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Perspectives of Science Academics on Translanguaging at a South African University

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Abstract
The research seeks to understand the viewpoints of academics in laboratory settings concerning translanguaging. The research is supported by Translanguaging Theory and Africanism. The theory of Translanguaging challenges traditional ideas about language boundaries and promotes flexible language use. This theory underscores the intricate and ever-changing aspects of language usage, especially in situations involving multiple languages, and stresses the significance of acknowledging and appreciating a variety of linguistic abilities. Africanism pertains to linguistic or cultural traits that are specific to or originate from African languages. Ten researchers participated in the study. The research employed a quantitative approach, utilizing surveys with a 5-point Likert scale, and analyzed the data using descriptive statistics. Research indicates that utilizing a variety of languages improves students' understanding of the content, resulting in improved academic performance. The findings suggest that utilizing pedagogical translanguaging may lead to decreased anxiety and increased confidence among students in the classroom. Majority of the participants favour laboratory worksheets being in English rather than in native languages. It is clear that academics in South Africa need to be empowered to recognize the significance of incorporating African languages into education for teaching and learning purposes today.

Keywords
translanguaging, Africanism, indigenous languages, academics, laboratories

INTRODUCTION
Translanguaging's roots can be traced back to Welsh bilingual education during the 1980s, as stated by Conteh in 2024. Trawsieithu, a term created by Cen Williams in Welsh and later called 'translanguaging' in English, was developed as a deliberate, interdisciplinary approach for predetermined reasons. Using two languages in a structured way for instruction and learning within the same class. Joshua Fishman and Ofelia García, who established the theoretical foundation for the idea. Translanguaging is an educational method and linguistic concept that disrupts traditional beliefs about language boundaries and encourages the utilization of various languages in educational environments. Ngcobo, Ndaba, Nyangiwe, Mpungose, & Jamal (2021) explain translanguaging as the skill of multilingual individuals to move between languages, considering the various languages in their repertoire as a cohesive system. Wei (2011: 1223) as cited in Munene Mwaniki (2016) states that translanguaging involves moving between diverse linguistic structures and systems, such as various modalities (speaking, writing, signing, listening, reading, remembering), as well as surpassing them. It encompasses all the linguistic abilities of multilingual speakers for various objectives that go beyond combining structures, switching between systems, conveying information, and expressing values, identities, and connections. Translanguaging is a transformative process that merges various aspects of a multilingual individual's personal history, experiences, environment, attitudes, beliefs, and ideologies to create a social space for them.

THEORETICAL FRAMEWORK
Translanguaging and Africanism
The origin of translanguaging in education can be attributed to the contributions of bilingual education experts like Joshua Fishman and Ofelia García, who established the theoretical basis for the concept (Mbirimi-Hrungwe, 2021). García and other academicians support the use of translanguaging as a teaching method that utilizes students' diverse language skills in the educational setting. Instead of enforcing the separation of languages, translanguaging promotes educators to use

students' linguistic abilities in different languages to help with learning, understanding, and collaborating (Cui & Pacheco, 2023). Makalela (2022) and Sefotho (2022) see translanguaging as flexible and ever-changing, rather than isolated and clear-cut. It recognizes that students may use their skills in more than one language to comprehend and communicate thoughts. Translanguaging highlights the importance of language in the creation of meaning. This indicates that people create understanding using their language skills, without being limited by language barriers (Lauwo, 2021, Sefotho, 2022, Mbirimi-Hungwe & McCabe, 2020). Yafele (2021) states that utilizing and conversing in various languages in the classroom through translanguaging enhances language consciousness and metalinguistic contemplation, helping learners to recognize language structures, similarities, and distinctions.

Yilmaz (2021) agrees with Motaung (2021) that translanguaging supports linguistic diversity, promotes equity in education, and encourages inclusive teaching practices by validating students' language identities and allowing all students to engage in learning. Sefotho (2022), Schoeman, Geertsema, le Roux & Pottas (2023), and Gobodwana (2023) argue that translanguaging theory recognizes the influence of social interactions, cultural norms, and power dynamics in shaping language within a community. According to Kleyn and Garcia (2019) as referenced in Mbirimi-Hrungwe (2021), translanguaging is the sole viable and hopeful method for separating language from content learning, enabling students to be evaluated impartially on their understanding of the subject rather than their grasp of linguistic elements they are still acquiring.

