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Exploring the integration of indigenous languages into teaching and learning practices at primary schools in South Africa

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This systematic literature review explores the integration of indigenous languages (ILs) into teaching and learning practices at primary schools in South Africa. The authors examine the current state and preparedness of teachers in integrating ILs to enhance learning. The PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines were followed to ensure transparency when reporting on the systematic review. Findings suggest that the use of ILs in education stimulates cognitive development, strengthens cultural identity and a sense of belonging, and improves academic performance among learners. Challenges such as insufficient teacher training, a lack of instructional materials and limited policy support hinder effective implementation. The review recommends comprehensive teacher training programmes, the development of culturally relevant educational materials, and robust policy frameworks to support the sustainable integration of ILs in primary education. The authors conclude that future research should explore the implementation of language policies and teaching practices using ILs in South Africa.

Keywords: systematic review, education, mother tongue, decolonisation, pedagogy, latent dirichlet allocation

Introduction

Historically, the 16th century was tainted by European superpowers beginning to infiltrate and colonise the lands belonging to African indigenous people. Centuries later, African indigenous people have emerged through the scars of colonial injustices and are working hard to reinstate their cultural identity and heritage on the continent (Amira, 2023). Several studies point to how African educational systems are transforming colonial epistemological barriers to prioritise curriculum renewal that mirrors the cultural identity of African learners (Bhurekeni, 2020; Chebanne & Kewagamang, 2020; Luckett and Shay, 2020; Enaifoghe, 2022; Oko & Ogbodo, 2022; Govender and Naidoo, 2023; Mangani, 2024). A case in point is how language is being integrated into the curriculum in Nigeria, and subjects such as science, technology and religion are being taught in the local African languages (Oko & Ogbodo, 2022). Similarly in Botswana, Chibane & Kewagamang (2020) report that the school system has an inclusive language policy that covers other languages that were marginalised during the colonial regime. Politically, the hegemony of African political systems is currently witnessed through partnerships such as BRICS that are endorsing governance with no Western influence in socio-economic development (Mangani, 2024).

At the very southern tip of Africa is the country known as South Africa, in which the process of colonisation started

around 1652. The colonists caused a barrage of attacks on the indigenous people of South Africa (Zuo, 2022). This led to their cultural identity and heritage being suppressed for centuries as Western ideologies infiltrated the very fabric of South African society. These inequalities and the marginalisation of South African indigenous communities sparked efforts towards reclamation through underground movements, some of which include the formation of the African National Congress (ANC) in 1912, the establishment of the Communist Party of South Africa CPSA in 1921, and the creation of the Freedom Charter (Simpson, 2021). In 1991, the rewards of these underground movements for liberation were globally witnessed with the release of Nelson Mandela, an apartheid activist and iconic figure, from prison. This was soon followed by the first democratic elections in 1994 that marked transformational changes for post-apartheid South Africa (Jones 2021). Fundamentally, these events paved the way for emancipation after centuries of colonial occupation and hegemony in South Africa. It is important to also state that this narrative is not limited to South Africa as many countries across the world have experienced similar injustices and postcolonial shifts that have resulted in the birth of democratic nations. However, it is important to point out that decades into democracy, there are still challenges such as economic instability, crime and high unemployment in South Africa (Oliver & Oliver, 2017; Fourie-Malherbe & Müller, 2020; Jones, 2021). In the context of this study, one such area in which there has been slow progress is the integration of indigenous languages and knowledge into the South African educational system.

At the heart of this discourse lies the imperative to acknowledge and integrate indigenous knowledge systems into education, challenging the legacy of colonialism, apartheid and de-territorialisation. The concept of de-territorialisation first appeared in the literature during the 1970s, together with re-territorialisation. De-territorialisation and re-territorialisation are underpinned by critical theory, which is commonly known for challenging power structures such as colonial ideologies through emancipatory practices, dialogues and transformative agendas. De-territorialisation can be broadly defined as the subjugation of indigenous people in confined spaces in their homelands (Voytiv, 2020). In terms of education systems in South Africa, the de-territorialisation process contributed immensely to the undermining of indigenous people (Moyo, 2020; Daniels, 2022). Appadurai (1996) agrees that a de-territorialising wave occurs in a school environment when Western pedagogical methods are favoured over diverse and inclusive indigenous teaching practices. In African schools, where Western ideologies were enforced, people lost their linguistic identities and spiritual and cultural beliefs as they were compelled to adopt Western practices in their daily lives. Oko and Ogbodo (2022) say that the imposition of Western pedagogy oppressed diverse and inclusive teaching practices in African schools. Furthermore, Faulkner & Nyamutata (2020) emphasise that Western ideologies contributed to the violation of children's rights in Africa.

On the other hand, territorialisation involves arranging new routines which are customised for a new climate, which must include indigenous knowledge (Fomunyam, 2021). Re-territorialisation involves decolonising the curriculum with the intent to preserve and authenticate indigenous knowledge and wisdom (Papastergiadis, 1998; Fomunyam, 2021). Numerous studies suggest that de-territorialisation and re-territorialisation efforts tend to be successful when an indigenous language (IL) is considered and integrated into educational systems (Gomes et al., 2020; McCarty, 2021; Widiawati and Savski, 2023). Indigenous languages are a contributing factor to school performance, cultural continuity and a sense of belonging (Patterson and Gardyne, 2022). Onwu and Mufundirwa (2020) argue that indigenous knowledge, when integrated into teaching and learning methods, can improve learners' understanding of concepts. It is also suggested that the use of mother tongues in the classroom is beneficial with many positive impacts (Alimi et al., 2020). However, teachers in primary schools face various challenges such as the lack of resources and teaching material (Nishanthi, 2020; Ticheloven et al., 2021). Mclvor and Anisman (2018) state that the lack of adequate training and assistance for teachers is a contributing factor in marginalising and diminishing cultural identity in primary schools. It is through this microscopic window of basic education that we explore the incorporation of ILs in the primary school system in South Africa. Nevertheless, before reviewing the literature systematically, it is important to unpack the current gap in the basic education system that echoes the inequalities and injustices of post-apartheid South Africa in the 21st century.

