre-service teachers for this level of integration. This study will adopt a qualitative case study research strategy. Data for this study will be collected from 12 novice teachers using semi-structured one-on-one interviews. The main research questions are: How and to what extent did your teacher education institution prepare you to effectively integrate the TPACK framework into teaching and learning. Data will be analyzed using thematic analysis, through the theoretical lens of the TPACK framework.

Keywords:
TPACK framework, novice teachers, teacher education curriculum, pre-service teachers

Overcoming individual/social dualism via the integration of autoethnography into the postgraduate psychotherapeutic programme

Sharon Margaretta Auld
The IIE's Varsity College, South Africa

Traditional psychotherapeutic educational programmes - be they face-to-face, online, or blended - tend to draw on Western positivist philosophical assumptions, maintaining an individual/social dualism, and the illusion that our social embeddedness does not contribute to the hopelessness, anger, desperation, and distress we experience daily. To prevent the separation of the individual from the social group in the clinical encounter - and begin to contemplate identity as a complex interplay of internal and external factors - autoethnography is put forward as a method of tracing the dynamic impact of taken-for-granted socio-political norms and values on identity formation. As a critical pedagogical tool, autoethnography presents students with an opportunity to gain personal understanding of sociocultural issues, unconscious processes, defenses, affective experience, and the complexity of identity, highlighting the need for culturally situated psychoanalytic practice. The work of four students – each undertaking their own self-study as a research component of their postgraduate psychotherapeutic programme - is offered to illustrate the practical integration of autoethnography into higher education. Difficulties encountered range from the poverty of scholarly work exploring psychotherapist self-study and the anxiety experienced by students in deviating from traditional, positivist, medico-scientific research approaches, to the discomfort of being self-reflexive. Benefits gained include highlighting sociocultural narratives within the postgraduate programme, allowing for the conceptualisation of collective aspects of individual subjectivity, and challenging hegemonic forces inherent in traditional online, blended, and face-to-face psychotherapeutic education.

Keywords: autoethnography, critical pedagogy, postgraduate psychotherapeutic education, social embeddedness, social unconscious, transformation and decolonisation of higher education.

Preparing first year programming students for future studies by mitigating source code plagiarism

Imelda Smit
North-West University, South Africa

Towards the end of the Covid-19 pandemic, the academic world prepared to move out of emergency remote learning mode – to a new normal. With contact classes restricted, students were left to their own devices, conditions not conducive for learning. This is especially true for students who need contact, rely on university infrastructure, and chose to attend a contact university for this purpose. Assessments are having a high impact on learning, and online assessment is making it impossible to ensure that students do their own work. In addition, the context of teaching an introductory programming course to two groups of students; those with a thorough background in programming – from school, and those with no background. Source code plagiarism becomes an academic challenge because it is running rampant among students under these conditions. Especially students with no programming background, are vulnerable. The intention is to use this as an opportunity to teach students about plagiarism, in the context of programming. This process already started in 2021 and continued in 2022. Making sense of how to guide students regarding source code plagiarism may be valuable in the context of a new normal – to ensure that students are obtaining the knowledge and skills they need to build onto in subsequent subject modules, necessary to reach the outcomes of a computing course. The 2022 first semester offering on introduction to programming in Python is reflected upon. It is done from the dual perspective of the lecturer and the students who were caught in the act of plagiarising scripts. In addition, the 2022 data is compared to that of 2021. To facilitate the identification of source code plagiarism, and make sense regarding why they are copying code, students identified were encouraged to start a conversation with the lecturer. The findings will guide future offerings.

