E-Journal of Humanities, Arts and Social Sciences (EHASS)
ISSN – Online 2720-7722 | Print 2821-8949
Volume 6 Issue 8 2025 pp 1640 - 1654
Available online at: https://noyam.org/journals/ehass/
DOI: https://doi.org/10.38159/ehass.20256827

Strategies for Enhancing Self-Directed Learning in Open Distance and E-Learning (ODEL) Contexts

Mncedisi Christian Maphalala[1] & Ntombikayise Nkosi [2]
[1] Department of Curriculum & Instructional Studies, University of South Africa, Pretoria, South Africa.
[2] Department of Educational Foundations, University of South Africa, Pretoria, South Africa.

ABSTRACT

The study investigated strategies for enhancing self-directed learning (SDL) in Open Distance and e-learning (ODeL) contexts through a systematic literature review (SLR) adhering to PRISMA protocols. The study analysed peer-reviewed empirical research published from 2014 to 2024, identifying key thematic areas such as learner autonomy, digital literacy, technological tools, and pedagogical approaches that support SDL in ODeL environments. The findings revealed five main themes advancing inclusive access and equal opportunities in education, the effect of SDL on student autonomy, utilising digital tools for transformative education, tackling challenges in ODeL, and developing effective support mechanisms for student success. ODeL is a revolutionary platform for democratising education, offering flexible, accessible, and inclusive pathways for marginalised learners for lifelong learning. Nonetheless, guaranteeing equitable access necessitates overcoming technological barriers, providing digital literacy education, and creating interventions that promote educational fairness. Institutions must implement strategies that improve autonomy and cater to learners' psychological and practical requirements of learners, nurturing a sense of competence and belonging.The findings highlight the significance of SDL in enabling learners to assume control over their educational experiences, establish personalised objectives, and accomplish them at their own pace. However, obstacles such as motivation, time management, and feelings of isolation persist, particularly in less structured settings.The recommendations propose approaches, including the development of learner-centred pedagogies, enhanced digital infrastructure, and targeted training for educators to equip learners with the skills needed for effective self-directed learning. These strategies aim to improve engagement, academic success, and lifelong learning outcomes in ODeL settings.

Keywords: Self-Directed Learning, Open Distance And E-Learning, Digital Literacy, Learner Support, Educational Technology.

Correspondence
Ntombikayise Nkosi
Email:
nkosin1@unisa.ac.za

Publication History
Received:
1st February, 2025
Accepted:
16th June, 2025
Published:
25th July, 2025

To Cite this Article:
Maphalala, Mncedisi Christian, and Ntombikayise Nkosi. "Strategies for Enhancing Self-Directed Learning in Open Distance and E-Learning (ODEL) Contexts." *E-Journal of Humanities, Arts and Social Sciences* 6, no. 8 (2025): 1640–54. https://doi.org/10.38159/ehass.20256827.

INTRODUCTION

ODeL represents a transformative educational approach that merges open learning principles, distance education, and digital technologies to create accessible learning opportunities for diverse student populations.[1] The University of South Africa emphasises that ODeL aims to eliminate barriers to learning

[1] Patrick Zingisa Msekelwa, "Beyond The Borders Global Collaboration in Open Distance Education through Virtual Exchanges," *Journal of Knowledge Learning and Science Technology ISSN: 2959-6386 (Online)* 2, no. 2 (September 11, 2023), https://doi.org/10.60087/jklst.vol2.n2.p12.

by promoting flexible, student-centered educational experiences designed to support and empower learners to succeed.[2] This model allows them to engage with learning materials at their own pace, from any location, and without the constraints of traditional classroom settings. Its significance is particularly notable in expanding educational access for learners from remote or underserved areas.[3] By leveraging digital tools and online platforms, ODeL bridges educational gaps caused by geographical, financial, or personal limitations, fostering lifelong learning and promoting educational equity.

The global adoption of ODeL has surged due to rapid advancements in digital technologies, including high-speed internet, mobile devices, and interactive learning software. The University of South Africa (UNISA) exemplifies this evolution, having transitioned from traditional distance education to ODeL since 1950.[4] These innovations have reshaped the educational landscape, making learning more adaptable, inclusive, and cost-effective. Institutions worldwide increasingly utilise ODeL to cater to diverse learning needs, providing programs that emphasise learner autonomy and self-management.[5] Engagement is further enhanced through interactive multimedia content, online discussions, and virtual collaboration tools, all of which contribute to student motivation and participation. Technology is crucial in content delivery, progress assessment, and facilitation of communication between learners and educators.

SDL is a complex, multifaceted process that extends beyond a single definition. Kerka warns against narrowly defining SDL, emphasising its dynamic nature.[6] Knowles defines SDL as a student-initiated process involving the identification of learning needs, setting goals, sourcing resources, applying strategies, and evaluating progress independently or with support.[7] This approach shifts learners from dependence on instructors to becoming autonomous, self-motivated participants in their education. In contrast to pedagogy, which focuses on teacher-led instruction, SDL, rooted in andragogy, prioritises student independence and the integration of personal experiences into learning. Ajani and Maphalala further describe SDL as an active process in which learners manage each phase of their educational journey.[8] Similarly, Baez, Morris, and Rohs highlight the need for learners to take responsibility for organising, implementing, and reflecting on their learning activities.[9] Voskampa et al. identify the shift to SDL as a significant challenge in ODeL environments, where learners must independently manage their time, sustain motivation, and access educational resources without structured classroom interactions.[10]

Robinson and Persky allude to the importance of motivation, goal setting, self-regulation, and progress monitoring in SDL, especially within ODeL contexts.[11] Motivation fosters engagement, while goal setting provides direction. Self-regulation helps learners adapt study methods, and progress monitoring allows ongoing strategy refinement. Maslow's hierarchy of needs supports the idea that

