
First-year education students' use of isiXhosa and Afrikaans e-books and infographics in an information literacy course

Joanne Arendse, Faith Dibakoane and Candice Livingston

Joanne Arendse

CPUT Libraries, Cape Peninsula University of Technology

arendsej@cput.ac.za

ORCID 0000-0002-3552-7852

Faith Dibakoane

CPUT Libraries, Cape Peninsula University of Technology

dibakoanef@cput.ac.za

ORCID 0000-0003-2071-8792

Candice Livingston

Faculty of Education, Cape Peninsula University of Technology

livingstonc@cput.ac.za

ORCID 0000-0002-1254-1109

Abstract

This study explores first-year pre-service teachers' perceptions at a university of technology in the Western Cape regarding the value of isiXhosa and Afrikaans e-books and infographics in enhancing their understanding of the English-taught Course in Information Literacy. Using the SAMR Framework, the study examines data from 129 isiXhosa and Afrikaans speakers. Findings reveal that participants found these resources helpful in bridging comprehension gaps, and appreciated their accessibility and simplicity, but raised concerns about translation accuracy. The study emphasises the need for multilingual resources to address language barriers and promote equitable access, contributing to discussions on language policy in education.

Keywords: Information literacy, e-books, infographics, multilingual languages, SAMR framework

Introduction

Language in education poses significant challenges, particularly due to the poor performance of students when the language of instruction differs from their home language. Ngidi and Mncwango (2022) conducted a study to evaluate university of technology students' perspectives on shifting from a dual-medium language policy (English and Afrikaans) to a monolingual (English) policy. Their findings suggest that a learner's competence in the language of instruction is crucial for academic success, as a lack of comprehension can lead to failure. The dominance of the English language in education disproportionately affects students who speak it as a second language and those from schools with limited exposure to English (Ngidi and Mncwango 2022). At the Cape Peninsula University of Technology (CPUT), located in the Western Cape Province, the official regional languages are isiXhosa, English, and Afrikaans (CPUT Language Policy 2019). Considering that South African universities, including the CPUT, are multilingual, a multilingual approach toward both academic practice and administration is necessary for inclusivity and linguistic fairness (Somlata 2022: 324). Given that many CPUT students speak one of the three official regional languages in the Western Cape Province, namely, isiXhosa, English or Afrikaans as their home language, there is a critical need to provide multilingual educational materials in these languages. The use of these three languages enhances students' understanding of teaching and learning content (Department of Higher Education and Training (DHET) 2020: 13).

Since the approval of the Information Literacy (IL) Policy in 2009, the CPUT has aimed to integrate the IL program into courses in accordance with the IL Policy's recommendations (Lockhart 2015: 3). Lockhart (2021: 377) further states that the continuous review and development of the Course in Information Literacy (CIL) is an ongoing process. In 2017, the initial development of the online CIL learning resources in English was done following the CPUT Language Policy approved in 2015 (CPUT Language Policy 2015). In 2018, the CIL was integrated as a first-year subject into all undergraduate diploma and degree programmes in the six CPUT faculties (Applied Sciences, Business and Management Sciences, Education, Engineering and the Built Environment, Health and Wellness, and Informatics and Design) (Omar and Davis 2020: 2). The five modules that constitute the CIL were created as an online course. This course is accessible to students through the university's learning management system (LMS), Blackboard (Lockhart 2021: 377).

At the CPUT, all first-year students based at the Wellington and Mowbray campuses who are completing their Bachelor of Education degrees are required to take the CIL. Since 2018, the CIL has been offered as a compulsory module

on academic literacy in the first-year Professional Studies and Academic Literacy subjects. This module, contributing 10% towards the overall course mark, is completed online through the library's website, where students can access it at their convenience. To enhance the accessibility of the CIL for multilingual students, the use of trilingual e-books and infographics was introduced in 2021. These resources are available in the three official languages of the Western Cape—isiXhosa, Afrikaans, and English—ensuring that students can engage with the IL content in their home language.