Key words: Source code plagiarism, Introductory programming

Reconceptualising Assessments and Assessment Rubrics for a Higher Education Landscape Besieged by AI Technologies

Lorraine Bennett

Australia

This presentation aligns with two of the conferences sub-themes - Assessment practices in the digital age and Artificial intelligence and machine learning in education. The world-wide massive release of Artificial Intelligence (AI) generative technologies in late 2022, has started to change formal education in significant ways. This presentation focuses on the impact of AI in the higher education sector, and in particular, the implications for academic integrity and institutional reputation. One of the most popular AI technologies is Open AI;s ChatGPT. This software provides, in a matter of seconds, high quality text in response to a 'prompt' or question. Early trials conducted across several countries reveal that the quality of the content generated by AI ChatBots is at least equal to, or greater than, a university-level B Grade standard. Initially many academic leaders and regulators pushed to have the technology banned or at least halted until proper guiderails, policies and protocols are put in place to safeguard the academic integrity of higher education institutions. Others embraced the opportunities these AI generative technologies provide in terms of ready access to content and knowledge. From a pragmatic point of view 'the cat is out of the bag' and it is highly likely that for the purpose of assessment, the traditional university essay 'is dead'. This presentation provides a new way of approaching assessment design and creating a corresponding assessment rubrics by drawing upon AI content.

Reflections on Tech-Driven Summative Assessments in South African Distance Education : Peaks & Perils and Key Considerations for the Future

Nerolen Soobryan
MANCOSA, South Africa

The transition to the use of technology for conducting assessments on an online platform has shown significant potential in enhancing pedagogical practices, improving student experiences, streamlining administrative processes, and generating commercial benefits for higher education institutes. While tech-driven assessments offer advantages such as automated grading, immediate feedback, and adaptive testing, concerns regarding integrity, validity, and security arise. Safeguarding the assessment process against cheating and ensuring the reliability of results become crucial considerations. Additionally, the digital and technological shift brings about the need for faculty training, updating infrastructure, and addressing privacy concerns. Furthermore, the digital divide poses a significant challenge in South African education, as students from disadvantaged backgrounds may lack access to necessary devices, stable internet connectivity, or digital literacy skills. This exacerbates existing educational inequalities and requires proactive measures to bridge the gap. Three essential areas of discussion: integrity, validity, and security; the digital and technological shift of assessments; and the digital divide based on employing a document analysis technique, relevant literature, policies, and reports were examined to provide insights and reflections. The critical analysis of the benefits, pitfalls, and key considerations, aims to inform policymakers, educators, and administrators about the implications of tech-driven summative assessments in South African distance education. It calls for a balanced approach that acknowledges the advantages while addressing the challenges to ensure equitable and effective assessment practices in the future.

Keywords: Online-Assessments, digital divide, integrity, security.

Reimagining assessment in engineering education: The promise of chatbot technology

Johannes Cronje, Dennit Adams, Stephen Bosman, Lilian Ganduri, Desiree Jaftha, Bronwyn Swartz, Tinashe Tendayi, and Lucrecia Valentine
Cape Peninsula University of Technology, South Africa

Assessment is a critical component of Engineering Education, providing valuable insights into student learning and progress. However, traditional assessment methods may not fully capture the complexity of student understanding and may not provide timely and targeted feedback. Chatbot technology, with its ability to provide personalized and immediate feedback, has the potential to transform assessment practices in Engineering Education. In this paper, we explore the promise of Chatbot technology in reimagining assessment practices in Engineering Education. Drawing on interviews with engineering educators in on department in an Engineering Faculty, we examine how Chatbots can support both formative and summative assessment, provide personalized learning experiences, and facilitate more effective feedback mechanisms. Our findings suggest that Chatbot technology has the potential to improve assessment practices by providing immediate and targeted feedback, promoting self-directed learning, and enabling a more holistic understanding of student progress. However, the integration of Chatbot technology into Engineering Education faces several challenges, including concerns around privacy and data security, as well as the need for adequate training and support for educators. In conclusion, we argue that Chatbot technology has the potential to revolutionize assessment practices in Engineering Education, providing a more efficient, effective, and engaging approach to assessment. However, it will be critical to address the challenges and barriers associated with this technology to fully realize its potential in the field.