Literature review

Mapping indigenous languages and primary schools

Generally, ILs are embedded in the customs, traditions, culture and knowledge of native communities (Krakouer et al., 2023). In a global study addressing the importance of ILs compared to the hegemony of English, Márquez and Porras (2020) argue that an IL is not merely a communication tool as underscored during colonialism. Márquez and Porras (2020) further assert that ILs contribute to scientific knowledge in a vast array of disciplines. ILs contribute to scientific knowledge in multiplicity and are critical in addressing social disparities in a modern decolonised world. Dansu (2021) and Tengö et al. (2021) agree that when ILs are integrated with modern scientific knowledge, they solve problems to yield results in an array of fields. One such field in which the discourse of ILs has gained momentum on a global scale is basic education, where the hegemony of English is still apparent due to the inequalities and injustices from the epistemologies of colonialism (Maringe & Chiramba, 2023).

Indigenous languages in South Africa

In the Vhembe school district, Patterson and Gardyne (2022) explored incorporating Tshivenda into the curriculum to develop learners' capabilities. Teachers were interviewed to ascertain whether learners connected with their cultural identity through Tshivenda. Interestingly, one of the findings revealed that teachers highlighted the importance of learners being presented with opportunities to learn in Tshivenda as it is undervalued in that school district. This is fascinating as Tshivenda is one of many ILs in South Africa and is still referred to as a minority language that is undervalued (Patterson & Gardyne, 2022). From this study, it seems that ILs in South Africa lack importance when compared to English. However, another finding from the study underscored the importance of addressing the United Nations' Sustainable Development Goal (SDG) 4 in South Africa by providing equitable and inclusive access to learning in ILs. Globally, the United Nations provides strategic direction to education systems by highlighting equity and inclusivity as central to the SDGs. Nonetheless, the practicality of rolling out these strategic directions by teachers in the South African school systems remains in its infancy.

In South Africa, primary schools are grappling with changing Western pedagogical ideologies and practices. Ngubane & Makua (2021) emphasises that due to colonial education systems, learners continue to be socialised out of their indigenous beliefs and knowledge systems. As a result, African children have lost touch with their identities, cultural practices and beliefs that are laden in the values of humanity to others, famously known in Africa as ubuntu. In addition, the lack of appropriate training and inadequate resources are stifling the integration of ILs in primary schools. Moreover, the slow implementation of the South African education language policy has impeded the adoption of the United Nations' SDG 4 (Magocha et al., 2019).

Globally, learners in school systems are like sponges, absorbing knowledge through a chain of commands given by teachers (Gadoum & Esseghier, 2023). This means that teachers are custodians of knowledge and are tasked with

unlocking the inherent potential of learners in classrooms. In the South African context, teachers have employed various teaching methods such as code-mixing, code-switching and translanguaging to infuse ILs into their classrooms (Maseko & Mkhize, 2021). However, the literature shows that more needs to be done by teachers in South Africa to incorporate ILs into the school system (Williams et al., 2020; Makhubu, 2022; Singh, 2024). Juxtaposed with the findings by Mudau (2019), Xhosa learners in the Western Cape of South Africa actively participated when teachers used isiXhosa. However, when the teacher switched back to English, learners became passive recipients in the classroom. One can assume that these are some of the challenges faced by teachers in their attempts to integrate ILs in South African primary schools.

Integration of indigenous languages and barriers in South Africa

In understanding the challenges with integrating ILs, it is crucial to fix one's lens on primary school teachers. South Africa is a multiracial society with the ethnicity of teachers spread among blacks, Coloureds, Indians and whites, hence it is identified as a rainbow nation (Ngwenya, 2020). This means that most teachers come from the black population and have an excellent command of at least one IL, followed by English, whereas the rest of the races are limited to English and one other IL (Saliwa-Mogale, 2021). Therein lies a growing challenge as most learners in South African primary schools are of native descent and speak ILs. Thus, to introduce IL into the South African basic education system, there needs to be a concerted effort from a position of governance that will ensure that teachers are developed to teach using ILs.

Globally, policies provide frameworks and guidelines to redress social injustices (Baker-Bell, 2020). In a former apartheid state, it is critical to implement language policies for transformation and decolonisation (Cele, 2021). Therefore, the South African language policy is an important response to address the injustices of apartheid where ILs were marginalised, which resulted in social exclusion in the past system (Kretzer & Kaschula, 2021). Similar to how SDG 4 promotes dynamic change worldwide, the language policy in South Africa aims to evoke fresh perspectives in primary schools through diversity and social inclusion. However, SDGs or policies without action can create barriers to ILs being implemented in South African primary schools (Walton & Engelbrecht, 2022).

Barriers such as professional development, culture clashes, translation of learning concepts and a lack of language policy implementation pose a problem when integrating IL into teaching practices (Saneka & de Witt, 2019; da Silva et al., 2023). In the Italian context Bonomi (2020) highlights the lack of integration of Latino-Hispanic languages into educational learning environments, which has led to the loss of cultural identity and heritage. In Botswana, Chebanne and Kewagamang (2020) show that language policies have been used to exclude other ILs in the country. Furthermore, these scholars propose a framework for marginalised languages. Similar to Botswana, the Eurocentric New Zealand education system has failed Māori Tamariki, leading to poor academic performance at schools and a lost ability to speak in the Māori language. However, the introduction of the Māori

medium education for early childhood development has proven to be effective in improving educational outcomes and revitalising the Māori Tamariki language. The success of the Māori medium education programme was mirrored in Canada under the auspices of Aboriginal Head Start, which saw the incorporation of 70 ILs into society (Rameka & Peterson, 2021). Furthermore, the Aboriginal Head Start programme also targeted early childhood development and included seven components, namely parental involvement, culture, language, education and school readiness, health promotion, nutrition, and social support. Children who participated in the programme demonstrated greater fluency in ILs when compared to their peers. Thus, a comparative study in New Zealand and Canada provides a framework for early childhood development and the revitalisation of IL at grassroots level.