[2] University of South Africa, *Open Distance ELearning Policy* (Pretoria: UNISA, 2018).
[3] Joseas Makwena Mphaga, "The Significance Of Media In Education And Its Integration In Open Distance Learning (Odel) Institutions: The Influence Of The Digital Era," 2024, 889–98, https://doi.org/10.21125/edulearn.2024.0326.
[4] Thandiwe Bongani Radebe, Ronny Tebeta, and Rendani Wilson Maladzhi, "The Impact of Technology Adoption in Teaching and Learning within ODeL," in *9th International Conference on Higher Education Advances (HEAd'23)* (Valencia: Universitat Politècnica de València, 2023), 937–45, https://doi.org/10.4995/HEAd23.2023.16099.
[5] Msekelwa, "Beyond The Borders Global Collaboration in Open Distance Education through Virtual Exchanges"; Oluwatoyin Ayodele Ajani and Mncedisi Christian Maphalala, "Online Learning Environments in Higher Education: Nexus Between Self-Directed Learning and Learning Attainment in Students' Online Learning Engagement," *International Journal of Social Science Research and Review* 6, no. 11 (2023): 349–67.
[6] Sandra Kerka, "Self-Directed Learning. Myths and Realities," 1994.
[7] Malcolm S. Knowles, *The Modern Practice of Adult Education: From Pedagogy to Andragogy*, 2nd ed. (New York: Cambridge Books, 1980).
[8] Ajani and Maphalala, "Online Learning Environments in Higher Education: Nexus Between Self-Directed Learning and Learning Attainment in Students' Online Learning Engagement."
[9] Diego Enrique Baez Zarabanda, "ICT and Its Purpose in the Pedagogical Practice," *Research in Social Sciences and Technology* 4, no. 2 (October 19, 2019): 83–95, https://doi.org/10.46303/ressat.04.02.6; Thomas Howard Morris and Matthias Rohs, "The Potential for Digital Technology to Support Self-Directed Learning in Formal Education of Children: A Scoping Review," *Interactive Learning Environments* 31, no. 4 (May 19, 2023): 1974–87, https://doi.org/10.1080/10494820.2020.1870501.
[10] Anne Voskamp, Els Kuiper, and Monique Volman, "Teaching Practices for Self-Directed and Self-Regulated Learning: Case Studies in Dutch Innovative Secondary Schools," *Educational Studies* 48, no. 6 (November 2, 2022): 772–89, https://doi.org/10.1080/03055698.2020.1814699.
[11] Jennifer D. Robinson and Adam M. Persky, "Developing Self-Directed Learners," *American Journal of Pharmaceutical Education* 84, no. 3 (March 2020): 847512, https://doi.org/10.5688/ajpe847512.

fulfilling intrinsic needs like self-actualisation is crucial for learner autonomy.[12] Developing these skills enables learners to utilise ODeL platforms for academic success effectively. However, achieving an effective SDL in ODeL comes with challenges. Baticulon et al. and Waghid caution that the absence of face-to-face interaction can lead to isolation and decreased engagement, making it difficult for learners to connect with peers and instructors.[13]

Sosibo and Brookfield critique SDL for neglecting the social context, highlighting the importance of collaborative learning and social interaction.[14] Limited instructor guidance in ODeL can make it difficult for learners to grasp complex concepts without immediate feedback. The flexibility of ODeL requires strong personal motivation and time management skills, which can be challenging for learners who balance academic, professional and personal obligations. Therefore, supportive structures such as interactive online communities, mentorship, and resources for developing SDL skills are vital for student success.

Digital literacy is another critical factor in supporting SDL learners from underserved areas who lack essential digital skills and access to technology, limiting their engagement with online learning platforms.[15] This digital divide hinders participation and restricts access to learning resources. Furthermore, a lack of self-regulation skills can lead to procrastination and disengagement. Voskampa et al. note that many learners struggle with the incorporation of SDL, highlighting the need for targeted support strategies to address these challenges.[16]

Despite these barriers, studies indicate that learners value the autonomy and control that SDL provides in ODeL environments.[17] Maphalala et al., found that personalised learning environments, supported by adaptive learning technologies and learning analytics, effectively tailor educational content to individual learner needs.[18] Collaborative learning methods, such as group projects and peer feedback systems, foster social interaction and support, reducing isolation and enhancing motivation. However, Knowles did not emphasise the collaborative aspects of SDL.[19] His concept of self-directed learning is rooted in adult learning theory (andragogy), which assumes that adults are inherently self-motivated and capable of identifying their own learning needs, setting goals, and determining strategies to achieve them. This perspective prioritises personal initiative, self-management, and internal motivation over social or collaborative learning dynamics. However, Garrison argues that SDL should balance autonomy with collaboration, viewing it as a joint process between instructors and learners.[20]

Mentoring and scaffolding strategies are essential to foster SDL. Vygotsky's social constructivist theory highlights the role of mentorship, particularly for novice learners in ODeL settings.[21] Through scaffolding within the zone of proximal development (ZPD), mentors can help learners build the necessary skills for self-directed learning. Mentoring promotes SDL through collaborative engagement

[12] A. H. Maslow, "A Theory of Human Motivation," *Psychological Review* 50, no. 4 (July 1943): 370–96, https://doi.org/10.1037/h0054346.

[13] Ronnie E. Baticulon et al., "Barriers to Online Learning in the Time of COVID-19: A National Survey of Medical Students in the Philippines," *Medical Science Educator* 31, no. 2 (April 24, 2021): 615–26, https://doi.org/10.1007/s40670-021-01231-z; F. Waghid, "Action Research and Educational Technology: Cultivating Disruptive Learning," *South African Journal of Higher Education* 32, no. 4 (August 2018), https://doi.org/10.20853/32-4-3097.

[14] Lungi Sosibo, "Barriers to Self-Directed Learning for Student Teachers Learning within Asynchronous Online Environments During Coronavirus-19 Lockdown," in *Global Perspectives on Teaching with Technology* (Routledge, 2024), 142–59; Stephen Brookfield, "Self-Directed Learning: A Conceptual and Methodological Exploration," *Studies in the Education of Adults* 17, no. 1 (April 1985): 19–32, https://doi.org/10.1080/02660830.1985.11730445..

[15] Simon. Khoza, *Lecturers' Reflections on Curricular Spider Web Concepts as Transformation Strategies: Transformation of Higher Education Institutions in Post-Apartheid South Africa* (London: Routledge, 2019); Cedric B. Mpungose, "Emergent Transition from Face-to-Face to Online Learning in a South African University in the Context of the Coronavirus Pandemic," *Humanities and Social Sciences Communications* 7, no. 1 (October 2, 2020): 113, https://doi.org/10.1057/s41599-020-00603-x.

[16] Voskamp, Kuiper, and Volman, "Teaching Practices for Self-Directed and Self-Regulated Learning: Case Studies in Dutch Innovative Secondary Schools."