Problem statement

The right to be educated in the official language or languages of one's choice constitutes one of the rights granted by Section 9 of the South African Constitution. Furthermore, the Language Policy for Higher Education (2002) supports the advancement of multilingualism in higher education institutions. It strongly advocates that students' access to knowledge and academic progress should not be impeded by the institution's medium of teaching (Somlata 2022: 324). According to Letsoalo, Mabaso, and Gouws (2022: 1), both the South African Constitution and Language Policy for Higher Education make it clear that students should be granted the opportunity to access information in their home language or at least a language of preference. In accordance with these national legislative policy documents, the CPUT Language Policy (2019) also explicitly states that by 2025, the CPUT should be advancing towards an inclusive multilingual environment utilising the regional languages of the Western Cape, namely, isiXhosa, English, and Afrikaans. This intent is further supported by a diverse CPUT home language student profile, which indicates that the three Western Cape languages—48.5% isiXhosa, 18.1% English, and 8.4% Afrikaans—are the home languages of the majority of CPUT-registered students (CPUT Management Information Systems (MIS): 2023). As a reaction to the language policy statement of the CPUT, which aims to promote multilingualism in communication, learning, and teaching, CPUT Libraries in 2021 started translating the CIL e-books and infographics—which were initially created in English—into isiXhosa and Afrikaans. This was done to provide home language students of isiXhosa and Afrikaans who enrolled in the mandatory first-year online CIL course the opportunity to access and engage with the CIL e-books and infographics in their native tongue. Thus, to overcome the language barrier preventing many CPUT students from understanding the English CIL teaching and learning materials, these inclusive multilingual e-books and infographics were created for the CIL.

Purpose and objective of the study

The purpose of this study was to determine the perceptions of first-year students from the Faculty of Education at the CPUT on the value of the CIL multilingual isiXhosa and Afrikaans e-books and infographics that were originally created in English—the language of instruction at the CPUT. The reason for this was to take the first step in determining if the introduction of the multilingual CIL e-books and infographics was indeed useful in improving the students' understanding of the CIL content. Furthermore, it is hoped that the visual nature of these e-books and infographics will make the information more accessible and easier to comprehend. One could argue that the multilingual e-books and infographics provided to the students in their home language significantly improve the students' understanding of CIL topics, thereby making IL more accessible to a diverse student body.

Literature review

This section will discuss the language policies at the CPUT, the importance of the subject IL, and how e-books and infographics were used to give students epistemic access to the content of the subject.

Language policy at the CPUT

Worldwide, English is used extensively as the language of instruction in universities where the first language of most of the students is not English (Rose, Macaro, Sahan, Aizawa, Zhou and Wei 2023: 533). According to Ngidi and Mncwango (2022: 1), English predominates at South African institutions of higher learning. This is also true for the CPUT, where English is designated as the official language of communication and instruction under the institutional language policy (CPUT Language Policy 2019). Despite the recognition of indigenous languages as official languages in South Africa, these languages are still being marginalised (Letsoalo et al. 2022: 1). On the contrary, the Language Policy Framework for Higher Education (Republic of South Africa 2020: 5), pursues the advancement of multilingualism in South African universities. Ngidi and Mncwango (2022: 4), who support this legislation, argue that all universities should reflect diversity in their language policies to accommodate students who do not speak English as their first language and who may find it challenging to comprehend English teaching and learning resources. This was also supported by Hazeltine (2013:28) who argued that the Republic of South Africa is multilingual with 11 official languages. The researcher further stated that South African universities are mainly English and Afrikaans but are starting to acknowledge one of the indigenous languages to comply with the

multilingual policy. At the CPUT, the acknowledged indigenous language is isiXhosa. According to Hazeltine (2013), the idea was supported by the Minister of Higher Education, Dr Blade Nzimande, who, while viewing English and Afrikaans as vital parts of education, believed that they should be prevented from displacing other official languages. Madiba (2013: 388) discussed the implementation of a multilingual policy in traditionally White universities and at the University of Cape Town (UCT). It was found that multilingual education was not fully realised at UCT. However, the existing multilingual policy has created an urgent need for multilingual education at the institution and it is evident that UCT is shifting from an English-only to an English-plus ideology.

In response to the Department of Higher Education's call to promote multilingualism, the CPUT executive management, through the Language Senate Committee, released a language audit report with a specific focus on existing administrative and academic language needs. The audit failed to provide a complete picture of the language profile of the university but achieved some of the goals that research of this nature should achieve. A language unit was established with explicit objectives, which include that the existing language of instruction, English, supports the learning of CPUT students, contributes to the development of isiXhosa as an academic language, and promotes a multilingual environment that recognises CPUT's unique African identity and historic circumstances (CPUT Language Implementation Plan 2012-2016).