Despite the recognised benefits of integrating ILs into primary schools, several barriers and challenges persist. Some of these barriers include the lack of language policy implementation, stakeholder resistance to change, undervaluing ILs, teacher development, and training. Addressing these barriers is essential for decolonising the curriculum and the re-territorialisation of the education system. In the context of this article, the systematic review intends to explore the integration of ILs into teaching and learning practices at primary schools in South Africa. Based on the literature, the purpose of this systematic review is to reveal studies focused on the integration of ILs into primary school education. The following research questions were formulated:

RQ 1: What is the current state of indigenous language integration in South African primary schools?; and

RQ 2: Are primary school educators prepared to teach using indigenous languages in South Africa?

Method

The following section presents the method used to review the literature on ILs, with an emphasis on primary schools in South Africa. ILs are explored through the concepts of de-territorialisation and re-territorialisation. This rhetoric presents opportunities to discuss how ILs can be integrated into primary schools after years of marginalisation due to apartheid. Such discussions can emancipate basic education systems, catapulting ILs into teaching and learning practices at schools in modern-day South Africa. Against this backdrop, the purpose was to review the contributions of experts on the topic of ILs in teaching practices, with an emphasis on South African primary schools. The study also aligns itself with themes like de-territorialisation, re-territorialisation, culture and the heritage of native communities in South Africa. Most importantly, PRISMA methods were used in the study to explore these topics and themes from the extant literature.

Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) consists of stages that are interlinked to intensely review literature (Page et al., 2021). The purpose of PRISMA is to ascertain the relevance and significance

of a topic. The stages of PRISMA include defining research questions, conducting a literature search for identifying, screening and selecting relevant records, coding and analysing articles, and reporting results (Hansen et al., 2022). These stages are methodically implemented in the processes of a systematic review. Thus, the findings in this systematic review are logically engineered using PRISMA. The analysed results are stringently and vigorously examined at each stage using a qualitative process underpinned by PRISMA. In this context, identification, screening eligibility, synthesis and appraisal were used as a blueprint to uncover the integration of ILs into teaching and learning practices at primary schools in South Africa.

Inclusion criteria

The reviewed literature selected for this study was found through an efficient search strategy. Combined search terms relevant to the topic such as de-territorialisation/language, primary schools/South Africa, and indigenous language/basic education were incorporated into a search strategy. Other secondary terms used included indigenous knowledge/South Africa, and indigenous knowledge/language. The literature retrieved when conducting these searches was refined to South Africa. However, teaching in ILs at South African primary schools yielded results with limited scope on the topic. Consequently, the topic was extended beyond South Africa to scan global literature. Nonetheless, in the context of this systematic review, the records included in the final dataset were framed in the PRISMA protocols. This assured credibility and limited bias while increasing the validity of the records, determined through a two-stage screening and selection process defined by the PRISMA protocol (Page et al., 2021). A clear path was charted where germane publications on themes such as de-territorialisation, re-territorialisation, heritage, cultural continuity, indigenous languages and primary schools were retrieved using PRISMA protocols. This resulted in the most suitable databases being selected and aligned to themes on the topic. The databases included two research-intensive databases, and one that presented the most relevant literature in the South African context. The research-intensive databases were Web of Science and Scopus, while Sabinet provided rich literature related to the topic in South Africa.

Exclusion criteria

In terms of applying the two-stage screening and selection criteria, records published before 2019 were excluded. Records older than 2019 were excluded as this study aimed to address the current state of IL integration in South African primary schools – RQ1. Pieper et al. (2014) agrees that decision-makers are interested in the most current and up-to-date information for scientific research. Other exclusions included commentaries, abstracts, book reviews, editorials and book chapters. Furthermore, PRISMA criteria were applied, ensuring that abstracts from selected records went through the first stage of screening. This was followed by the full text of each record being screened applying PRISMA inclusion and exclusion criteria. The application of the two-stage screening and selection criteria as stages of PRISMA resulted in the exclusion of 147 records. An in-depth analysis of the remaining records resulted in 43 articles being excluded from the

remaining dataset. These records were excluded as there was no association between indigenous languages, teaching and learning practices.

Selected databases

During the eligibility stage of PRISMA, 89 records were excluded after refinements. The criteria used to screen for the eligibility of these records included accuracy, currency, relevance and context. As a result, 58 records were examined to appraise the interconnectivity of themes emerging from the literature. This resulted in the synthesis and selection of 18 records aligned to de-territorialisation, territorialisation, heritage, cultural continuity, indigenous languages and primary schools. Thus, PRISMA methods alleviated subjectivity and bias, resulting in rich content being selected in the context of the topic. Figure 1 presents the PRISMA flow diagram, including sources accessed and refinements.

Results and findings

Table 1 presents the final dataset of literature reviewed concerning the de-territorialisation and re-territorialisation of IL in teaching and learning practices with an emphasis on primary schools. The dataset included research on the topic in a South African context (SI2, SI3, SI6, SI7, SI8, SI9, SI10, SI11, SI12, SI13, SI14, SI15, SI16, SI17, SI18) as illustrated in Table 1. Although SI12 and SI16 also present a South African perspective on indigenous communities, the research and discussions that result lend themselves to the living theology approach vis-à-vis the religion of indigenous communities. Other research (SI1, SI4 and SI5) provided insight into indigenous communities and the themes that emerged in America, Italy and India.