Many scholars believe that embracing Africanism in translanguaging involves acknowledging and honoring African languages, cultures, and identities in education, which promotes the use of multiple languages (Makalela, 2022). Africa is known for its vast linguistic diversity, as there are thousands of languages spoken throughout the continent. Ngubane & Makua (2021) found that translanguaging supports the inclusion of African languages in education, acknowledging and supporting students' cultural identities while improving comprehension. According to Heleta (2016), Ngcobo et al (2021) view the lack of African languages in education as a type of epistemic violence. African higher education institutions must recognize and accept their country's diverse language landscape in order to combat violence, especially those institutions focused on teaching students' literacy in their respective fields of study. Ncanywa, Mesatywa, & Matope, (2022), along with Musengi, (2023), suggest that embracing translanguaging from an Africanist viewpoint supports the endeavor to decolonize educational structures. It questions the authority of colonial languages in schooling and gives students more confidence. Africanism in translanguaging, as noted by Mbirimi-Hungwe (2023), encourages the advancement of multilingualism. It promotes the growth and upkeep of African languages along with other languages, promoting diversity and skill among students by enabling them to utilize their native languages for instruction and communication.

Utilizing an Africanist perspective frequently includes interacting with nearby communities and invested parties through translanguaging. Charamba (2022) asserts that translanguaging acknowledges the significance of community engagement in education and aims to close the divide between formal schooling and community knowledge by leveraging local languages and cultural traditions. Botes, 2021; Thomas, Diao, & Trentman (2021) suggest that integrating African languages and cultural aspects into education can empower students and enhance their sense of identity. It confirms their linguistic and cultural background, leading to increased self-confidence and academic achievements (Gobodwana, 2023; Yafele, 2021 & Lepheana, 2021).

LANGUAGE POLICY IN SOUTH AFRICA

Following the end of apartheid, the native African languages of South Africa were promoted to the same level as English and Afrikaans in the government organizations. They are currently being formally taught in higher education institutions which require all courses to be taught in English to promote internationalization and increase opportunities for students to study abroad and cate for the use of African languages that are prevalent in those regions. All individuals are entitled to this privilege.to be educated in the official language or languages they prefer in public institutions educational institutions where such education is feasibly possible. To ensure proper access to and enactment of this right, the state must take into account all factors considering appropriate educational options, such as institutions that solely focus on one medium, fairness and feasibility (Section 29 (2) of the Constitution, South Africa).

TRANSLANGUAGING AS A PEDAGOGICAL TOOL

Ngcobo et al. (2021) argue that through translanguaging, teachers and students can utilize their different language abilities in education to break down language barriers in multilingual settings and foster linguistic diversity. Makalela & da Silva (2023) suggest that students who do not have English as their first language should receive essential assistance to achieve academic excellence. Translanguaging enables students to utilize all their language skills in learning, as long as they grasp the concepts (Mbirimi-Hungwe, 2023). Kucukali, & Koçbaş (2021) propose that translanguaging can be viewed from emotional, mental, and societal angles in their research. They also argue that techniques that enhance flexibility in using multiple languages, encourage personal connection to language, and challenge unequal language hierarchies fall under the emotional advantages of translanguaging, showing respect for students' identities and promoting a sense of safety and ease. Pun & Tai (2021) see translanguaging as a place where knowledge is created through social experiences that go beyond various language systems and modalities.

Charamba & Zano (2019) suggest that translanguaging plays a crucial role in the formation of multilingual identities that are often suppressed by the restrictions of monolingualism. Nyimbili & Mwanza (2020) suggest that the use

of translanguaging in pedagogical methods led to enhanced student performance in grade one literacy multilingual classes in Lundazi district in Zambia, leading to better understanding of academic concepts taught to the students. Furthermore, within the science classroom, translanguaging encourages creative thinking, cultivates a problem-solving mindset, nurtures creativity, and supports and preserves minority languages and cultures while enhancing effective cognitive processes.

Dougherty (2021) recognizes translanguaging as a belief system for educating bilingual students, a strategy for teaching emergent bilinguals, and a technique for fostering bilingualism and biliteracy. Suggesting that translanguaging can be beneficial in the science classroom for multilingual students to utilize all their language abilities to comprehend scientific concepts in elementary school. This implies that students utilize their primary and secondary languages in tasks related to understanding and discussing the meanings of particular words with fellow students to enhance their comprehension. Nevertheless, the selected instances illustrate the particular difficulties these students face when they are required to grasp new scientific material using their non-native language (Karlsson, Larsson & Jakobsson, 2019). Charamba (2023) argues that incorporating translanguaging into multilingual science classrooms offers students more chances to create meaning and enables them to share all of their ideas during lessons. Makalela (2019), Charamba (2020), and Mbirimi-Hungwe (2023) emphasize that the intentional and effective use of translanguaging by teachers can enhance learning for multilingual students.