Keywords: Engineering Education, Assessments, Chatbots, Artificial Intelligence

Skills required in higher education to prepare graduates for the Fourth Industrial Revolution workforce

Mokgadi Seshoka, Katherine M. Malan, and Lawrence D. Xaba
University of South Africa, South Africa

The Fourth Industrial Revolution is resulting in drastic changes to the way the world works today. Since everything is changing quickly, higher education institutions must move quickly to prepare students for employment in the Fourth Industrial Revolution. The study reviewed the skill set needed for the employment of South African graduates during the Fourth Industrial Revolution. A scoping review was conducted on published research on teaching and learning practices to identify the skills needed to prepare graduates for the Fourth Industrial Revolution workforce. A set of 25 skills were identified in seven categories. The study also conducted a content analysis on the 2022 yearbooks of three qualifications (in Science, Social Science, and Commerce) at the University of Johannesburg to find out which of the identified Fourth Industrial Revolution skills are included. The study shows that none of the qualifications (not even the BSc in Computer Science and Informatics with Artificial Intelligence) incorporated all the identified skills for the Fourth Industrial Revolution. Recommendations are made to introduce fundamental modules that will cover all the Fourth Industrial Revolution skills that are not included in the curricula. Whilst the country and the world at large are still adapting to the Fourth Industrial Revolution, the Fifth Industrial Revolution is underway, and this will bring more changes and different skill sets that might be needed for future employability. Universities must constantly assess their curricula and amend them where necessary as new skills are needed, and new careers emerge with these changes in society.

Keywords: 4IR Skills, 4IR Workforce, University Curricula, Graduate Employment

Supporting varied skill levels of drawing in design education: A personalised approach using the Universal Design Principles for Learning framework to develop an open-source online resource

Marili de Weerdt
The IIE's Vega School, South Africa

Teaching a class with diverse drawing skill levels has become a common challenge in tertiary design education. This often leads to a situation where the teacher either spends too much time assisting lower skilled students, neglecting the more proficient learners, or moving forward with a lesson leaving struggling learners behind. Despite the growing focus on learning design technologies and software, drawing skills remain a fundamental visual language for problem-solving and communicating ideas in the field of design. Consequently, students who lack adequate drawing skills are often left at a disadvantage. This study aims to address this issue by designing a prototype that can be developed into a sustainable model for supporting varied drawing skill levels in design education. The primary objective is to present a model that employs a personalised approach to accommodate diverse skill levels within the classroom. Considering accessibility, convenience and cost effectiveness, the resulting prototype is an open-source e-learning resource which will be used to test the proposed model. For the prototype, a free website building and hosting service, integrated with a free Learning Management System was utilised. It is further supported by social media platforms with the aim of generating interest and a discussion platform that supports visuals for peer communication and support. Initially, traditional studio learning methods were considered, along with strategies suggested in the literature for translating these methods into the online space. However, it was observed that the resulting design closely resembled the current approach, which fails to adequately support struggling students. To address this limitation, the Universal Design Principles for Learning framework was employed to develop a broader range of modes and options that effectively engage students with varying drawing abilities. The anticipated outcome of implementing this model is an approach that overcomes the hurdle of drawing acting as a gatekeeper to success in design education. By providing tailored support based on individual skill levels, this model has the potential to bridge the gap between students with varying drawing abilities and facilitate their overall performance in design education.

Keywords: Universal Design for Learning, varied skill levels, drawing in design education.

Teaching Numeracy in the Digital Age: Exploring Technology-Enabled Strategies within a South African Private Higher Education Institution

Jayseema Jagernath and Dominique Marié Nupen
The IIE's Varsity College, South Africa

The rapid rise in the availability and sophistication of digital technologies has irrevocably changed the landscape of higher education. There is, however, a paucity of research demonstrating the meaningful impact of these changes on traditionally challenging numeracy subjects such as Accounting, Economics, and Statistics, within the context of South African Private Higher Education Institutions (PHEIs). Based on Bloom's Digital Taxonomy – an updated framework integrating technology into the recognised Bloom's Taxonomy for categorising educational goals, levels of complexity and specificity - this study aims to explore impactful technology-related changes in the teaching and assessment of numeracy subjects specifically within Higher Certificate qualifications offered by South African PHEIs. Insight will be gained into new and emerging strategies that are not only creative and innovative, but also highly effective in promoting increased levels of success in numeracy subjects. Adopting a mixed-methods approach and using an online survey and interviews, quantitative analysis will be undertaken to gather data across a broad sample of numeracy lecturers, while qualitative analysis will serve to gather detailed insights into technology integration, application, student engagement, and module success. This paper explores technology-related changes in the teaching and assessment of numeracy subjects in Higher Certificate qualifications offered by South African PHEIs. The paper will be of interest to many in the sciences.