Figure 2 illustrates the accuracy, currency, relevance and context of the eligibility criteria applied through PRISMA as databases were searched for records on de-territorialisation/language, re-territorialisation/language, schools/South Africa, indigenous language/basic education, de-territorialisation/primary schools, and indigenous language/cultural heritage during the review process. Scopus and Web of Science were chosen as these are widely used citation databases (Pranckuté, 2021). These databases have an authoritative background and are custodians of high-powered research platforms. Additionally, Sabinet was selected as the third database for the systematic review because Sabinet focuses on African publications and in the context of the study, it made research sense. The initial results from Scopus, Sabinet and Web of Science illustrated a high total sum of search results. Nevertheless, once the PRISMA inclusion criteria were applied, the total sum of results was refined to 147 results, as shown in Figures 1 and 2 and Table 1.

Literature related to the de-territorialisation and re-territorialisation of ILs with an emphasis on primary schools was scanned between 2019 and 2023. Figure 3 presents the themes selected over the past five years, with the de-territorialisation and re-territorialisation of ILs being underscored in the search criteria. In 2019, SI17 (Table 1) discussed issues such as decolonisation, sociocultural changes to the curriculum at higher education institutions globally, and the lack of concrete changes made to the

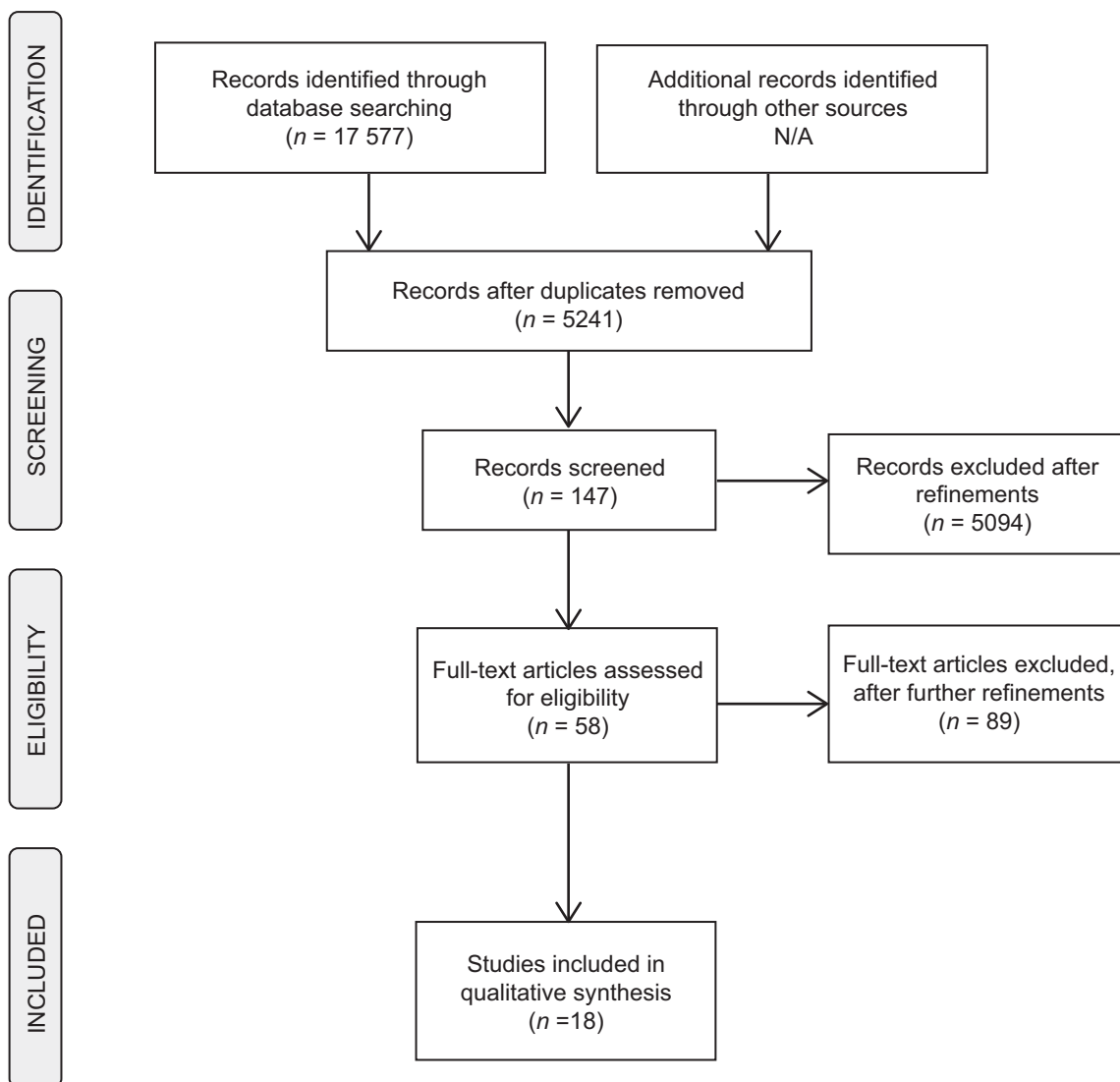


Figure 1. PRISMA flow diagram of literature retrieval (Page et al., 2021)

South African education system related to decolonisation. However, there is also an emphasis on de-territorialisation and re-territorialisation through languages in 2019. This is expressed in S17 in Table 1 where the value of teaching learners in isiXhosa has the potential to improve learning outcomes at primary schools. Interestingly, findings in the study also revealed that educators were not trained and were therefore unprepared to transmit knowledge using an IL in South African primary schools. A similar scenario presents itself in S18 which was published in 2023 (Table 1), where educators in the KwaZulu-Natal region indicated their unpreparedness to unpack the school curriculum in isiZulu to learners. One can therefore assume that there seems to be a common problem in different regions in the South African context.