The official document of the Language Policy 2019 was signed and implemented on 4 May 2021. The major goal of the policy is to lay forth a broad strategic plan for integrating multilingualism into all forms of internal and external communication at the CPUT. More specifically, each department is required to conform to the following guidelines of the policy:

- The current language of instruction promotes inclusive teaching and learning.
- Aid in the advancement of isiXhosa as a scientific and academic language.
- Encourage a bilingual environment that acknowledges the distinct African identity of the CPUT.
- Understand the language-based urgency of decolonisation.
- Recognise linguistic inequalities and needs that are real.
- Give greater effect to the Western Cape's three official languages (isiXhosa, English, and Afrikaans) and SASL while fostering other national and international languages.

- Equip employees and students with inclusive language skills that will enable them to participate effectively in society, business, and the academic environment (CPUT Language Policy 2019).

Cele (2021: 41) questions why the national language plan continues to be a weapon for maintaining the dominance of the English language rather than supporting the emergence of African languages. He claims that there are no sufficient resources or adequate monitoring for the development of South Africa's language policy. Cele (2021: 26) examined the justification for the formation of the national language policy and argues that, according to the two-pronged policy analysis framework, the policy has had little to no impact on its implementation or goals. English and Afrikaans have long dominated mainstream commercial, scientific, and educational exchanges. These languages, mainly English, have been given elitist status and an unfair advantage across platforms for education, politics, economics, social interaction, technology, and religion, thereby undermining the affirmation of native African languages. Cele (2021) goes on to say that the conversation on student performance should include a discussion about the relevance of African languages in research, teaching, community participation, and institutional management.

Nguyen et al. (2013: 1) conducted a study to investigate factors that affect non-major English teaching and learning in Vietnamese higher education through classroom investigative practices. The findings revealed numerous problems that impede the quality of English teaching and learning. The problems, as suggested by these authors, involve an uninteresting teaching style, insufficient time for communicative activities, unclear instruction, grammar-driven teaching, unequal student English levels, and lack of confidence in students' use of the English language. Hiza and Paschall (2023:31), as teachers and citizens, used their knowledge of Tanzania as a country and its languages to prepare a policy brief. They suggest that the use of the mother tongue is encouraged by scholars for the benefit of students and the promotion of national development. The primary language in Tanzania is Kiswahili and is used as a medium of instruction with English in primary schools. There is, however, an abrupt change in secondary school where students are taught in English with Kiswahili being informally used. The policy brief highlights the problems experienced by secondary school students due to the switching to English and advocates for the formal and continuous use of Kiswahili up to the tertiary level, without neglecting English, which can be offered as a subject.

According to Letsoala et al. (2022: 1), many of the 12 official languages of South Africa are still marginalised. The researchers' analysis also

recommends that universities implement Section 9 of the South African Constitution, which guarantees students the ability to access and receive instruction in the official language or language of their choosing (Letsoala 2022: 2).

Information literacy at the CPUT

The Association of College and Research Libraries (ACRL) (2016: 26) defines IL as a “set of integrated abilities encompassing the reflective discovery of information, the understanding of how information is produced and valued, and the use of information in creating new knowledge and participating ethically in communities of learning.” IL is referred to by Gross, Julien, and Latham (2022: 1) as the integration of threshold concepts that guide the conceptualisation, creation, and use of information. This definition underpins the ACRL’s Framework for Information Literacy for Higher Education, published in 2016, to guide the infusion of IL concepts into IL curricula. The framework is organised into six frames that are anchored by concepts key to IL, a set of knowledge practices, and a set of dispositions (ACRL 2016: 7). Figure 1 outlines the six IL frames and concepts that inform the CIL offered at the CPUT.