[17] Seble Tadesse and Worku Muluye, "The Impact of COVID-19 Pandemic on Education System in Developing Countries: A Review," *Open Journal of Social Sciences* 08, no. 10 (2020): 159–70, https://doi.org/10.4236/jss.2020.810011.

[18] Mncedisi Christian Maphalala, Rachel Gugu Mkhasibe, and Dumisani Wilfred Mncube, "Online Learning as a Catalyst for Self-Directed Learning in Universities during the COVID-19 Pandemic," *Research in Social Sciences and Technology* 6, no. 2 (September 29, 2021): 233–48, https://doi.org/10.46303/ressat.2021.25.

[19] Knowles, *The Modern Practice of Adult Education: From Pedagogy to Andragogy*.

[20] D. R. Garrison, "Critical Thinking and Self-Directed Learning in Adult Education: An Analysis of Responsibility and Control Issues," *Adult Education Quarterly* 42, no. 3 (March 1, 1992): 136–48, https://doi.org/10.1177/074171369204200302.

[21] Lev S Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*, vol. 86 (Harvard university press, 1978).

and can occur formally or informally.[22] Active participation of students in mentoring improves learning outcomes.[23] Thelma et al. found that integrating digital literacy into curricula is essential for preparing learners for modern workforce demands and improving employability as industries adopt advanced technologies.[24] Technology is foundational in supporting SDL in ODeL as Learning Management Systems (LMS) like Moodle, Blackboard, and Canvas centralise course content and communication.[25] Interactive tools such as multimedia resources and gamified activities engage learners, while online collaboration platforms foster peer interaction. Adaptive learning technologies provide personalised feedback, supporting self-regulation and autonomy.[26]

This study aims to identify effective strategies to improve SDL in ODeL environments. Addressing existing gaps is crucial for improving academic performance, retention, and satisfaction in distance learning programs.[27] This research seeks to contribute to more inclusive and effective ODeL practices by exploring diverse strategies.

THEORETICAL FRAMEWORK

This study is grounded in SDT, developed by Edward L. Deci and Richard M. Ryan in the 1980s, which focuses on intrinsic motivation and the fulfilment of three basic psychological needs: autonomy, competence, and relatedness.[28] The theoretical framework provides a foundation for guiding the research by helping to connect it to existing knowledge and ensuring coherence in the study design.[29] This research uses SDT to examine how ODeL environments can support these needs to enhance student motivation and academic success.[30] The purpose of a theoretical framework is to direct the study's focus, ensuring the research is connected to relevant literature and contributes meaningfully to the field.[31] SDT's principles are applied here to investigate how addressing autonomy, competence, and relatedness in ODeL can foster motivation, increase engagement, and improve academic outcomes. The core principles of SDT of autonomy, competence, and relatedness are essential for intrinsic motivation and academic success, particularly in online learning settings where isolation can hinder engagement.[32] Furthermore, Feminist pedagogy and Critical pedagogy complement SDT by advocating for inclusive and socially just learning environments. Feminist pedagogy promotes diverse voices and challenges power structures, addressing educational inequalities.[33] Critical pedagogy encourages educators to reflect on their biases and empowers learners to critically engage with social issues such as gender inequality.[34] These pedagogical approaches, along with SDT, guide the development of an ODeL environment that supports

[22] Lillian T. Eby, Jean E. Rhodes, and Tammy D. Allen, "Definition and Evolution of Mentoring," in *The Blackwell Handbook of Mentoring: A Multiple Perspectives Approach*, ed. Tammy D. Allen and Lillian T. Eby (Oxford: Blackwell, 2007), 7–20.
[23] Thomas Howard Morris, "Self-Directed Learning: A Fundamental Competence in a Rapidly Changing World," *International Review of Education* 65, no. 4 (August 13, 2019): 633–53, https://doi.org/10.1007/s11159-019-09793-2.
[24] Carol C. Thelma et al., "Digital Literacy in Education: Preparing Learners for the Future Workforce," *International Journal of Research (IJIR)* 11, no. 8 (2024): 327–44.
[25] Mélissa Khaled, "Learning Styles, Personalization, and Learning Management Systems: Towards a Student-Centred LMS Approach," 2021; J. D. Swerzenski, "Critically Analyzing the Online Classroom: Blackboard, Moodle, Canvas, and the Pedagogy They Produce," *Journal of Communication Pedagogy* 4 (2021): 51–69, https://doi.org/10.31446/JCP.2021.1.05..
[26] Jennifer Toth, Meagen Rosenthal, and Kristen Pate, "Use of Adaptive Learning Technology to Promote Self-Directed Learning in a Pharmacists' Patient Care Process Course," *American Journal of Pharmaceutical Education* 85, no. 1 (January 2021): 7971, https://doi.org/10.5688/ajpe7971; Oskah Dakhi, Jalius Jama, and Dedy Irfan, "Blended Learning: A 21st Century Learning Model at College," *International Journal Of Multi Science* 1, no. 08 (2020): 50–65; Donnavan Kruger, "Adaptive Learning Technology to Enhance Self-Directed Learning," in *Self-Directed Multi-Modal Learning in Higher Education (NWU Self-Directed Learning Series)*, 5th ed., 2021, 93–116, https://doi.org/10.4102/aosis.2020.BK210.03.
[27] Mubashra Khalid, Sadia Bashir, and Hina Amin, "Relationship between Self-Directed Learning (SDL) and Academic Achievement of University Students: A Case of Online Distance Learning and Traditional Universities.," *Bulletin of Education and Research* 42, no. 2 (2020): 131–48.
[28] Edward L Deci and Richard M Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior* (Springer Science & Business Media, 2013).
[29] Joseph A. Maxwell, *Qualitative Research Design: An Interactive Approach* (Los Angeles, CA: Sage, 2013); John Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, SAGE, Ca; Ofprnia* (California: Sage Publications, 2013).
[30] Deci and Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior*.
[31] Donna M Mertens, "Mixed Methods and Wicked Problems," *Journal of Mixed Methods Research* (Sage Publications Sage CA: Los Angeles, CA, 2015).
[32] Deci and Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior*.
[33] Bell Hooks, *Teaching to Transgress: Education as the Practice of Freedom* (New York: Routledge, 1994).
[34] Paulo Freire, "Pedagogy of the Oppressed," in *The Community Performance Reader* (Routledge, 2020), 24–27, https://doi.org/10.4324/9781003060635-5.

student motivation and encourages critical thinking about social justice. Together, these frameworks aim to enhance the educational experience, fostering both academic success and social awareness.