Keywords: Bloom's Taxonomy, digital assessment, digital platforms, digital teaching, higher education, numeracy.

The effective use of smartphones for teaching and learning among undergraduates in higher institutions: An Empirical Study

Bukelwa Belinda Mbinda, Sam Erevbenagie Usadolo, and Itumeleng Judith Maome
Durban University of Technology, South Africa

This study examines the efficacy of using smartphones for teaching and learning in higher education, with a particular emphasis on undergraduates and blended learning. It is vital to investigate how cellphones, favored by Generation Z and Millennials, might improve academic achievement because the Covid-19 epidemic required a change from traditional teaching approaches to accommodate remote and online learning. The research uses a quantitative methodology and uses questionnaires to get information from the target student group. Understanding how these tools can promote learning outcomes is crucial given the prevalence of smartphones and our escalating reliance on digital technologies. The study intends to offer light on the potential advantages and difficulties of using smartphones into the educational process. The target audience for the study is undergraduate students who have participated in blended learning, a pedagogical strategy that blends traditional face-to-face education with elements of online learning. The researchers collect information on students' perspectives, attitudes, and experiences linked to smartphone usage for academic reasons through a well created questionnaire. The results of this study offer insightful information about how well smartphones can improve teaching and learning outcomes. It investigates if smartphones have a good effect on students' involvement in class, their academic achievement, and their general contentment with the blended learning environment. Potential obstacles are also recognized, such as electronic diversions or access discrepancies. The paper's recommendations provide educators, organizations, and policymakers with useful advice on how to use smartphones wisely within blended learning frameworks. There is discussion of methods for developing content for smartphones, putting mobile applications into use, and removing access restrictions. The study's findings help to determine future routes for instructional strategies, particularly when it comes to integrating technology. In conclusion, this empirical study provides important insights into how cellphones are used in undergraduate education, particularly in the setting of blended learning.

Keywords: Smartphone effectiveness, Undergraduate education, Blended learning, Academic performance, Generation Z and Millennials

The Impact of Loadshedding on Student Academic Performance: A Data Analytics Approach

Niren Sainath Pillay, Chinedu Wilfred Okonkwo, and Amos Anele
Eduvos, South Africa

South Africa has a diversified population that reflects many cultures and religious traditions. A major problem known as Loadshedding affects a country that is rapidly progressing in terms of economic growth. Education is a key contributor to economic development, but Loadshedding is having an impact on the South African educational system. A thorough review of the literature revealed that there is insufficient research on this topic in South Africa to assess the effects of loadshedding on student academic performance. As a result, there is a need for more studies to gain a better understanding of the devastating effects of loadshedding on students. This study investigated the impact of loadshedding on the students' academic performance. To collect the necessary data, a survey was conducted using a questionnaire. Machine learning, a data analytics technique was applied to analyse the data to understand different variables, patterns, trends, and associations and allow us to make predictions about the impact of Loadshedding on the academic performance of students in South Africa. The findings indicate that Loadshedding has significant impact on the academic performance of higher education students. This research contributes to academic and society. Firstly, it helps to provide new insight to help expand knowledge on the effects of Loadshedding on academic performance in recent times. secondly, it will help educational institutions, stakeholders, parents, and students understand the effects of this crisis and take various measures to enable learning in a positive direction and continue with minimal learning disruption until the crisis is resolved.

Keywords: Loadshedding, Higher Education, Students, Academic Performance, South Africa.

The importance of Learner Management Systems in enhancing knowledge management within Higher Education Institutions

Ayanda Pamella Deliwe and Nonkululeko Khumalo
Nelson Mandela University, South Africa

Digital transformation is important in disseminating information and implementing good practices. This shows that online learning learner management systems can enhance knowledge management within Higher Education Institutions (HEIs). When knowledge is effectively shared and utilised it becomes a critical element that enables HEIs to be innovative and sustainable. Additionally, it is essential to manage and share knowledge for the growth of HEIs. Knowledge management is a tool that can assist organisations with gaining a competitive advantage. It is an improvement, survival, and growth strategic resource. The Learning Management System (LMS) of the 21st century is its ability to capture and curate the best knowledge from within the organisation. This study's main focus is to gain an understanding of the importance of LMS in enhancing knowledge management in HEIs. This is a conceptual paper where literature on LMS enhancing knowledge management will be reviewed. The findings of this study will be beneficial for HEIs in understanding how they can use the LMS in enhancing their knowledge management as knowledge management plays a vital role in creating a competitive advantage for HEIs.