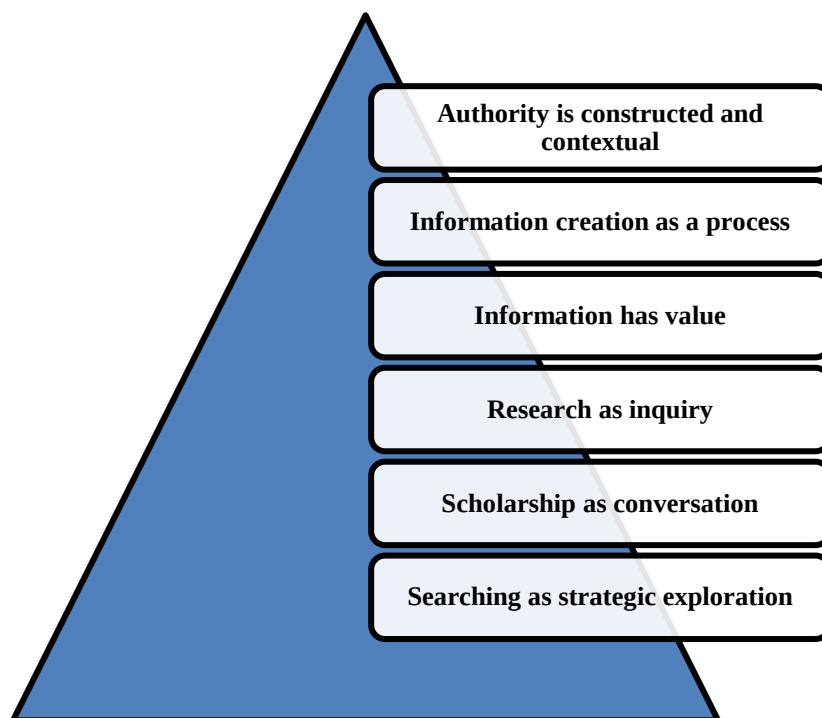


Figure 1: Six IL frames and concepts (ACRL 2016: 7)

Additionally, in 2023, the ACRL Board approved a companion document for educators to the ACRL Framework for Information Literacy for Higher

Education (Ewing, Lehner-Quam, James, Gregor, Rosenzweig and Ditkoff 2024: 139). This companion document, entitled: “Instruction to Educators”, was specifically created for teacher education students, educators, and academic librarians to provide them with effective instructional approaches in an academic setting that support broad IL concepts (Ewing et al. 2024: 139). The three roles IL plays in teacher education are discussed in the companion document. The roles are:

- Supporting teacher students’ assignments and coursework.
- Developing teacher students’ research skills required in the workplace.
- Educating teacher students to support the information needs and practices of learners (ACRL 2023).

IL came to the fore in the early 2000s when technology entered a new era and South Africa had a decade of curriculum changes that sparked excessive discussion, research, and censure (Moll 2009: 40). Moll (2009: 40) noted that a new curriculum for IL had been created for use in schools prior to the publication of the new Curriculum 2005.

Over the past two decades, much work has been done by the six libraries comprising the CUPT library system spread across five campuses in the Western Cape, to integrate IL into their curricula (Omar and Davis 2020: 2). The review and development of the CIL and assessment strategies have been ongoing since 2009 (Lockhart 2021: 377). Kleinveldt and Zulu (2016: 10), Applied Sciences Faculty Librarians at the CPUT, mentioned that since the approval of the IL Policy at CPUT in 2009, the faculties’ inclusion of IL in the curriculum has been mandatory. However, the integration of IL, a credit-bearing module, into courses across the faculties was not without its difficulties. The CIL was launched by CPUT Libraries in 2013 (Davids and Omar 2018: 2). As mentioned, it consists of five modules offered online which students have to complete through the university’s LMS, Blackboard. Lockhart (2016: 21) contended that the offering of the online CIL significantly contributed to first-year students’ IL skills at the CPUT. As noted by Becker, Arendse, Tshetsha, Davids, and Kiva-Johnson (2022: 60), new and changing technologies, student learning styles, blended learning preferences, and the introduction of hybrid teaching frameworks because of the COVID-19 pandemic in 2020, also demanded the continuous review and development of the CIL.

Lockhart (2016: 22) examined how newly acquired IL skills were used by students when composing a topic-specific essay (post-essay), as well as how that affected their results on the pre-essay test and post-test. The results of the study revealed that giving students a short course in IL, like the CIL, enhanced their IL abilities. The CPUT’s IL curriculum was examined by Davids and

Omar (2018: 1). The evaluation established how the programme was appraised, the collaboration between the library and the lecturers, and the improvement in students' academic achievement. The results revealed that the formative summative assessment indicated improved student performance.

Use of infographics and e-books in the CIL

This section will begin with a brief discussion of the Substitution, Augmentation, Modification, and Redefinition (SAMR) Framework, and this will be followed by a discussion of how the modules for the CIL were developed.

SAMR Framework

The SAMR Framework which underpinned this study was developed by Puentedura (2006) and is commonly used to assess the level of technology integration's impact on education. It is depicted in Figure 2 below.