METHODOLOGY

This study aims to identify strategies to improve SDL within the ODeL environment. To achieve this, the research employed a SLR to investigate various approaches that may improve student engagement, access, and inclusion in ODeL settings. The review focused on empirical studies published between 2014 and 2024, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure transparency, rigour, and reproducibility throughout the process. The primary objective of the SLR is to synthesise findings from existing research, identify recurring themes, and uncover strategies that contribute to enhancing SDL and overcoming challenges within the ODeL environment.The review process unfolded in three phases: searching, screening, and analysis, as outlined by Kitchenham and Charters.[35]

Phase 1: Searching

To ensure comprehensive coverage, reputable educational and social science databases such as Scopus, Web of Science, ERIC, and Google Scholar were used. Keywords such as self-directed learning in ODeL, strategies to improve SDL in distance education, and barriers to SDL in online education guided the search. Boolean operators refined the results, and the search was limited to peer-reviewed empirical studies published in English from 2014 to 2024.

Phase 2: Screening

Inclusion criteria focused on studies that address SDL in ODeL contexts and strategies to improve student access, engagement, and inclusion. The exclusion criteria eliminated theoretical papers and studies not directly related to SDL or distance education. After removing duplicates, the initial search identified 1,200 articles, which were narrowed down to 950 unique articles. From this pool, 150 articles were selected for full-text review based on their relevance to SDL in ODeL and their alignment with the study's objectives.

Phase 3: Analysis

The final step involved thoroughly examining the selected articles, assessing their research objectives, methodologies, and findings. After reviewing 150 articles, 11 studies were chosen for inclusion based on their direct relevance to SDL in ODeL. A PRISMA flow diagram was used to visualise the review process and highlight key themes related to SDL enhancement. By focusing on SDL and its application in ODeL, this study seeks to uncover effective strategies that will improve the learning experience for learners in online and distance education environments, ultimately addressing gaps in academic performance, retention, and student satisfaction. A PRISMA flow diagram was created to visualise the selection process, from initial records to the final 11 studies.

[35] Barbara Kitchenham and Stuart Charters, “Guidelines for Performing Systematic Literature Reviews in Software Engineering” 2 (January 1, 2007).

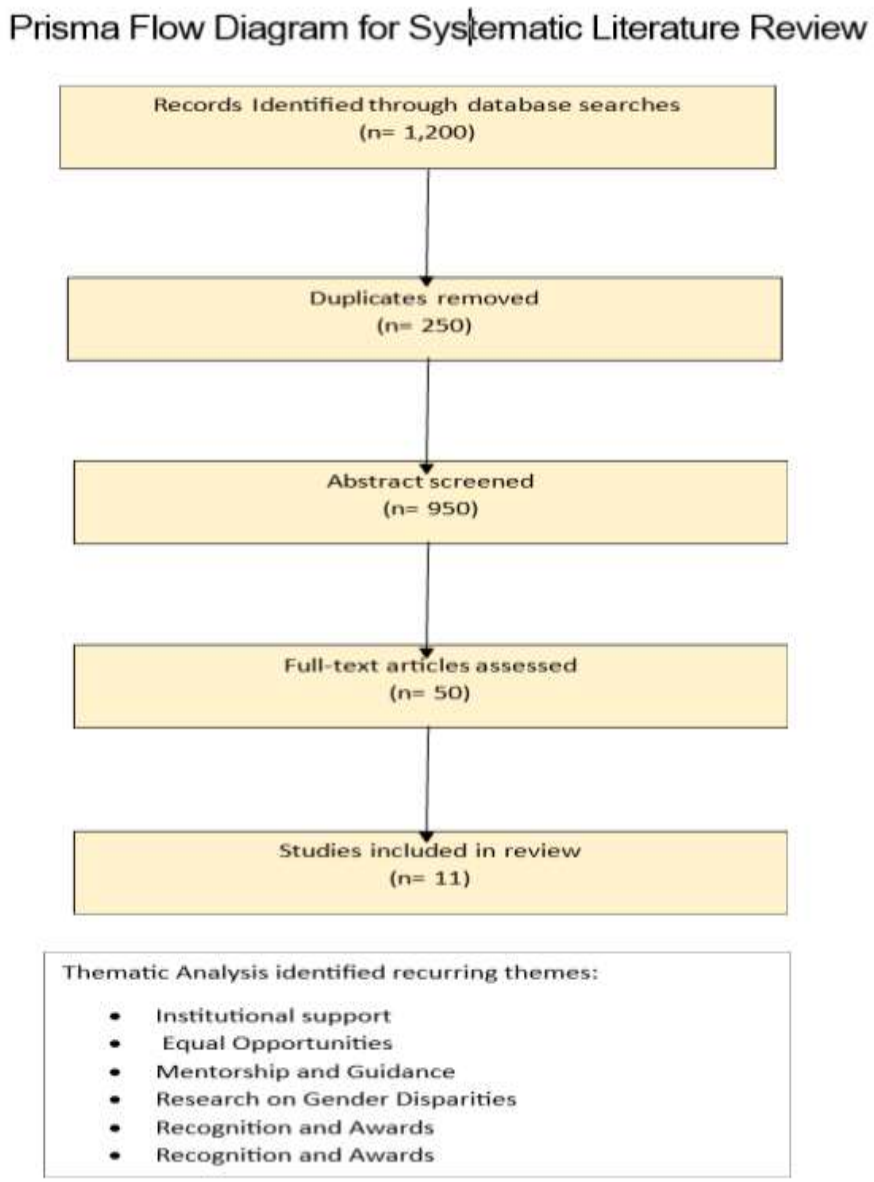

Figure 1: Prisma Flow Diagram for Systematic Literature Review

The PRISMA flow diagram visually represents the systematic review process, tracking the progression from the initial search to the final selection of studies while annotating key themes for added clarity**.**

PRESENTATION OF FINDINGS

Following the systematic literature review, Table 1 below lists the key findings of Strategies for Enhancing ODeL Contexts.