The influence of teaching value in the adoption of WhatsApp for emergency remote teaching

Thersy Mangena
Tshwane University of Technology, South Africa

The ministry of basic education in South Africa encouraged teachers in Quintiles 1 to 3 to use WhatsApp as a platform for emergency remote teaching (ERT) during school closures owing to the outbreak of Covid-19 due to its ease of use and availability. However, some teachers were hesitant to adopt WhatsApp as a platform for ERT for various reasons. Consequently, the implementation of ERT in schools in Quintiles 1 to 3 was very low. This study employed the Unified Theory of Acceptance and Use of Technology 2 and replaced the construct of price value with teaching value to probe the factors that influence high school teachers' intentions to adopt WhatsApp as a platform for ERT. Data were gathered quantitatively from a convenient sample of 150 teachers from six high schools in Quintiles 1 to 3 in the Mopani District of Limpopo Province using a survey questionnaire. Data were analysed using partial least squares structural equation modeling using SmartPLS version 4. The results showed that performance expectancy, effort expectancy, social influence, facilitating conditions and teaching value had a significant influence on teachers' intentions to adopt WhatsApp as a platform for ERT, whereas hedonic motivation and habit did not. It is recommended that the ministry of basic education reinforce the significant factors that influence teachers' intentions to adopt WhatsApp as a platform for ERT and ensure they are met for successful implementation of ERT using WhatsApp.

Keywords: teaching value, WhatsApp, emergency remote teaching, teachers

The students' and lecturers' experiences in the use of Git in IT courses in a HEI

Tebogo Rakgogo and Meera Joseph
Independent Institute of Education, Varsity College, South Africa

Git is an open-source Distributed Version Control System (DVCS) that assist in tracking changes in code over time and helps to store and manage coding project. Hands-on labs on using Git are done as part of the Programming module by the lecturers and the students use it in the IT courses in the Higher Education Institution in South Africa. In this paper, we explore students' and lecturers' experiences in the use of Git in the Information Technology (IT) course in a HEI in South Africa. We conducted online focus group interviews with a small group of students and also with the lecturers via Microsoft Teams in a moderated setting to explore their experiences in the use of Git in IT courses. The participants were first year and second year students in the Faculty of ICT who use Git and the other participants were their lecturers. Purposive sampling was used to focus in-depth on a relatively small sample. We used inductive thematic analysis to get their opinions, values, and experiences from the qualitative data – the interview transcript. Coding helped to analyse qualitative data and identify themes and the relationship between them. The themes that emerged based on student interview data were as follows: programming language used in the HEI and the first-time experience, ease of use of Git, familiarity with other platforms, and the capacity of the learners to use GitHub and their experiences for project submission. The themes based on data analysis (lecturer interview data) were familiarity with Git and other programming languages, how lecturers marked the student submissions through GitHub and provided feedback, and how they used GitHub in their lectures in the programming module. There are challenges in using Git, especially for unrelated projects, but for related projects, it is fine as it tracks the state of the tree in every single commit made. Some of the pros of using Git are that it includes the social networking aspect and it is quick to start a new repository.

Keywords: Git in Information Technology courses, lecturer experiences in using Git, students' experiences in using Git, Distributed version control system.