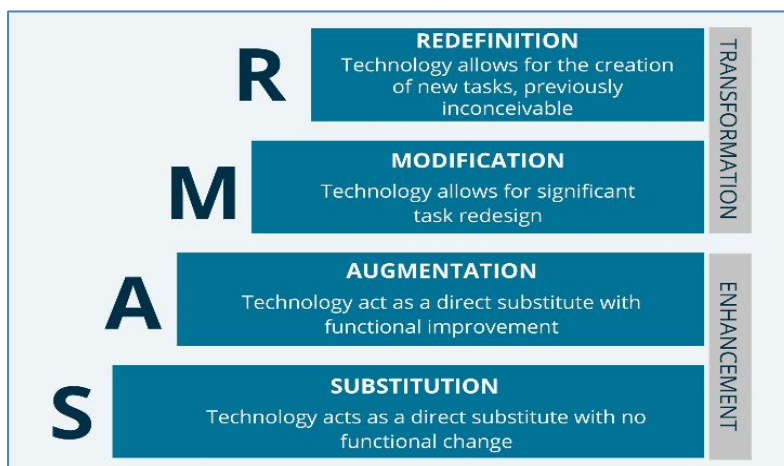


Figure 2: The SAMR framework (Puentedura 2006)

The SAMR is a hierarchical framework that outlines the steps involved in integrating technology into a curriculum or educational process. Its purpose is to support educators in critically analysing how technology is used in teaching and learning activities. At the simplest level, *substitution* occurs when lecturers or students use technology as a direct replacement for a non-digital alternative and this replacement has no functional change. *Augmentation* extends lecturers' and students' use of digital technologies by offering a functional change afforded by the digital tool chosen. These first two levels have been described as enhancement stages. The third and fourth levels have been described as transformative stages where *modification* and *redefinition* of the learning tasks are made possible using digital technologies (Philips 2015: 325). Learning

activities that fall within the substitution and augmentation classifications are said to enhance learning while learning activities that fall within the modification and redefinition classifications are said to transform learning (Puentedura 2013). With the design of the CIL for online learning, the creation of e-books and infographics, which are embedded in the CPUT Libraries website and the LMS, speak to the modification phase of the SAMR framework, while the augmentation phase is also employed, as there is an online test that needs to be completed at the end of the module.

To accommodate the diverse learning styles of students, the five CIL modules were developed in different formats, initially in the English language, the medium of instruction at the CPUT. These formats are infographics, e-books, audio recordings, and videos. Based on the students' learning preferences, they may then select one or more of the different formats. The translation project focused on the translation of infographics and e-books first. An infographic is defined by the Cambridge Advanced Learner's Dictionary and Thesaurus (2024) as a graphic depiction of information that is intended to provide a quick understanding of the information. The Merriam-Webster Dictionary (2024), describes an e-book as the electronic format of a book for use on a computer or mobile device. Within the context of the CIL, a student can use the infographic for a brief overview of the content of the CIL's modules, while an e-book can provide them with more detailed information about modules (Lockhart 2021: 380).

In 2021, the infographics and e-books developed for the five CIL modules (in English), were translated into isiXhosa and Afrikaans by a team of five CPUT librarians. This was done to provide many CPUT students with CIL learning resources in their home language. It was also done to enhance their understanding of IL concepts and the CIL learning content. The infographic on "How to use information legally and ethically" that was developed for CIL module 4 and made available to students in English, Afrikaans, and isiXhosa, is presented in Figure 3. The e-book developed for the same module is also accessible to students in the three languages and is depicted in Figure 4.



Figure 3: CIL module 4 infographic in English, Afrikaans, and isiXhosa



Figure 4: CIL module 4 e-book in English, Afrikaans, and isiXhosa

Research methodology

This study employed a cross-sectional design using a questionnaire to collect data. Cresswell (2012: 377) and Wang and Cheng (2020:65) state that cross-sectional designs allow the researcher to collect data from a specific population at a specific time. We used this approach because we wanted to determine students' perceptions regarding the use of e-learning materials in this specific module. The design was largely qualitative in nature with open-ended questions predominating. This is in line with Nieuwenhuis's (2019: 89) contention that the objectives of qualitative research are to investigate a subject within its limited context and evaluate the effectiveness of an intervention. For this reason, a cross-sectional research design was adopted to determine if the introduction of the multilingual CIL infographics and e-books was useful in improving the students' understanding of the CIL teaching and learning materials.