Table 1: Key Findings on Strategies for Enhancing Self-Directed Learning in Open Distance and e-Learning (ODeL) Contexts

Theme	Author(s)	Findings
Promoting Inclusive Access and Equal Opportunities in Education	Mphaga (2024); Msekelwa (2023); Radebe et al., (2023); University of South Africa (2018); Deci & Ryan, 1985; Ryan & Deci, 2000; Hooks, 1994; Freire, 1970	ODeL removes geographical, financial, and personal barriers to education, promoting lifelong learning and equitable access for underserved and remote learners.

The SDL on Student Independence	Ajani & Maphalala (2023); Morris & Rohs (2021); Robinson & Persky (2020); Voskampa et al. Baez (2019); Knowles (1980). Deci and Ryan (1985) ;Ryan and Deci 2000).	Emphasis on learner autonomy, self-regulation, motivation, and goal setting, where learners take responsibility for managing their educational journey.
Leveraging Digital Tools for Transformative Learning	Ajani & Maphalala (2023); Msekelwa (2023); Khaled (2021); Swerzenski (2021); Kruger (2020); Toth et al., (2021); Dakhi et al., (2020). Knowles (1980). Deci and Ryan (1985) and Ryan and Deci (2000).	Digital tools,LMS, and adaptive learning technologies are essential for content delivery, assessment, and improvement of engagement through interactive platforms.
Addressing Obstacles in SDL and ODeL	Sosibo (2024); Baticulon et al., (2021); Voskampa et al., (2020); Robinson & Persky (2020); Mpungose (2020); Khoza (2019); Waghid (2018); Brookfield (1985).	Issues such as learner isolation, lack of social interaction, limited instructor support, and the digital divide hinder effective learning and require targeted support systems.
Cultivating Effective Support Strategies for Student Achievement	Thelma et al., (2024); Maphalala et al., (2021); Mpungose (2020); Tadesse & Muluye (2020); Morris (2019); Khoza (2019); Eby et al., (2007); Vygotsky (1978).	Mentoring, scaffolding, digital literacy training, and collaborative learning methods are critical in developing SDL skills and improving student outcomes in ODeL environments.

This section analyses the findings derived from a systematic literature review, examining how ODeL, when integrated with SDL, enhances inclusive access and equal opportunities in education while fostering lifelong learning. The results highlight ODeL's significant potential to transform educational access and learner autonomy but also emphasise the need to address critical challenges through well-designed support strategies to promote inclusivity and student success. Key focus areas include utilising digital tools for transformative learning, overcoming challenges in SDL and ODeL, and implementing effective support strategies to drive student achievement. The findings are categorised according to the main themes identified during the thematic analysis.

Theme 1: Promoting Inclusive Access and Equal Opportunities in Education

The findings denote that ODeL significantly enhances educational accessibility by eliminating barriers related to geography, finances, and personal circumstances, thereby promoting lifelong learning and educational equity.[36] This is consistent with the core principles of SDT, which emphasise the importance of autonomy, competence, and intrinsic motivation, particularly in online learning settings. [37] Furthermore, the finding aligns with feminist pedagogy and critical pedagogy by advocating for inclusive and socially just learning environments.[38] By offering flexible, student-centered learning models, ODeL allows learners to manage their studies around their personal and professional obligations. For example, single mothers and rural learners can engage in higher education without being hindered by geographical

[36] Mphaga, "The Significance of Media in Education and Its Integration in Open Distance Learning (ODEL) Institutions: The Influence Of The Digital Era"; Msekelwa, "Beyond The Borders Global Collaboration in Open Distance Education through Virtual Exchanges"; Radebe, Tebeta, and Maladzhi, "The Impact of Technology Adoption in Teaching and Learning within ODeL"; University of South Africa, *Open Distance ELearning Policy*.

[37] Deci and Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior*.

[38] Hooks, *Teaching to Transgress: Education as the Practice of Freedom*.

or childcare limitations. At the same time, working professionals can advance their careers without disrupting their employment. These benefits illustrate how ODeL fosters educational equity by making learning accessible to marginalised communities.[39] The evidence underscores that ODeL is pivotal in democratising education, making higher education accessible to a broader demographic, particularly those who otherwise would not be able to attend traditional brick-and-mortar institutions. This flexibility in learning supports diverse learners, promoting lifelong learning and upskilling opportunities, thus advancing educational equity. However, for ODeL to reach its full potential, institutions must implement strategies to ensure that diverse learners receive the necessary support to succeed.

Theme 2: The Impact of SDL on Student Independence

SDLand SDT play crucial roles in ODeL, requiring learners to independently manage their educational journey. This involves setting learning goals, identifying resources, and tracking progress.[40] According to Ajani and Maphalala, ODeL learners must navigate each phase of their education independently, cultivating motivation and accountability.[41] This autonomy is particularly beneficial for adult learners and professionals, who can design personalised study schedules that allow them to balance work, life, and education. Similarly, learners can choose modular courses aligned with their career goals, facilitating targeted professional development.[42] However, SDL also presents challenges in time management, motivation, and resource access. As Voskampa et al. point out, many learners struggle to maintain motivation and manage their studies without the structured environment of traditional classrooms.[43] These findings suggest that, while SDL promotes autonomy, learners still require support to manage time, overcoming procrastination, and ensure they remain engaged. Robinson and Persky allude to the importance of fostering self-regulation skills and providing resources to help learners succeed in SDL environments.[44] Therefore, SDL requires more than just independence; it requires that institutions create scaffolding to help learners transition effectively to autonomous learning. Incorporating SDT, as outlined by Deci and Ryan as well as Ryan and Deci, enhances the understanding of SDL within ODeL contexts.[45] SDT emphasises the importance of intrinsic motivation and the fulfillment of psychological needs autonomy, competence, and relatedness in fostering effective learning. When learners feel that they have control over their educational choices, access to the necessary resources, and a supportive learning environment, they are more likely to engage in SDL successfully. Thus, educational institutions must promote autonomy and provide the necessary support to ensure that learners' psychological needs are met, leading to greater motivation and long-term success in self-directed learning.