Table 1

Statistics

	N Valid	Missing	Mean	Mode	Std. Deviation	Variance	Skewness	Std. Error of Skewness	Minimum	Maximum
Gender	10	0	1,7000	2,00	,48305	,233	-1,035	,687	1,00	2,00
Homelanguage	10	0	1,8000	1,00	1,31656	1,733	1,913	,687	1,00	5,00
Teachingexperience	10	0	2,6000	3,00	,51640	,267	-,484	,687	2,00	3,00
I prefer using both IsiXhosa and English at the same time during the lessons as increases students' understanding of the subject matter.	10	0	4,4000	5,00	,69921	,489	-,780	,687	3,00	5,00
Students will benefit more from the lessons if the instructor presents the words both in IsiXhosa and English.	10	0	4,6000	5,00	,51640	,267	-,484	,687	4,00	5,00
I want to use IsiXhosa during the lessons when I feel the need.	10	0	3,6000	4,00	,84327	,711	-,389	,687	2,00	5,00
I prefer the laboratory worksheets to be in English rather than in IsiXhosa.	10	0	3,5000	4,00	1,17851	1,389	-,255	,687	2,00	5,00
Using only English in the lessons is not important as long as my students master the task in the laboratory.	10	0	4,4000	4,00	,51640	,267	,484	,687	4,00	5,00
Understanding scientific concepts needs proficiency in English.	10	0	3,0000	2,00a	1,63299	2,667	,191	,687	1,00	5,00
Translanguaging during the laboratory activities motivates students.	10	0	4,5000	4,00a	,52705	,278	,000	,687	4,00	5,00
The problem of underperformance in science can be solved through the use of more translanguaging than one language in the same pedagogical tool in the laboratory lesson.	10	0	4,5000	4,00a	,52705	,278	,000	,687	4,00	5,00
I gain confidence by using translanguaging as a lesson.	10	0	4,4000	4,00	,51640	,267	,484	,687	4,00	5,00
Translanguaging allow students to feel capable of speaking in English and lowering their anxiety levels.	10	0	4,4000	4,00	,51640	,267	,484	,687	4,00	5,00

a. Multiple modes exist. The smallest value is shown

Table 2

This table indicates that the majority of the participants are female, comprising 70% of the sample, while males make up the remaining 30%.

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	3	30,0	30,0	30,0
	Female	7	70,0	70,0	100,0
	Total	10	100,0	100,0	

Table 3 Demographics of respondents

Homelanguage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IsiXhosa	6	60,0	60,0	60,0
	IsiZulu	2	20,0	20,0	80,0
	English	1	10,0	10,0	90,0
	SeSotho	1	10,0	10,0	100,0
	Total	10	100,0	100,0	

Six respondents, representing 60% of the entire group, specified IsiXhosa as their native language. 2 respondents, making up 20% of the total respondents, indicated IsiZulu as their native language. 1 respondent, accounting for 10% of the total respondents, disclosed English as their home language. 1 participant, also representing 10% of the total respondents, recognized SeSotho as their home language.

Question 1

Table 4

I prefer using both IsiXhosa and English at the same time during the lessons as it increases students' understanding of the subject matter.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Neutral	1	10,0	10,0	10,0
	Agree	4	40,0	40,0	50,0
	Strongly agree	5	50,0	50,0	100,0
	Total	10	100,0	100,0	

In the study, one respondent, representing 10% of the total sample, expressed a neutral stance regarding the preference for using IsiXhosa and English simultaneously in lessons. Meanwhile, four respondents, accounting for 40% of the total sample, agreed with the preference. Notably, five respondents, making up 50% of the total sample, strongly agreed that the simultaneous use of IsiXhosa and English in lessons significantly enhances students' comprehension of the subject matter. This data is summarized in Table 1, which shows an average score of 4.4000. Furthermore, Charamba's (2019) research supports these findings, indicating that the integration of SeSotho with English in science teaching notably boosts academic achievement for eleventh-grade Physics students and tenth-grade Chemistry students.