In 2020, there was an acceleration of publications addressing issues in the context of de-territorialisation and

re-territorialisation in South Africa, as discussed in articles S14, S19, S10, S113 and S114. This pattern addressing the theme of de-territorialisation and re-territorialisation is also visible in 2022 and 2023 – S11, S12, S15, S16, S18, S111, S112. However, there is also an evident gap in the literature reviewed with limited emphasis placed on the integration of ILs into teaching and learning practices at primary schools in South Africa. The discussion section pinpoints a way forward for South Africa, paving a path to decolonise primary schools in South Africa through the integration of ILs underpinned in teaching and learning practices into the curriculum.

Latent Dirichlet allocation (LDA) analysis

Generally, systematic reviews underline the screening, eligibility, synthesis and appraisal of the scientific literature to present findings on a phenomenon (Page et al., 2021).

Table 1: Summarised findings

Study identity	Author	Publication	Methodology
SI1	Abraham RE. 2022.	<i>Rupkatha Journal on Interdisciplinary Studies in Humanities</i>	Reflective essay
SI2	Balogun T, Kalusopa T. 2021.	<i>Records Management Journal</i>	Multi-case study
SI3	Binneman A, Davis C. 2020.	<i>Communitas</i>	Narrative inquiry
SI4	Bonomi M. 2020.	<i>Journal of Multilingual and Multicultural Development</i>	Action research
SI5	Gubitosi P, Puma C, Narvaez D. 2020.	<i>Cuadernos De Linguistica Hispanica</i>	Multimodal approach
SI6	Kugara SL, Mokgoatšana S. 2022.	<i>HTS Teologiese Studies/Theological Studies</i>	Explorative research
SI7	Mashige M, Cekiso M, Meyiwa T. 2019.	<i>South African Journal of Childhood Education</i>	Case study
SI8	Mpanza CD. 2023.	<i>African Journal of Development Studies (formerly AFFRIKA Journal of Politics, Economics and Society)</i>	Qualitative approach
SI9	Ndebele H. 2020.	<i>Journal for Language Teaching = Ijenali Yekufundzisa Lulwimi = Tydskrif vir Taalonderrig</i>	Quantitative approach
SI10	Onwu GOM, Mufundirwa C. 2020.	<i>African Journal of Research in Mathematics, Science and Technology Education</i>	Mixed-method design
SI11	Rivers N, Strand M, Fernandes M, Metuge D, Lemahieu A, Nonyane CL, Benkenstein A, Snow B. 2023.	<i>Frontiers in Marine Science</i>	Participatory research
SI12	Tucker RGH, Nortjé-Meyer LSJ. 2022.	<i>Pharos Journal of Theology</i>	Hermeneutics – Living theology
SI13	van der Poll A, van Zyl I, Kroeze JH. 2020.	<i>Communications of the Association for Information Systems</i>	Hermeneutics
SI14	Vandeyar S, Catalano T. 2020.	<i>Language Matters: Studies in the Languages of Southern Africa</i>	Narrative inquiry and case study approach
SI15	Yende NE. 2020.	<i>African Journal of Development Studies (formerly AFFRIKA Journal of Politics, Economics and Society)</i>	Dependency theory
SI16	Zimu-Biyela A, van der Walt T, Dube L. 2020.	<i>Mousaion</i>	Qualitative methods and grounded theory
SI17	Zimu-Biyela N. 2019.	<i>International Journal of African Renaissance Studies</i>	Qualitative methods and grounded theory
SI18	Zwane D. 2019.	<i>International Journal of African Renaissance Studies</i>	Case study

Numerous studies posit that machine learning modelling techniques such as latent Dirichlet allocation (LDA) are used to unlock interpretable results from a large dataset (Han, 2020; Vijayan, 2021; Sharma et al., 2022). Latent Dirichlet allocation is an unsupervised machine learning algorithm commonly used in natural language processing for topic modelling (Chauhan & Shah, 2021). The LDA algorithm identifies clusters/patterns of words/phrases frequently appearing across research articles. It uses these clusters/patterns to generate a group of topics from the corpus textual data that illustrates underlying themes. Additionally, the LDA algorithm demonstrates academic prowess as it automatically identifies the key themes and topics discussed in research articles (Luo et al., 2024). Results from this process of automatic identification can be used to generate visualisations that depict the correlations and trends of the main findings in the research

articles. Ultimately, LDA allows scholars to gain deeper insights into a topic through visualisations emerging from key themes from selected research articles that may have not been possible using traditional review processes (Putri, 2021).

In the systematic review of incorporating ILs into South African primary schools, LDA was utilised to assist with the visualisation and analysis of the topics discussed. The textual data used for LDA modelling was derived from the 18 articles selected for analysis underpinned in PRISMA. The LDA was key in automatically detecting and uncovering the main themes and latent topics in the corpus of textual data. Furthermore, in determining the optimal number of topics to train the LDA model on, a coherence score was calculated from the corpus. Based on the coherence score, the LDA model identified two dominant topics in this corpus of textual data.