Theme 3: Leveraging Digital Tools for Transformative Learning

The findings highlight that technology is essential to facilitate SDL within ODeL. LMS like Moodle, Blackboard, and Canvas centralise course content, communication, and assessments, offering a flexible and scalable educational experience.[46] These systems, along with adaptive learning technologies, allow for personalized content delivery and real-time feedback, which supports goal achievement and self-regulation.[47] For example, quizzes and automated feedback help learners track progress, while virtual

[39] Radebe, Tebeta, and Maladzhi, "The Impact of Technology Adoption in Teaching and Learning within ODeL"; Msekelwa, "Beyond The Borders Global Collaboration in Open Distance Education through Virtual Exchanges."
[40] Ajani and Maphalala, "Online Learning Environments in Higher Education: Nexus Between Self-Directed Learning and Learning Attainment in Students' Online Learning Engagement"; Robinson and Persky, "Developing Self-Directed Learners"; Baez Zarabanda, "ICT and Its Purpose in the Pedagogical Practice"; Knowles, *The Modern Practice of Adult Education: From Pedagogy to Andragogy*.
[41] Ajani and Maphalala, "Online Learning Environments in Higher Education: Nexus Between Self-Directed Learning and Learning Attainment in Students' Online Learning Engagement."
[42] Baez Zarabanda, "ICT and Its Purpose in the Pedagogical Practice."
[43] Voskamp, Kuiper, and Volman, "Teaching Practices for Self-Directed and Self-Regulated Learning: Case Studies in Dutch Innovative Secondary Schools."
[44] Robinson and Persky, "Developing Self-Directed Learners."
[45] Deci and Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior*; Richard M. Ryan and Edward L. Deci, "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions," *Contemporary Educational Psychology* 25, no. 1 (January 2000): 54–67, https://doi.org/10.1006/ceps.1999.1020.
[46] Khaled, "Learning Styles, Personalization, and Learning Management Systems: Towards a Student-Centred LMS Approach"; Swerzenski, "Critically Analyzing the Online Classroom: Blackboard, Moodle, Canvas, and the Pedagogy They Produce."
[47] Toth, Rosenthal, and Pate, "Use of Adaptive Learning Technology to Promote Self-Directed Learning in a Pharmacists' Patient Care Process Course"; Kruger, "Adaptive Learning Technology to Enhance Self-Directed Learning."

labs and simulations offer hands-on learning experiences that replicate real-world scenarios, thereby enhancing understanding.[48] Additionally, mobile learning applications provide learners with greater flexibility to access materials on the go, making learning adaptable to diverse lifestyles. Technology, as highlighted by Knowles, plays a critical role in promoting SDL by providing learners with the tools they need to learn independently.[49] This view is also supported by SDT as articulated by Deci and Ryan and Ryan and Deci.[50] However, the findings also reveal the importance of equitable access to technology, as learners in remote or underserved areas may face challenges such as unreliable internet connections or a lack of devices.[51] This digital divide can undermine the effectiveness of ODeL if not addressed. Institutions must therefore ensure that all learners have the technological resources necessary for success.

Theme 4: Addressing Obstacles in SDL and ODeL

Despite its benefits, ODeLfaces several challenges, primarily the lack of face-to-face interaction, which often leads to feelings of isolation and disengagement.[52] According to SDT, which highlights the importance of fulfilling the psychological needs of autonomy, competence, and relatedness, the absence of direct interaction with peers and instructors undermines the critical need for relatedness. This disconnection can make it difficult for learners to maintain motivation and engagement. For example, those in remote areas may feel isolated from their peers and instructors, negatively affecting their academic performance.[53] While the flexibility of ODeL is advantageous, it requires learners to possess strong time management and intrinsic motivation skills that many lack, as observed by Voskampa et al. as well as Robinson and Persky.[54] From the perspective of SDT, a failure to meet the need for competence may lead to disengagement, as learners struggle to manage their studies without adequate support independently. Moreover, technological barriers, such as limited internet connectivity and insufficient access to devicesm, remain significant obstacles, particularly for learners in underserved regions.[55] These challenges restrict access to educational resources and amplify feelings of isolation, fully compromising learners' sense of relatedness and ability to fully engage with the curriculum. Cultural and language barriers further hinder learners' ability to connect with course content and peers, particularly in global ODeL programs.[56] Such challenges can limit autonomy by creating a sense of constraint in unfamiliar learning environments, thereby reducing overall engagement and performance. Addressing these challenges requires targeted interventions that align with SDT principles to support autonomy, competence, and relatedness. Increased instructor support, the introduction of social collaboration platforms, and initiatives to improve access to technology are crucial to mitigating isolation and improving engagement.

[48] Ajani and Maphalala, "Online Learning Environments in Higher Education: Nexus Between Self-Directed Learning and Learning Attainment in Students' Online Learning Engagement"; Msekelwa, "Beyond The Borders Global Collaboration in Open Distance Education through Virtual Exchanges."

[49] Knowles, *The Modern Practice of Adult Education: From Pedagogy to Andragogy*.

[50] Ryan and Deci, "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions"; Deci and Ryan, *Intrinsic Motivation and Self-Determination in Human Behavior*.

[51] Mpungose, "Emergent Transition from Face-to-Face to Online Learning in a South African University in the Context of the Coronavirus Pandemic"; Khoza, *Lecturers' Reflections on Curricular Spider Web Concepts as Transformation Strategies: Transformation of Higher Education Institutions in Post-Apartheid South Africa*.

[52] Sosibo, "Barriers to Self-Directed Learning for Student Teachers Learning within Asynchronous Online Environments During Coronavirus-19 Lockdown"; Baticulon et al., "Barriers to Online Learning in the Time of COVID-19: A National Survey of Medical Students in the Philippines"; Waghid, "Action Research and Educational Technology: Cultivating Disruptive Learning"; Brookfield, "Self-Directed Learning: A Conceptual and Methodological Exploration."

[53] Yusuf Sayed et al., "Social Cohesion and Initial Teacher Education in South Africa," *Educational Research for Social Change* 5, no. 1 (April 1, 2016): 54–69, https://doi.org/10.17159/2221-4070/2016/v5i1a4.

[54] Voskamp, Kuiper, and Volman, "Teaching Practices for Self-Directed and Self-Regulated Learning: Case Studies in Dutch Innovative Secondary Schools"; Robinson and Persky, "Developing Self-Directed Learners."

[55] Khoza, *Lecturers' Reflections on Curricular Spider Web Concepts as Transformation Strategies: Transformation of Higher Education Institutions in Post-Apartheid South Africa*; Mpungose, "Emergent Transition from Face-to-Face to Online Learning in a South African University in the Context of the Coronavirus Pandemic.".

[56] Sosibo, "Barriers to Self-Directed Learning for Student Teachers Learning within Asynchronous Online Environments During Coronavirus-19 Lockdown."