Question 2

Table 5

Students will benefit more from the lessons if the instructor presents the words both in IsiXhosa and English.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	4	40,0	40,0	40,0
	Strongly agree	6	60,0	60,0	100,0
	Total	10	100,0	100,0	

Four respondents, making up 40% of the overall sample, agreed with the statement, while six respondents, representing 60% of the total sample, strongly agreed. This data is reflected in Table 1, which shows an average score of 4.6000. According to Translanguaging theory, bilinguals utilize a combined set of languages to select the most suitable features for effective communication (Carrim & Nkomo, 2023). This theory supports the idea that using multiple languages in educational settings can enhance understanding and communication.

Question 3

Table 6

I want to use IsiXhosa during the lessons when I feel the need.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	1	10,0	10,0	10,0
	Neutral	3	30,0	30,0	40,0
	Agree	5	50,0	50,0	90,0
	Strongly agree	1	10,0	10,0	100,0
	Total	10	100,0	100,0	

In the study 1 respondent, making up 10% of the total sample, didn't agree with the statement. 3 respondents, making up 30% of the total sample, had a neutral opinion on this preference. 5 respondents, comprising half of the entire sample, concurred with the choice, while 1 respondent, representing 10% of the total sample, strongly supported utilizing IsiXhosa in lessons as desired. The average is 3,6000 according to Table 1.

Question 4

Table 7

I prefer the laboratory worksheets to be in English rather than in IsiXhosa.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	3	30,0	30,0	30,0
	Neutral	1	10,0	10,0	40,0
	Agree	4	40,0	40,0	80,0
	Strongly agree	2	20,0	20,0	100,0
	Total	10	100,0	100,0	

According to the data, most respondents either agree or strongly agree that laboratory worksheets should be in English instead of IsiXhosa. More precisely, 60% of respondents either agree or feel neutral, with 30% in disagreement and 10% displaying neutrality. The average value is 3,5000 for this construct (Table 1). This could be because the research focused on scholars who have been exposed to English language materials for many years. A considerable number of respondents are against this idea. Scholars from countries in the Global South are advocating for the decolonization of their higher education institutions. They argue that using only one language in teaching is a key factor contributing to poor academic outcomes for science students who speak multiple languages (Shahjahan, Estera, Surla & Edwards, 2022). The best approach for instructing multilingual science students is for educators to recognize, adapt to, and incorporate students' various languages in class to help them become proficient in multiple languages while still developing their English skills (Charamba, 2020).

Question 5

Table 8

Understanding scientific concepts needs proficiency in English.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	2	20,0	20,0	20,0
	Disagree	3	30,0	30,0	50,0
	Neutral	1	10,0	10,0	60,0
	Agree	1	10,0	10,0	70,0
	Strongly agree	3	30,0	30,0	100,0
	Total	10	100,0	100,0	

Two respondents, representing 20% of the total sample, had a strong opposing view on the statement. 3 individuals, making up 30% of the total sample, disagreed with it. 1 respondent, accounting for 10% of the total sample, remained neutral. On the other hand, 3 respondents, comprising 30% of the total sample, strongly supported the statement, while 1 respondent, making up 10% of the total sample, agreed with it. The average is 4,4000 according to Table 1. Overall, half of the survey respondents strongly disagree or agree that one needs to be proficient in English to understand scientific concepts. Motloung, Mavuru & Mc Naught (2021) argue that teachers have a critical role in bridging the gap between scientific language and the language used for instruction in life sciences classes. This divide can be closed by a teacher who can incorporate the students' native languages along with the scientific language and the language used for teaching. Umalusi, South Africa's education quality assurance body, highlighted that students' underachievement stems from being taught in a single language they have limited proficiency in, causing difficulties in understanding, interpreting, and responding to questions. Umalusi recommended adopting a multilingual approach in the country's diverse classrooms. (Charamba, 2020)

Question 6

Table 9

Translanguaging during laboratory activities motivates students.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	5	50,0	50,0	50,0
	Strongly agree	5	50,0	50,0	100,0
	Total	10	100,0	100,0	

Every respondent expressed either agreement or strong agreement that using translanguaging in lab activities boosts student motivation. The average is 3,0000 (Table 1). All the respondents are in complete agreement about this statement. Adams (2020) agrees with Rahmadani (2023) that students enhance their self-identity, language skills, and multicultural competence while achieving high academic performance.