The students' experiences of using cloud technologies in a HEI during Covid-19 lockdown

Meera Joseph and Tebogo Rakgogo
Independent Institute of Education, Varsity College, South Africa

The use of cloud technologies became more effective for online teaching and learning in South African Universities during the Covid-19 lockdown period, but later its use became a norm for some modules due to the learning quality it could offer and the ease of use. Google Classroom, Blackboard and Microsoft 365 are the most popular ones used in South African educational institutions for online Teaching and Learning. The students could access these cloud technologies from home using computers, tablets, or smartphones and there was no travel time required to attend physical lectures. The software used was mainly free-fee basis ones or ones purchased by the Institutions and the majority of the module notes or course material was provided via MS Teams, Blackboard, or Google Classroom. During the lockdown period, the majority of the assessments were done online. In this qualitative study, online focus group interviews via Microsoft Teams were conducted to explore the first and second-year students' experiences of using cloud technologies in a South African Higher Education Institution (HEI) during the Covid-19 lockdown. Convenience sampling was used as the above-mentioned participants were around in the HEI for the interviews. We used inductive thematic analysis and coding to analyze qualitative data, to identify themes and the relationship between them. The themes that emerged are discussed in detail in the paper, but the main ones are cloud technologies used by learners in Higher Education Institutions, the benefits of using MS Teams and other cloud technologies during the Covid-19 lockdown for teaching or learning, ease of use of MS 365 and MS Azure and the future of teaching using MS Teams and Azure. The students felt these technologies were used due to the stricter lockdown circumstances and they used them, they fully enjoyed the ability to use the cloud technology to go back and read lecturers' resources and access various resources. The students found MS 365 easy to use but with MS Azure they were finding it hard to navigate and also to publish.

Keywords: Cloud technologies, students' experiences of using cloud technologies, Microsoft 365, e-learning.

The use of digital innovative teaching methods in supporting the education system at the South African University

Babalwa Ramncwana
University of South Africa, South Africa

In Africa, quality education has been ensured with the use of innovative technologies. The innovative technology should be used in a way to enhance the delivery of quality education. There are a lot of eLearning environments at education institutions. E-learning has several benefits such as it reduces the cost of physical teaching and learning infrastructure, it makes it easier to create and share course content, it helps in making the educational content readily available at any time or place, and integrates a global educational network. This paper aims to investigate the use of digital innovative teaching methods in supporting education system at the South African University. The study aims to highlight the different digital innovative teaching methods. The study is qualitative and used interviews. The students and lecturers were interviewed. The paper provides practical digital innovative teaching methods. This study will contribute to the body of knowledge by demonstrating and highlighting some ways that can assist in the use of innovative digital teaching methods in the South African Context.

Keywords: Open Distance E-learning (ODeL), digital learning, digital readiness, psychological capital, technology readiness,

The Use of Social Media and the Academic Performance of Undergraduate University Students in Mauritius

Kiran Odit-Dookhan
University of Technology Mauritius, Mauritius

The ever-increasing proliferation of mobile technologies during the pandemic era of Covid-19 has increased the use of social media, more especially in universities where the technology is transforming the way students communicate, collaborate, interact, and learn (Zarzycka *et al.,* 2021). However, multiple aspects must be considered as it might affect their academic performance positively or adversely. This research aims to explore the impact of the use of social media on academic performance among undergraduate students in Mauritius. It also seeks to examine the factors that might influence the nature of this relationship, and its tentative impact on the academic performance of Mauritian University undergraduate students. This study employs a mixed method where the qualitative part of the study was met through the conduct of a focus group from the input of undergraduate students studying in both private and public universities in Mauritius. Survey method was adapted to collect the relevant quantitative data for the study. The relationships between the various variables in the study was investigated using correlation, and regression analysis. The results show that students used social networking sites for educational and non-educational purposes. The findings revealed that use of social media have significant positive relationship with the students' academic performance.

Keywords: Social media, Academic performance, Undergraduate Learners, Mauritius

Use of Virtual Reality to Address Community Service Nurses Experiential Knowledge Gaps

Jayd Brittany Vitorino Clara, Charlene Downing, Patrick Ndayizigamiye, and Pieter Herman Myburgh
University of Johannesburg, South Africa