Theme 5. Cultivating Effective Support Strategies for Student Achievement

To overcome the challenges faced by ODeL, the findings emphasise the need for targeted support strategies, including mentoring, scaffolding, and training in digital literacy. These approaches can be effectively analysed through the lens of SDT, which identifies autonomy, competence, and relatedness as essential for motivation and engagement. Mentoring, as supported by Vygotsky's social constructivist theory, stresses the importance of social interaction and guidance in learning.[57] Online mentoring programs, where experienced learners guide newcomers, promote relatedness by building connections and enhancing competence through shared knowledge and support.[58] Similarly, peer discussion forums and group projects reduce isolation by creating a sense of community, aligning with the SDT principle of fulfilling the need for relatedness, which can significantly enhance motivation. Digital literacy training is crucial for addressing many learners' technological barriers, ensuring they can effectively navigate online platforms and access digital resources. This training supports the SDT's need for competence by empowering learners with the necessary skills to succeed in the digital learning environment.[59] Evidence suggests that institutions should also focus on developing learners' autonomy and SDL competencies through self-regulation time management, goal-setting, and self-regulation workshops. Such initiatives align with SDT's emphasis on autonomy, enabling learners to take control of their educational journey while feeling equipped to handle its demands. Additionally, interactive online communities, peer feedback systems, and adaptive learning tools can foster social engagement and collaboration, fulfilling both relatedness and competence needs.[60] These tools allow learners to interact meaningfully with peers and content, providing personalised feedback that nurtures their growth and keeps them engaged. Institutions can create a supportive framework that promotes autonomy, competence, and relatedness by integrating mentorship, community-building, and digital skill development. These strategies not only address the inherent challenges of ODeL but also create a learning environment where learners can thrive, feel connected, and remain motivated throughout their educational journey. SDT provides a valuable framework for understanding how these interventions can holistically improve learners' success and create an inclusive, engaging educational experience.

DISCUSSION

This study examined methods to improve SDL in ODeL environments. It adopted a systematic literature review and the SDT to analyse the main themes identified in the study. The findings indicate a comprehensive strategy to improve SDL and highlight the importance of institutional support, learner-centered approaches, and technology in facilitating successful educational experiences. The findings highlight that ODeL serves as a transformative medium for democratising education, particularly for marginalised groups.[61] This aligns with SDT's focus on autonomy, allowing learners to access education without being hindered by geographical barriers and promoting equity, reflecting principles from feminist and critical pedagogies.[62] However, ensuring inclusivity goes beyond mere access; it requires equitable support systems to guarantee that all learners can succeed. This emphasis on equitable support systems should inspire a commitment to promoting educational equity in ODeL among educators, researchers, and policymakers.

Self-directed learning is fundamental to ODeL. It requires learners to set their own goals, manage their time effectively, and independently track their progress.[63] While this independence can enhance intrinsic motivation, it also presents challenges. Many learners struggle with time management and

[57] Vygotsky, *Mind in Society: The Development of Higher Psychological Processes*.
[58] Eby, Rhodes, and Allen, "Definition and Evolution of Mentoring."
[59] Mpungose, "Emergent Transition from Face-to-Face to Online Learning in a South African University in the Context of the Coronavirus Pandemic"; Khoza, *Lecturers' Reflections on Curricular Spider Web Concepts as Transformation Strategies: Transformation of Higher Education Institutions in Post-Apartheid South Africa*.
[60] Maphalala, Mkhasibe, and Mncube, "Online Learning as a Catalyst for Self-Directed Learning in Universities during the COVID-19 Pandemic"; Tadesse and Muluye, "The Impact of COVID-19 Pandemic on Education System in Developing Countries: A Review."
[61] Mphaga, "The Significance Of Media In Education And Its Integration In Open Distance Learning (Odel) Institutions: The Influence Of The Digital Era"; Radebe, Tebeta, and Maladzhi, "The Impact of Technology Adoption in Teaching and Learning within ODeL."
[62] Hooks, *Teaching to Transgress: Education as the Practice of Freedom*; Freire, "Pedagogy of the Oppressed."
[63] Ajani and Maphalala, "Online Learning Environments in Higher Education: Nexus Between Self-Directed Learning and Learning Attainment in Students' Online Learning Engagement"; Knowles, *The Modern Practice of Adult Education: From Pedagogy to Andragogy*.

maintaining motivation.[64] According to SDT, autonomy is most effective when accompanied by feelings of competence. Learners need institutional support to adapt to independent learning.[65] The findings indicate that when learners feel empowered in their educational journey, they are more likely to succeed. Tools such as LMS allow learners to access personalised materials, track their progress, and receive immediate feedback.[66] These technological resources support the principles of SDT by promoting autonomy, enhancing competence through tailored content, and fostering relatedness through collaborative features. However, the findings also highlight that the digital divide is a significant barrier. Learners from underserved communities often face challenges such as limited internet access and inadequate devices, hindering their ability to engage with online educational resources.[67] To address this disparity, institutions must implement initiatives such as providing subsidised devices, improving internet infrastructure, and offering offline learning alternatives.

Although ODeL offers exceptional flexibility, it also presents challenges such as feelings of isolation.[68] These issues conflict with the principle of relatedness in SDT, as learners often miss meaningful interactions with both peers and instructors. The absence of in-person engagement can lead to lower motivation and academic success.[69] Addressing technological and cultural challenges through localised support can improve learners' competence and autonomy. This emphasis on community and support in ODeL should reassure educators, researchers, and policymakers about the potential for successful ODeL experiences.

The findings highlight the importance of targeted support strategies, such as mentoring, scaffolding, and digital literacy training, to address the challenges of SDL in ODeL. These approaches align with SDT by addressing learners' autonomy, competence, and connection needs. Similarly, scaffolding initiatives, such as structured time management workshops and self-regulation training, empower learners to take charge of their education. Educational institutions address the competence aspect of SDT, enabling learners to engage with the curriculum confidently by equipping learners with the essential skills to navigate digital tools effectively.[70] The findings of this study suggest that improving SDL in open and ODeL environments requires a comprehensive strategy based on SDT.