The target population comprised first-year Bachelor of Education students at the CPUT, enrolled in the CIL. The participants were purposively selected from the two Faculty of Education campuses, namely, Mowbray and Wellington. The selected participants had shared characteristics (Lumadi 2018: 235), and the three primary inclusion criteria were as follows:

- Participants were enrolled in the first-year subject of Professional Studies (PPR 161S) or Academic Literacy (ACL 151S) in the Bachelor of Education programme.
- Participants had used the multilingual infographics and e-book learning resources developed for the CIL module 4.
- Participants had completed the CIL assessment.

An online questionnaire using Microsoft Forms was used to collect data from two groups of first-year Bachelor of Education students. The online questionnaire was made available to a total of 209 students, and 129 completed the questionnaire, a 56% response rate. The reasons for the selection of a questionnaire as the data collection tool are that it is easy to administer to a large population and allows for the collection of opinions on a specific research topic (Ganga and Maphalala 2018: 317). In line with the study's purpose, the questionnaire aimed to collect data to ascertain the perceptions of the participants on the effectiveness of the CIL's e-books and infographics that were translated from English into isiXhosa and Afrikaans.

The questionnaire consisted of three closed-ended questions (each with an option for participants to provide reasons for their answers) and two open-ended questions. The first closed-ended question ascertained whether the participants found the Afrikaans and isiXhosa e-books and infographics assisted them in

their understanding of the CIL learning content. The second question established if the participants perceived the online e-books and infographics as easy to use. For both questions, participants could select one of the following options: “Yes”, “Maybe”, or “No”. The third question asked participants to rate the usefulness of the Afrikaans and isiXhosa e-books and infographics in supporting CIL learning. A 10-point Likert scale with 1 being the lowest score and 10 being the highest score was used.

The final two questions were open-ended:

- Do you have any comments or suggestions to improve the Afrikaans/isiXhosa ebooks and translations?
- How did the Afrikaans/isiXhosa e-books and infographics assist you with understanding the learning content of the Information Literacy Course modules?

The online questionnaire response rate of 56% was deemed sufficient to proceed to the data analysis phase, which was conducted using in vivo coding. Themes were developed from the coded data using thematic categorisation, upon which discussions and conclusions were drawn (Saldaña 2013).

Lincoln and Guba (1985) outlined the criteria for ensuring the trustworthiness of a study. In this regard, we ensured credibility by using investigator triangulation as suggested by Stahl and King (2020: 26). Transferability was ensured by including a detailed description of the context and the site of the study, and dependability was assured by using a third-party researcher to confirm the researchers' interpretations of the data that were collected (Stahl and King 2020: 27). It is clear that, because of the unique context of this study and its qualitative element, the findings of this study cannot be generalised beyond the CPUT.

Findings

The data were analysed using in vivo coding, which focuses on the spoken words of the participants (Saldaña 2013: 91) and themes were developed using thematic categorisation. From the categorisation of the coded data, specific themes emerged and are reported below.

Usefulness of e-books and infographics in supporting IL learning

The following was found concerning the first research question which asked how useful the isiXhosa and Afrikaans e-books and infographics were in understanding the CIL learning content. In total, 83% of participants (i.e., those

who indicated a score above 7) found that the e-books and infographics were easy to follow and that these resources were useful.