Question 7

Table 10

I gain confidence by using translanguaging as a pedagogical tool in the laboratory.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	5	50,0	50,0	50,0
	Strongly agree	5	50,0	50,0	100,0
	Total	10	100,0	100,0	

All survey respondents expressed either agreement or strong agreement that they feel more confident when utilizing translanguaging as a pedagogical tool in the laboratory. The average is 4,5000 (Table 1). Additionally, the use of translanguaging in educational settings has shown to increase students' participation, drive, and belief in themselves, which in turn can reduce the stress often linked to learning a new language while acknowledging and making use of students' language backgrounds (Cenoz, Santos, & Gorter, 2022; García & Kleifgen, 2020; Dougherty, 2021 & Seals, 2021).

Question 8

Table 11

Translanguaging allow students to feel capable of speaking in English and lowering their anxiety levels.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	6	60,0	60,0	60,0
	Strongly agree	4	40,0	40,0	100,0
	Total	10	100,0	100,0	

Most respondents (60%) agreed, while the rest (40%) strongly agreed that translanguaging helps students feel confident in speaking English and reduces anxiety levels. There is a strong consensus among the respondents on this statement

according to the table. The average is 4,5000 as shown in Table 1. Pedagogical translanguaging, as suggested by Cenoz, Santos & Gorter (2022), Omidire & Ayob (2022), Capati (2022), and Paradowski (2021), is linked to a decrease in student anxiety and a boost in class confidence.

Question 9

Table 12

Using only English in the lessons is not important as long as my students master the task in the laboratory.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	6	60,0	60,0	60,0
	Strongly agree	4	40,0	40,0	100,0
	Total	10	100,0	100,0	

Sixty percent (60%) of respondents agree while 40.0% strongly agree that mastering the task in the laboratory is more important than using only English in lessons. The average is 4,5000 (Table 1).

Question 10

Table 13

The problem of underperformance in science can be solved through the use of more than one language in the same lesson.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	5	50,0	50,0	50,0
	Strongly agree	5	50,0	50,0	100,0
	Total	10	100,0	100,0	

All respondents (100.0%) agree that using multiple languages in a single lesson can address underperformance in science. The average score for this concept is 4.4000 (Table 1). Translanguaging can greatly impact academic achievement through improved learning opportunities, cognitive advantages, language assistance, identity and motivation reinforcement, inclusive practices, and effective pedagogy insights (Mgijima, 2021; Mbirimi-Hungwe,2022; Carrim & Nkomo, 2023; Charamba, 2020; Maseko & Mkhize, 2021).

CONCLUSION
The aim of this paper was to explore the perspectives of scholars on the utilization of translanguaging in science laboratories. The article has demonstrated that there is a significant amount of literature on translanguaging from a South African point of view. The research demonstrated that translanguaging can help students comprehend academic material. Translanguaging can have a notable impact on academic achievement through improving learning, cognitive advantages, language support, enhancing identity and motivation, encouraging inclusivity, and guiding effective teaching methods. The findings suggest that utilizing pedagogical translanguaging may lead to decreased anxiety and increased confidence among students in the classroom. Utilizing translanguaging in education allows students to enhance their self-identity, improve their skills in two languages, and thrive in their multicultural competence, all while achieving academic success. While English is utilized for evaluations, assessing students' language proficiency is not required; instead, their capability to demonstrate understanding of the subject matter is the focus. Translanguaging and Africanism support the promotion of multilingualism for the social, cultural, intellectual, and developmental benefit of students at higher education institutions. Translanguaging promotes a welcoming educational atmosphere in which students are appreciated for their variety of languages. It recognizes and validates the languages students possess when they come to class, establishing an environment for them to freely and confidently communicate. Promoting translanguaging in the university setting encourages language diversity. Studies indicate that enabling students to utilize all their languages can improve their learning experiences. Translanguaging helps students become effective communicators and global citizens by giving them the skills to confidently navigate linguistic and cultural differences. Additionally, Africanism theory emphasizes the importance of integrating African languages and cultural contexts into education to foster a deeper connection and relevance for students. By incorporating IsiXhosa and English simultaneously in lessons, educators can create a more inclusive and effective learning environment that resonates with students' cultural backgrounds and linguistic capabilities. This approach not only enhances comprehension but also promotes a sense of identity and belonging among students.

RECOMMENDATIONS
Additional research should concentrate on the broader group of students and faculty within the institution.

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DECLARATION OF CONFLICT

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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