RECOMMENDATIONS

Future practices in ODeL should prioritise student-centered teaching methods, the enhancement of digital systems, and specialised training for educators to improve student engagement. Implementing orientation sessions, self-directed learning workshops, customised learning paths, mentorship programs, and peer support groups can promote deeper engagement and help alleviate feelings of isolation among learners. Engaging in robust LMS, providing affordable technology, ensuring reliable internet connectivity, and incorporating the digital literacy education are essential for strengthening digital infrastructure. Educator training should focus on innovative instructional techniques, effective use of digital resources, and the creation of inclusive online learning experiences that address learners' diverse needs. Additionally, offering flexible course options and micro-credentialing can support lifelong learning and assist in career advancement. Creating multilingual and culturally relevant materials will ensure educational content is accessible and meaningful. Continuous assessment of programs through student feedback and performance metrics is vital to maintain the relevance and effectiveness of educational offerings. By

[64] Voskamp, Kuiper, and Volman, "Teaching Practices for Self-Directed and Self-Regulated Learning: Case Studies in Dutch Innovative Secondary Schools."
[65] Robinson and Persky, "Developing Self-Directed Learners."
[66] Khaled, "Learning Styles, Personalization, and Learning Management Systems: Towards a Student-Centred LMS Approach"; Kruger, "Adaptive Learning Technology to Enhance Self-Directed Learning."
[67] Mpungose, "Emergent Transition from Face-to-Face to Online Learning in a South African University in the Context of the Coronavirus Pandemic"; Khoza, *Lecturers' Reflections on Curricular Spider Web Concepts as Transformation Strategies: Transformation of Higher Education Institutions in Post-Apartheid South Africa*.
[68] Sosibo, "Barriers to Self-Directed Learning for Student Teachers Learning within Asynchronous Online Environments During Coronavirus-19 Lockdown."
[69] Waghid, "Action Research and Educational Technology: Cultivating Disruptive Learning."
[70] Mpungose, "Emergent Transition from Face-to-Face to Online Learning in a South African University in the Context of the Coronavirus Pandemic"; Khoza, *Lecturers' Reflections on Curricular Spider Web Concepts as Transformation Strategies: Transformation of Higher Education Institutions in Post-Apartheid South Africa*.

adopting these approaches, one can create a more engaging, inclusive, and responsive ODeL environment that fosters academic success and lifelong learning.

CONCLUSION

The study examined methods to improve SDL within ODeL frameworks, based on the SDT model. The findings revealed five main themes: advancing inclusive access and equal opportunities in education, the effect of SDL on student autonomy, utilising digital tools for transformative education, tackling challenges in ODeL, and developing effective support mechanisms for student success. ODeL is a revolutionary platform for democratising education, offering marginalised learners flexible, accessible, and inclusive pathways. Nonetheless, guaranteeing equitable access necessitates overcoming technological barriers, providing digital literacy education, and creating interventions that promote educational fairness. Institutions must implement strategies that autonomy and cater to the psychological needs of learners, nurturing a sense of belonging. The findings highlight the significance of SDL in enabling learners to assume control over their educational experiences and accomplish them at their own pace. However, obstacles such as motivation, time management, and feelings of isolation remain, particularly in less structured settings. Applying SDT principles can alleviate these challenges by providing a supportive learning climate that enhances connectedness. Technology is essential in supporting SDL, with digital resources like learning management systems, mobile apps, and adaptive learning platforms facilitating personalised and flexible educational experiences. For these tools to be fully used, institutions must confront the digital divide and ensure that every student, has access to the necessary resources for success. These initiatives align with SDT by promoting autonomy, developing competence, and establishing meaningful relationships, thereby addressing the isolation and disengagement frequently linked to ODeL. Improving SDL in ODeL contexts demands a comprehensive strategy that emphasises learners' psychological requirements and incorporates technology equitably. Institutions can cultivate inclusive, learners-centred environments that empower learners to thrive in their educational pursuits, ultimately promoting lifelong learning and global educational equity by aligning approaches with SDT principles.

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ABOUT AUTHORS

Dr. Ntombikayise Nkosi is a Senior Lecturer in Sociology at the University of South Africa (College of Education) within the Department of Educational Foundations. She holds a D.Ed in Social Justice in Education from the University of KwaZulu-Natal. Previously, she served as Deputy Chief Education Specialist in the Information Systems & Strategic Sub-Directorate at the Gauteng Department of Education. Her career also includes roles at Rosebank College as Head of Academics (Durban campus) and various leadership positions in the KZN Department of Education, including teacher, head of department, deputy principal, and principal of Waterloo Primary School. Dr. Nkosi is a grant recipient under the Women in Research (WiR) programme and leads the Women in Leadership and Management (WiLM) project in KwaZulu-Natal. She has presented her research at numerous national and international conferences and has authored several book chapters and articles in peer-reviewed journals. Currently, she supervises multiple master's and doctoral students. Her research focuses on gender issues in education and community-based participatory research (CBPR). A strong advocate for gender equality, Dr. Nkosi actively challenges stereotypes and misconceptions surrounding women in leadership. She collaborates with communities to provide insights on gender issues and to develop innovative solutions. Her inspiring journey reflects resilience, determination, and the courage to overcome the often-unseen challenges faced by women.

Prof Mncedisi Maphalala is a Full Professor in the Department of Curriculum and Instructional Studies at Unisa (College of Education). He is a former Director of the Centre for Excellence in Learning and Teaching (CELT) at the Durban University of Technology, and a former Dean in the Faculty of Education at the University of Zululand. He holds a D.Ed in curriculum studies from the University of Zululand. His career in Higher Education spans over 19 years as a Research Professor (North-West University), Professor at the University of Zululand and UNISA, and Institutional researcher at the University of the Witwatersrand. He has also previously worked for the KZN Department of Education (as a teacher, HOD, and Deputy Principal); between May and August 2015, he was a Visiting Scholar at the University of North Dakota (USA). Prof Maphalala is an established researcher who holds an NRF C2 rating. He has edited books and special journal issues and published a number of book chapters and research articles in peer-reviewed journals. Prof Maphalala has presented research papers at various local and international conferences. As a postgraduate supervisor and mentor, Prof Maphalala has supervised several master's and doctoral candidates to completion. He has conducted a number of large-scale commissioned research projects by external organisations such as the South African Institute of Distance Education (SAIDE), Human Sciences Research Council (HSRC), and Council on Higher Education (CHE). He has served on the Umalusi Research Forum, a subcommittee of the Umalusi Council, for a four-year term. His research interests are teacher education, self-directed learning, blended learning, Scholarship of Teaching & Learning, and Curriculum studies.