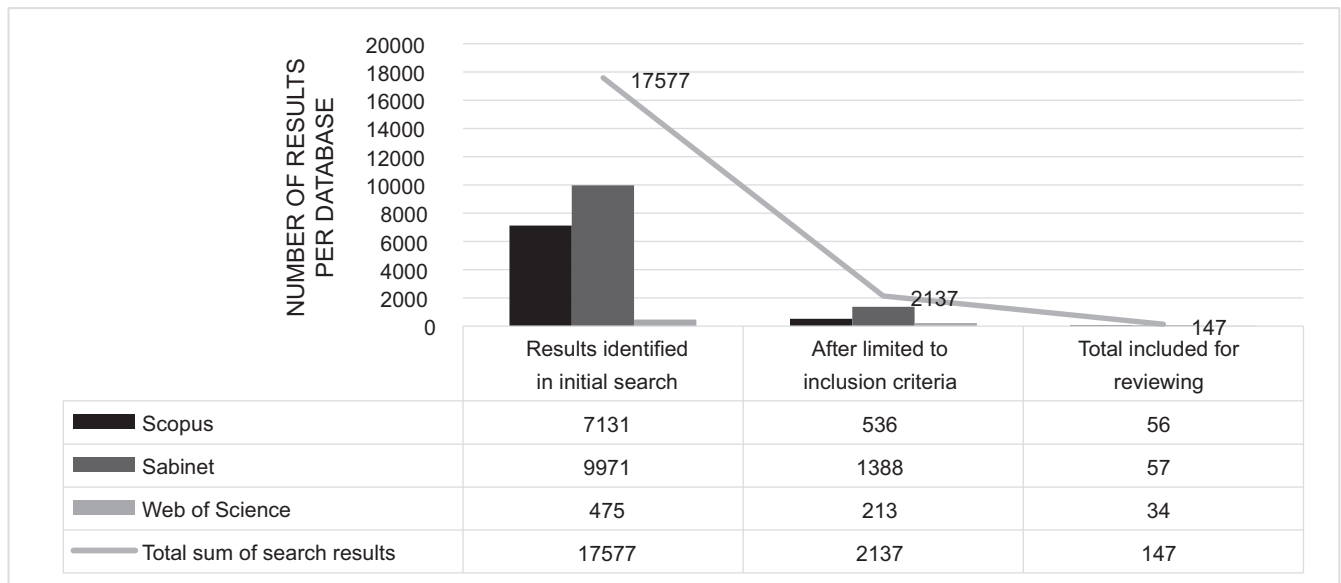


Figure 2. Search strategies

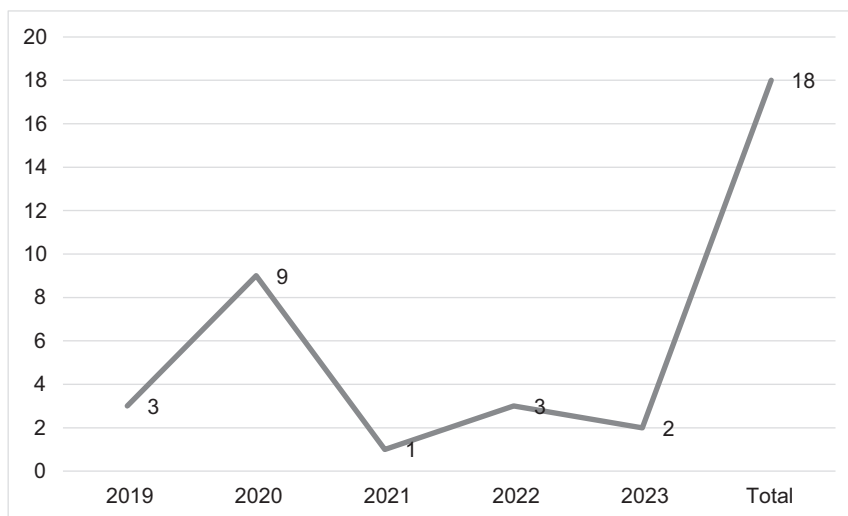


Figure 3. Number of publications per year (2019–2023)

(0, '0.015*"language" + 0.007*"african" + 0.007*"knowledge" + 0.005*"indigenous" + 0.005*"learning" + 0.005*"learner" + 0.004*"study" + 0.004*"policy" + 0.004*"teaching" + 0.004*"school"'))

(1, '0.010*"language" + 0.007*"african" + 0.007*"knowledge" + 0.006*"education" + 0.005*"indigenous" + 0.005*"study" + 0.004*"student" + 0.004*"also" + 0.004*"school" + 0.004*"used"'))

Figure 4. Key terms and the weights assigned to them within each topic

Table 2: Topics and key terms identified through LDA

Topic	Theme	Keywords
0	Policy and teaching	language, African, knowledge, indigenous, learning, learner, study, policy, teaching, school
1	African educational practices and language use	language, African, knowledge, education, indigenous, study, student, also, school, used

The themes for each topic were determined based on the weights of the most frequently occurring words in each topic. Topic 0 revolves around the role of language in the educational context, with particular emphasis on African and indigenous knowledge systems. It involves discussions on how language affects learning and teaching, the importance of educational policies, and the focus on learners in the school environment. This topic emphasises the intersection of language, indigenous knowledge and educational policy in African contexts, focusing on learning and teaching processes.

The other topic centres on educational practices in African contexts, with a significant focus on the role of language and indigenous knowledge. It highlights the importance of understanding how language is used in education, the experiences of learners and teachers, and the setting of schools. The term ‘used’ suggests a practical application of educational methods or tools. This topic highlights African educational practices, the role of language and the incorporation of indigenous knowledge, focusing on practical applications and the learner and teacher experience.

Figure 4 and Table 2 show the prominent keywords and their corresponding weights to the two identified topics, denoted as “Topic 0” and Topic 1”. This representation illustrates the results generated by the LDA model, providing valuable insights into each topic’s theme, which was determined based on the prevalence of dominant keywords. ‘Policy and teaching’ was assigned to Topic 0, due to the prevalence weights of ‘learning’ and ‘school’, as well as ‘indigenous’ and ‘language’. This theme suggests a focus on how policy can be a key thread to incorporating ILs into teaching practices at South African

primary schools. Topic 1 was assigned the theme ‘African educational practices and language use’ due to the prevalent weights in keywords such as ‘education’ and ‘student’, as well as ‘African’ and ‘language’. This theme focuses on the learner as the focus to ‘study’ in ‘school’ and the associated risk of limited ‘use’ of ILs in ‘African’ school education systems.