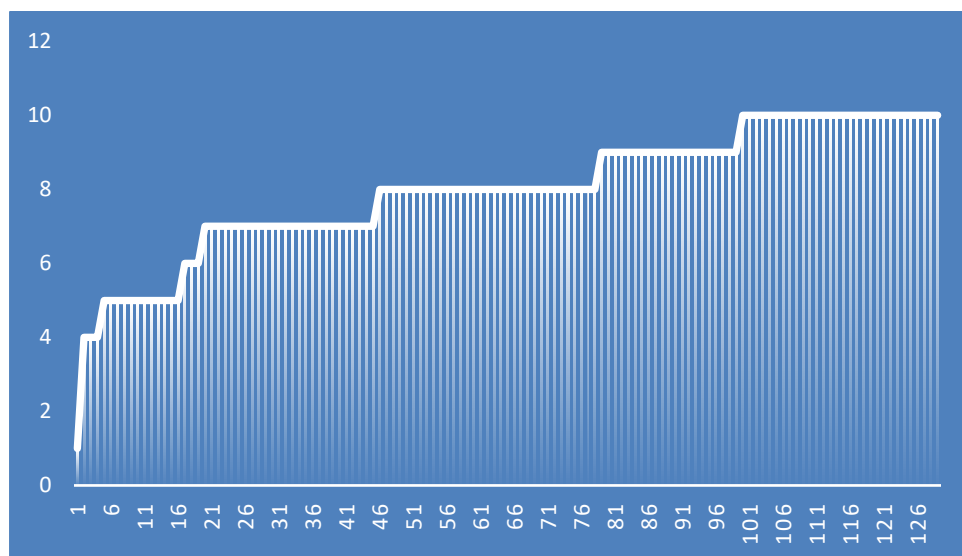


Figure 5: Usefulness of isiXhosa and Afrikaans e-books and infographics

Most participants indicated that the isiXhosa and Afrikaans e-books and infographics were simple, well organised and easily accessible. This can be seen in the two quotes below:

“It is well organized and simplified and understandable.”

“They are structured in a good way and easily accessible.”

The e-books were also perceived by the following participant as easy to read and access:

“So far I have no complaints about the e-book, it’s very easy to get and fun to read about.”

Improvement in understanding the CIL

Participants were asked if the Afrikaans and isiXhosa e-books and infographics enhanced their understanding of the CIL. Most of the participants, 124 (96%), agreed that the use of the e-books and infographics in their mother tongue did improve their understanding of the subject. However, it appears that the Afrikaans speakers found slightly more value in this as 98% answered in the affirmative compared to the 90% of isiXhosa speakers. Responses included:

“I would just say this helped me a lot.”

“isiXhosa e-books are very useful because they make me understand furthermore than I was able to understand when they were in English.”

“The Afrikaans e-book and infographic is very helpful it gives me a better understanding.”

One participant summarised (in Afrikaans) the views of the majority of participants:

“Ek het die infographics ‘n wonderlike opsomming gevind van die ebooks. Die ebooks het maklike, vinnig-om-te-lees inligting bevat wat ek baie insiggewend gevind het. Ek het baie daarvan gehou!”

(I found the infographics a great summary of the ebooks. The ebooks contained easy, quick-to-read information that I found very informative. I liked it very much)

Value of e-books and infographics

Participant views on the value of the two different formats, infographics and e-books, were also positive overall. Their appreciation for the summarised information provided in the former and the detailed information in the latter is illustrated in the following quotes:

“I found the infographics to be a wonderful summary of the e-books.”

“The e-books were easy, quick-to-read information that I found very insightful. I really liked this.”

It was also emphasised through the following comment that the infographics, should be “available at all times.”

Preference for English resources

One Afrikaans and one IsiXhosa-speaking participant indicated that they still prefer to use the English resources, as they felt that they understood them better. Their responses were:

“I used the English e-book and infographics because I understand it much better than the Afrikaans one. The information was easy to follow and to understand and very informative.”

“I’m comfortable using English for this module.”

Problems identified with the quality of translations

While some participants regarded the translation of the isiXhosa e-books as “reasonable” and “not need[ing] to be improved”, there were others who indicated that the level and quality of the translations might be problematic: *“I feel like the language used was very bombastic Xhosa to understand it would have been much better if it was kept simple.”*

“Some of the words [in Afrikaans] are directly translate[d], which is not always aligned with context.”

Participants also indicated that they hoped that these translations continued to assist them with the understanding of the course content:

Suggestions made by the participants

One participant suggested that the translations be continued:

“I would suggest the translation to not stop but continuing to assist and translate the e-books in isiXhosa so I cannot find difficulties when reading the e-books,”

A second participant proposed that other formats such as audio recordings and videos must also be translated and made available to students:

“An audio or video of the e-book in Afrikaans will be much appreciated.”

Overall, most of the participants indicated that the translated isiXhosa and Afrikaans e-books and infographics were easy to use and assisted with their understanding of the CIL that was primarily presented to them in English.