The study is to describe the experiential knowledge gaps experienced by community service nurses' (CSN's) entering their community service year and exploring whether virtual reality (VR) can improve CSN's clinical reasoning, critical thinking, clinical judgement, and decision-making skills. VR will assist in replicating the clinical environment, encouraging CSN's to integrate theoretical knowledge with clinical practice. This will allow CSN's to develop and practice their clinical reasoning skills to assess, implement, and evaluate nursing interventions when treating hypertensive patients within a safe environment. The clinical placement of CSNs in hospitals is perceived as beneficial and encourages the development of clinical skills, namely clinical reasoning, and critical thinking. Literature recognises several challenges related to clinical practice as a functioning learning environment. Consequently, there is a sense of uncertainty and a lack of confidence in clinical skills and judgement among CSN's. The literature has extensively acknowledged the potential of VR technologies to address these challenges. The study consisted of three phases. The first phase explored the knowledge gaps experienced by the CSN's and comprised of nine participants. The second phase, eight participants interacted with the VR prototype. The third phase, the eight participants were invited to share their experiences after interacting with the VR prototype. At present, two major themes have been derived from the data collected. The first theme being the theory practice gap whereby CSN's expressed feelings of unpreparedness to function in their roles optimally. Despite their expectations and feelings of unpreparedness they still felt a sense of duty to carry out nursing care whilst learning developing their skills. The second theme, being disempowering and empowering factors such as patient load, positive as well as negative support from senior nursing staff. The tentative results were found to be enjoyment of the VR experience, participants being able to practice skills in a safe environment, encouraged systematic thought patterns and allowed them to integrate their theoretical knowledge with practical skills.The study's findings were used to formulate recommendations to develop and improve CSN's critical thinking and clinical reasoning skills whilst treating and managing hypertensive patients.

Keywords: Nursing, Education, Virtual Reality

Using iNaturalist, the citizen scientist platform, as a tool for impactful teaching and learning in Botany courses

Ashton K. Welcome
University of Johannesburg, South Africa

Suvarna Parbhoo Mohan
South African National Biodiversity Institute, South Africa

The study of Botany requires a student to learn Latin scientific names and foreign terminology of many different characters and their character states. It is important to make meaningful connections between the classroom and the real world so that students are aware of the value of what they are learning beyond the classroom. iNaturalist is an online platform where users can upload and interact with images of sightings of plants and animals from all over the world; the use of this platform to create assignments for both undergraduate and postgraduate students is presented. Students are required to set up a profile and upload sightings of different plant species that they come across on campus or on field trips. The gamification aspect of the platform includes a leader board for students to try and upload more sightings than their fellow students. Using knowledge from the classroom as well as the educational resources provided through the platform (in the form of species descriptions etc.) students can identify the plants that they have uploaded images of and gain confidence in species identification over time. Students also have an opportunity to interact with other citizen scientists who make identification suggestions to their uploaded images which will then result in those sightings becoming research grade. These research grade sightings contribute to conservation projects and other research that relies on distribution data. The number of students involved in the iNaturalist project as part of outreach from the Custodians of Rare and Endangered Wildflowers (CREW) will be presented along with the number of sightings that are research grade and the different types of projects they have contributed towards. iNaturalist allows for an impactful teaching and learning experience that students can continue to contribute towards regardless of which direction they choose to take in their careers.

Keywords: assignment, Botany, gamification, iNaturalist, plants

Unveiling academic dishonesty in online examinations: exploring types, methods, and preventive strategies in a Namibian university

Liisa Ndapewa Kaapanda
University of Namibia, Namibia

Ensuring academic integrity and preventing academic dishonesty in online examinations represent pressing concerns for universities worldwide. The outbreak of the Covid-19 pandemic has led to an unprecedented surge in the number of exams, tests, and quizzes conducted online. This trend is no exception in African universities. However, the proliferation of online assessments has simultaneously created novel avenues for academic dishonesty. Beyond jeopardizing the quality of student learning, academic dishonesty has the potential to tarnish institutional reputation and, over time, devalue the educational experience universities offer. This study aims to comprehensively identify the diverse types and methods of academic dishonesty commonly practiced by university students during online examinations. Furthermore, it seeks to delve into the realm of preventive measures that both educators and universities can adopt to effectively counteract such dishonest behaviors. Employing a qualitative research approach, this study is firmly anchored in a case study conducted within a Namibian university. The research derives insights directly from students, shedding light on the intricate dynamics of academic dishonesty. This investigation goes beyond surface-level identification, unraveling the underlying motivations that compel students to resort to dishonest practices. By excavating these root causes, the paper seeks to contribute to a holistic arsenal of strategies that universities can employ to thwart online exam cheating. Importantly, the study endeavors to cultivate academic integrity and establish an ethical framework that transcends the confines of academia. The paper concludes by emphasizing the urgency of strategic academic integrity maintenance tailored to combat the unique challenges posed by digital cheating within the academic realm. By meticulously examining the spectrum of academic dishonesty, encompassing its various facets and motivations, the paper empowers higher education institutions with insights crucial for navigating the complexities of the digital era. Ultimately, the findings and recommendations presented hold significant value for educators, administrators, and policymakers committed to upholding academic integrity and preserving the enduring worth of education within universities.