Figure 5 illustrates a word cloud depicting the dominant words in Topic 0/Topic 1 using the LDA topic model analysis. The word cloud provides a visual representation of the dominant words that frequently occurred in the analysed literature. It enhances the PRISMA systematic review method on ILs in South African primary schools by underscoring the main themes and concepts associated with each topic from the selected literature. Interestingly, the size of each word in the word cloud corresponds to the frequency of the occurrence or its weighting in the topics. The largest words in the word cloud align with the themes, with ‘language’, ‘policy’ and ‘learning’ appearing close to each other, while ‘indigenous’ and ‘teaching’ share a similar relationship of being in proximity in Topic 0. Similarly, in Topic 1 the words ‘language’ and ‘knowledge’ share a nearness, while ‘African’, ‘student’ and ‘education’ seem to have a relationship. Notably, in Topic 0, the word ‘language’ connects the words, whereas in Topic 1 the word ‘indigenous’, though not the largest, is the link to the other words.

Table 3 presents the dominant topic and its corresponding percentage contributions for the study selected through PRISMA. This table offers an insightful view and sheds light on which articles have prevalent themes across the 18 articles examined in the study. The table reveals that the predominant theme in 11 articles is Topic 0, which refers to ‘policy’ being a key thread to integrating ILs into teaching practices at South African primary schools. Conversely, the other seven articles are linked to Topic 1, which focuses on the ‘learner’ as the centre of learning in ILs. The results frame an invaluable understanding and present a path to be navigated through further exploration of the topic. Therefore, future research can delve into these two areas to seek and uncover deeper insights for incorporating indigenous knowledge into teaching and learning practices in primary schools.



Figure 5. Word clouds that represent the most common terms within each topic

Table 3: The dominant topic and its respective percentage weight in each document

Study identity	Dominant topic	Topic percentage contribution
si1	0.0	0.6985
si2	1.0	0.5294
si3	1.0	0.9995
si4	1.0	0.9712
si5	1.0	0.9770
si6	0.0	0.7060
si7	0.0	0.9988
si8	0.0	0.9996
si9	0.0	0.6336
si10	0.0	0.9907
si11	1.0	0.9801
si12	0.0	0.9965
si13	0.0	0.9258
si14	0.0	0.9960
si15	0.0	0.7271
si16	1.0	0.9997
si17	1.0	0.9991
si18	0.0	0.6310

Figure 6 illustrates the association between Topic 0/1 and their distribution, with a focus on the prevalent topic, along with the top 24 significant terms in the reviewed papers. The results depict that 'knowledge', 'education', 'learner', 'study' and 'innovation' are the most frequently used terms among the 18 selected research articles. This

suggests a strong focus on how ILs can enhance knowledge transfer and educational outcomes, particularly for learners. The emphasis on 'study' and 'innovation' highlights the importance of empirical research and innovative approaches in integrating ILs into teaching and learning practices in primary school education in South Africa, supporting the broader goal of decolonising education in the country. Additionally, in Figure 6, Topic 0 is represented by the number '1,' while Topic 1 is represented by the number '2'. The size of each circle in Figure 6 reflects the relative prevalence of the respective topic in the corpus of textual data, where larger circles signify a higher dominance.

Discussion

This article highlights literature that discusses the integration of ILs into primary schools as a nucleus theme seen through the concepts of de-territorialisation and re-territorialisation in the South African context. Given the limited available literature, additional search strategies were introduced to incorporate global perspectives. In light of these developments, it is therefore our view that the body of literature in the South African context is limited and necessitates further investigation. Interestingly, in Table 1, the literature from the final dataset reveals that both in South Africa and globally, researchers employed qualitative approaches when exploring the integration of ILs in primary schools. Qualitative approaches tend to provide rich data in social settings such as primary schools, and this is seen in Table 1. Nonetheless, it is also important to adjust the methodological approach to allow for varying perspectives on a topic. In this context, we suggest that using mixed-method approaches can also provide valuable insights into the topic.