Discussion

The findings reveal that participants found the isiXhosa and Afrikaans e-books and infographics useful for several reasons. Most participants appreciated the resources for being simple, well-organised, and easily accessible. Participants felt that the translations helped them understand the content better than when it was presented in English, underscoring Ngidi and Mncwango’s (2022: 4) support of the Language Policy Framework for Higher Education Act, which promotes multilingualism in South African universities. The researchers argue that all universities should accommodate students who do not speak English as their first language and who struggle to understand English teaching and learning materials by reflecting diversity in their language policies. Participants positively viewed both the infographics and e-books, appreciating the

summarised information in the infographics and the detailed content in the e-books. Overall, the majority found the translated isiXhosa and Afrikaans e-books and infographics easy to use and helpful in understanding the CIL content. Participants suggested that other formats, such as audio recordings and videos, should also be translated and made available. They expressed a desire for ongoing translation efforts to continue aiding their comprehension of course materials. They emphasised the need for these resources to be always available. However, a few participants preferred the English resources, feeling they understood them better. There were also some concerns about the quality of translations, with comments about overly complex language in isiXhosa and awkward direct translations in Afrikaans. However, most participants found the translations reasonable and did not see a need for improvement.

The study's findings highlight the need to expand the development of isiXhosa and Afrikaans e-books and infographics for other subjects. The South African Department of Higher Education's initiative to encourage multilingualism has been positively received by the CPUT. As earlier noted, on 4 May 2021, the institution signed and put into effect the Language Policy of 2019, which aims to integrate multilingualism into all internal and external communication channels. In the context of the CPUT, multilingualism refers to using multiple languages, with the principal focus being on Afrikaans, English, isiXhosa as well as South African Sign Language (SASL) (CPUT Language Policy 2019). According to the policy's guidelines, it is mandatory for all academic and administrative departments to promote isiXhosa as a scientific and academic language at the CPUT. This inclusive language approach by the CPUT indicates a commitment to the development and enhancement of isiXhosa, which is one of the three official languages in the province and is spoken by just under half (48.5%) of CPUT students.

Several observations, based on the findings, can be made:

First, it is evident that translation quality needs to be addressed by refining language use, avoiding overly complex isiXhosa terms, and ensuring contextual accuracy in Afrikaans translations.

Second, collaborations between lecturers, content developers, and language experts be fostered to ensure high-quality, contextually accurate translations that are easy to understand.

Third, it would be advisable to diversify the formats of CIL documents and expand on the range of translated materials to include audio recordings and videos to cater to different learning preferences and further aid comprehension.

Fourth, it is also advisable that the implementation of regular feedback mechanisms be instituted to assess the effectiveness of multilingual resources and make necessary adjustments based on student input.

Finally, due to the success of the use of the CIL multilingual resources, it would be advisable to ensure that these are always available, both online and offline, to provide continuous support for students and to promote inclusivity for all.

It can be concluded that the SAMR framework's phases of modification (embedded e-books and infographics) and augmentation (the use of an online test) have proved to be successful in the effective use of multilingual materials in an online IL course at a university of technology in the Western Cape.

Recommendations

The findings of this study have led us to make the following recommendations:

- It is essential to promote multilingualism in higher education institutions and this is in line with the Language Policy for Higher Education (2022). Furthermore, Section 15.2.1 of this policy acknowledges that “the promotion of South African languages for use in instruction in higher education will require, amongst others, the development of dictionaries and other teaching materials” (Madiba 2023: 387).
- We continue with the development and integration of inclusive multilingual learning resources in the subject of IL to mitigate language barriers and foster equal access to scholarly materials.
- Lecturers and librarians involved in the development of multilingual resources collaborate with trained isiXhosa and Afrikaans language translators from the Language Unit at the CPUT to ensure the creation of high-quality multilingual resources. This would also involve conscientising the lecturers to the concepts put forward in the SAMR Framework to guide them in the creation of online content.
- Students need to be provided with multilingual access to all formats of the online CIL teaching and learning materials, including audio recordings and videos.
- The multilingual approach to the creation of content and learning materials reported on in this study, be extended to other modules within other courses offered at the university.

Conclusion

This study examined the effectiveness of multilingual learning tools, specifically isiXhosa and Afrikaans e-books and infographics, in enhancing first-year students' comprehension of the CIL at the CPUT. Despite the primary instruction being in English, the findings indicate that these translated resources significantly aid understanding, underscoring the necessity of addressing language barriers in South African higher education. The study aligns with the Language Policy Framework for Higher Education (2020) and the CPUT's commitment to multilingualism, highlighting the importance of incorporating regional languages into academic materials. Recommendations include collaboration between lecturers, staff, and language units to produce high-quality multilingual resources and to include the final phase of the SAMR framework, that of *redefinition*, which could lead to tasks aimed at transforming learning. Overall, this study emphasises the critical role of inclusive multilingual resources in promoting equitable access to education and fostering a more inclusive learning environment.

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