Keywords: academic dishonesty, digital era, online examination, integrity, universities

Virtual and augmented reality as a tool to enhance the blended learning approach to teaching and learning in accounting education: A Systematic Literature Reviews

Jean Damascene Mvunabandi and Ferina Marimuthu
Durban University of Technology, South Africa

It has been globally acknowledged that the use of virtual and augmented realities in accounting education within higher education institutions has not been expansively explored. Digital revolution started in the third industrial revolution with the development of a computer and the developments became rapid in the fourth industrial revolution (4IR) with artificial intelligence, robotics, machine learning and internet of things taking the lead amongst other developments. Besides the advancement of new technologies, globally, basic and higher education institutions were unprepared in dealing with the heightened threats brought by the Covid-19 pandemic in early 2020. Evidence from the literature revealed that Covid-19 is the robust trigger for drastic push from traditional teaching (face-to-face) to urgent remote teaching and learning no University is immune to this reality. Whether or not virtual reality and augmented reality directly or indirectly enhance the blended approach to teaching and learning in accounting education is highly debated. This empirical question for investigating the merits and demerits of virtual and augmented realities in enhancing teaching and learning in accounting education motivates the current research builds on gaps in the attendant literature and it holds the centre stage in scientific inquiry leading HEIs to fully embrace blended accounting education. The overall intent of this article is to critically examine the merits, demerits, of virtual reality and augmented realities in addressing the challenges for accounting education post Covid-19 and beyond. The study will make use of systematic Literature reviews. The empirical data will be analysed to show merits and demerits of virtual and augmented realities in enhancing blended approach to teaching and learning in accounting education. This research is expected to extend the debate on the possibilities of virtual reality and augmented realities (VR/AR) technologies in supporting blended approach to teaching and learning in accounting Education. This study will also propose a framework to assist all HEIs and accounting educators in accounting field.

Keywords: Virtual Reality, Augmented Reality, Accounting Education, Higher Education Institution.

What happens to the photos they take? An investigation into how programming students utilize photographs taken during lectures at a South African private higher education institution

Ebrahim Adam
The IIE's Varsity College, South Africa

The ubiquitous nature of mobile devices equipped with high resolution cameras has resulted in a phenomenon increasingly observed as higher education institutions continue with face-to-face classes. Particularly when technical aspects are covered in class, it is becoming more noticeable and prevalent that instead of writing study notes or typing up code from a projector screen, programming students resort to taking photographs of lecture slides, lecturers' code, diagrams on the screen, or even assigned in-class activities. Earlier studies share different results including that whilst this is a convenient practice for students that can positively influence recall of visual aids, it can also negatively impact memorization of knowledge and that students who take photographs in class do not perform better academically. Whilst this phenomenon has been explored in several contexts and disciplines, the context of programming education in a developing context remains largely unexplored. Utilizing the case-study approach, supported by a focus group discussion, comprising purposively sampled programming undergraduate students, this paper sought to understand how programming students utilize the photographs they take in class. Additionally, this paper explored the reasons behind students opting to photograph lecture content as opposed to writing or typing out notes, and the perceived benefits and challenges associated with this practice. These findings indicate that students take photographs of content that they deem important for future use, refer to content that they have generated when working on their own, use photographs them to work on assessments, and even develop sharing networks with peers. The framework recommended by this paper can equip lecturers and institutions with a greater understanding of how to effectively accommodate students who harness the opportunity to generate their own content on their smartphones.

Keywords: educational technology, higher education, smartphone photography, programming education, SAMR