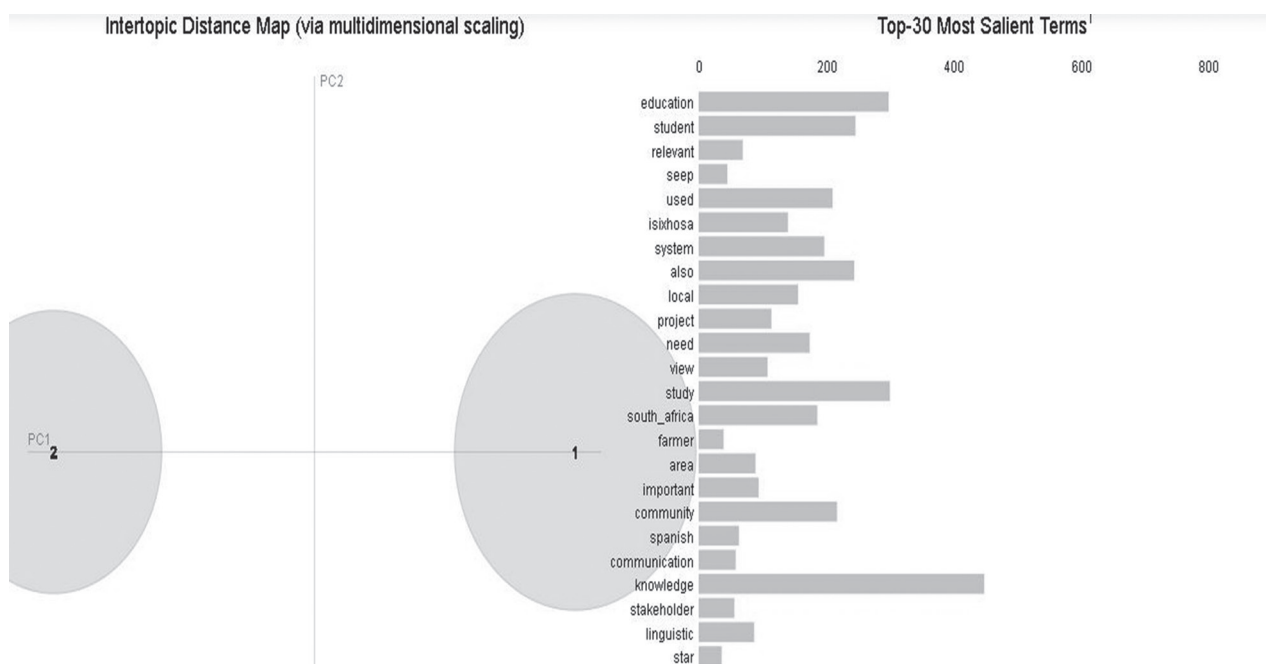


Figure 6. Visualisation of the relationship and distribution between the topics, including the top occurring terms

We therefore advocate for further research to improve teaching practices at South African primary schools using ILs. In this study, we immersed ourselves in the literature and interrogated the topics as indicated in Table 1. Findings from Table 1 highlight the importance of integrating ILs into primary schools to improve the teaching and learning agenda.

One of the key themes that emerged from article SI13 in Table 1 is that ILs and knowledge should be incorporated into primary schools in South Africa to address the educational imbalances of the past brought about by Western colonialism and the apartheid system. Thus far, language policy has been developed to assist in the adoption of ILs into education systems, including primary schools. However, the fact that the policy is not mandatory for all schools remains a contributing factor towards the delaying of the implementation of ILs into education systems.

In 2019, the findings in article SI17 suggested that curriculum changes were required in South African primary schools to allow the inclusion of ILs and knowledge. This article further shows concerns by teachers regarding the inclusion of ILs into primary schools. It seems that the suggestion made in SI17 has been met with apprehension from teachers who are concerned with curriculum changes to speed up the integration of ILs in South Africa. In hindsight, one must not shift one's gaze from this teacher apprehension that is aligned to a lack of relevant workshops, training, mentoring and coaching programmes, as well as resources that can assist in the integration of ILs. Therefore, it is essential to understand the current situation to capacitate teachers with relevant competencies to help address the imbalances of the past.

Another key theme we found was in article SI17 where a primary school in KwaZulu-Natal piloted a school environmental education programme (SEEP) to decolonise the curriculum. Teachers who participated in the programme indicated that it worked well in incorporating isiZulu into the education system, and as a result, contributed to the improvement of marks and achievements by learners. The article further recommends that the South African government should make it mandatory for all schools to implement a SEEP. The inability to make a programme such as SEEP mandatory for all schools is one of many barriers affecting incorporation. Interestingly, the recommendation for training and development programmes such as SEEP emerged from first-language indigenous-speaking teachers. From this, one can deduce that being fluent in an IL as a teacher does not mean that one can transfer knowledge in the classroom using that language. It can then be assumed that incorporating teaching practices is a challenge for first-language indigenous teachers in South Africa. The challenge in incorporating teaching practices for first language teachers is multifold, ranging from a lack of educational resources to training, development and curriculum design. It is our view that creating an abundance of comprehensive teaching resources through learning symposiums, targeted training, curriculum review and redesign, communities of practice and community engagement might assist with plugging the gaps in transferring knowledge to address the imbalances

of the past. This is an important finding from the current study as several scholars raise similar concerns that primary school teachers are grappling with decolonising the curriculum and infusing a pedagogical approach to suit African school learners (Mudaly, 2018; Afful-Broni et al., 2020; Christie, 2020; Mahabeer, 2021; Agherdien et al., 2022; Akinmolayan et al., 2024). Therefore, in the South African primary school environment, although decolonisation of the school curriculum is dependent on design, teaching practices, learning activities and resources, the development of first-language indigenous-speaking teachers to transfer knowledge in South African languages is critical to the basic education system.

Article SI7 reveals that many Foundation Phase teachers lack the training to teach specific subjects in isiXhosa, causing them to improvise in classrooms. This highlights the need for teacher education programmes to better integrate ILs. Additionally, teachers face challenges due to insufficient isiXhosa vocabulary for subjects like Mathematics and Life Skills, leading to problematic translations from English. The findings illustrate the need for improved support, resources and comprehensive isiXhosa educational materials. A further solution is to provide flexible training and development programmes for teachers depending on their fluency in ILs. Moreover, higher education institutions in South Africa must look further than merely including ILs as a prerequisite to completing a teaching degree. Other barriers noted as contributing factors towards the slow adoption and integration of ILs include the lack of implementation of language policy (in article SI14), the unpreparedness of some teachers to teach in ILs, and the lack of resources to support teaching practices (in article SI8).

In the South African context, articles SI7, SI8 and SI17 recommend the development of reading, teaching and learning materials such as textbooks, study guides and media related to ILs. From the global perspectives, recurring themes emerged from the literature focusing on the need for policy adjustments and implementation, stakeholder involvement, and the re-skilling of educators (SI4, SI5 and SI17). Interestingly, these global perspectives correlate with the main findings of the study. Ultimately, this infers the need to integrate ILs into the education system and to further explore the preparedness of teachers in South African primary schools.

Conclusion

This article highlights a synthesis of the existing literature on the integration of ILs into the education system in South Africa. It sought to address the current state and preparedness of teachers in South African primary schools. Key findings reveal that there are limited training and development opportunities, a shortage of resources and training materials, and a lack of implementation of policies that seemed to be a major hurdle in the integration of ILs. Additionally, there is a critical need for translating learning concepts into ILs to facilitate effective teaching and learning. Addressing these issues is essential for promoting educational equity and preserving cultural heritage in South African primary schools.

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