RESEARCH ARTICLE

STUDENTS' PERSPECTIVES ON THE QUALITY OF DISTANCE LEARNING MATERIALS IN SELECTED HIGHER EDUCATION INSTITUTIONS IN ETHIOPIA

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Abstract

Successful Open and Distance Learning relies on well-developed Self-Instructional Materials, crucial for facilitating self-directed learning. Effective self-instructional materials convey knowledge, motivate learners, and reduce the need for extensive support services. This research examined the effectiveness of distance learning materials in selected Ethiopian higher education institutions, focusing on their ability to sustain student engagement through self-study. This study adopted a mixed methods approach to collect data through questionnaires from 175 students. The findings revealed that, apart from one private institution, the selected institutions failed to develop effective self-instructional distance learning materials. To address challenges, staff in higher education institutions should receive intensive training on developing and evaluating ODL materials, and HEIs should develop course materials that promote effective self-learning.

Keywords: *Open and distance learning; distance education; self-instructional materials; self-directed learning; higher education institution; ODL materials*

Introduction

Distance education (DE) aims to extend traditional higher learning rather than challenge its structure and address issues of scarcity and exclusivity (Minichiello, 2016). It emerged when the university model reached its limits in size and resources. Over five generations of DE have evolved with technology to meet the needs of learners (Taylor, 2001). The first generation started with correspondence education by mail in 1840, while the current fifth-generation DE is based on intelligent technologies that can record conversations (Heydenrych & Prinsloo, 2010). In the 21st century, DE must focus on metacognitive and motivational factors in self-directed learning (SDL), enabling students to learn how to learn and develop essential metacognitive knowledge. The new media, especially the digital connective technologies, have sparked greater interest in open and distance learning (ODL) and enable access to a broader audience (Saykili, 2018) since distance education has become both mainstream and a necessity, and no longer an option (Garlinska et al., 2023). The widespread use of portals and mobile devices and accessibility to wireless connectivity at home, workplaces, and public places facilitates DE (Hsu & Ching, 2015; Pimmer 2016). Technology makes completing studies possible in different settings anywhere, anytime while on the move (Hsu & Ching, 2015; Pimmer 2016).

To facilitate SDL, cognitive development, metacognitive awareness, and motivational factors are crucial for meaningful learning outcomes. Self-instructional materials (SIMs) are essential for SDL and organizing

didactic activities for independent study (Constancio et al., 2019; Iqbal et al., 2019). Well-developed print-based SIMs are foundational to ODL, and HEIs should ensure that their SIMs have the critical characteristics needed for effective education (Iqbal et al., 2019). In this context, this research explored the quality of distance learning materials in selected HEIs in Ethiopia. ODL relies on SIMs that should motivate learners and avoid a 'Take it or Leave it' approach (IEC, 1973, as cited in Mays, 1998). According to Indira Ghandi National Open University (IGNOU) (2005), writing for ODL presents unique challenges and requires distinct skills from those used in writing conventional textbooks. The main challenge in writing self-learning materials is ensuring they promote active learning and an understanding of how we learn (Mishra, 2024). Learners need to engage with materials independently of teacher support since they are a substitute for classroom instruction (Gbenoba & Dahunsi, 2014; Shikulo & Lekhetho, 2020).

In practice, there is a paradox to the ideal situation painted above because distance education institutions often hire instructors who need more skills to prepare effective course materials from conventional schools. Consequently, such materials fail to promote SDL, leading to increased learner dropout and a decline in overall education quality (Dahal & Bhat, 2024). ODL is an innovative educational concept that relies on self-learning materials developed for teaching and learning (Tessema, 2023). The success of ODL programs hinges on the design and utilization of high-quality learning materials (Jayaram & Dorababu, 2015). Many ODL institutions assert that self-learning materials should impart knowledge and motivate students to learn and act like teachers to create a learning experience that resembles a classroom situation (Maphosa et al., 2019; Patel & Singh, 2022; Tessema, 2023).

High-quality learning materials should be student-centred and cater for diverse learners' diverse needs and interests to ensure they benefit from their use (Zabidi et al., 2017). Customized SIMs are essential for effective instructional delivery in ODL (Zabidi et al., 2017). The potential impact of distance education on the entire educational landscape lies in the effective use of SIMs, enhanced by visual, auditory, audio-visual, and multimedia content. Regardless of how well-organized materials are with modern technology, learners worldwide still need printed information (Heydenrych & Prinsloo, 2010; Perraton & Potashnik, 1997). Well-designed distance education programs effectively combine various media: print for permanence, broadcasting for immediacy, and face-to-face learning for personalized feedback. However, a critical question remains: How suitable are the textual materials for independent learning? The theoretical framework underpinning this study suggests that ODL materials should be designed to foster interaction between learners and instructors, facilitating a virtual dialogue that enables learners to construct knowledge through active engagement with the learning environment.

Barandika et al. (2013) underline that SIMs empower students to learn independently without requiring direct instruction. These materials should be user-friendly, facilitate understanding and achieve learning outcomes. Namestovski and Kovari (2022:6) emphasize that SIMs can be effective and achieve good results if prepared by an efficient team of writers, coordinators, reviewers, designers, and editors.

ICT enhances education and enables the emergence of new learners and online communities that facilitate ODL through Open Education Resources (OER) (Diallo et al., 2013; Saykili, 2018). Massive Open Online Courses (MOOCs) represent a significant development in this open learning movement, promoting lifelong learning and knowledge accessibility (Qayyum & Zawacki-Richter, 2018; Saykili, 2018). Sato et al. (2024:17-18) also state that digital technologies such as video-on-demand and personal video recording have made multimedia resources more accessible and flexible for learners. However, in many African countries, challenges such as inadequate internet infrastructure, limited computers, and a lack of skilled human resources hinder the effective implementation of ODL using OER (Aderinoye et al., 2009; Tlili et al., 2022). Despite notable improvements, the World Bank Group (2023) estimated that in 2022, only 36 percent of Africa's population had access to broadband internet. In South Africa, the University of South Africa (UNISA) envisions leveraging emerging ICT potential to transform into a truly digital institution, aiming to eliminate the barriers of distance learning (Manson, 2018; UNISA, 2024).

While ICT has tremendous benefits for learning in ODL, it can negatively impact education if not appropriately used (Allman et al., 2024). In this regard, Alhumaid (2019) cautions that it dehumanises an educational environment, disrupts social interactions between students and teachers and isolates individuals. Fernando (2018) adds that the "showcase" learning environments often disengage students by replicating traditional teaching. Despite advancements in delivery, distance learners face challenges that

contribute to dropout rates, including a lack of real-time feedback, uninviting learning materials, delayed services, and negative attitudes toward open education (Dahal & Bhat, 2024).

Statement of the problem

In 2001, the lead researcher was a conventional instructor teaching General Physics at Gondar Teachers' College when he participated in Project 17000, organized by Ethiopia's Ministry of Education to upgrade 17,000 first-cycle primary school teachers to work effectively at the second-cycle level to address a shortage of qualified teachers. The project focused on developing modular distance learning materials, with the training structured to divide courses into segments of three to five closely related chapters. The overall goal was to create self-instructional materials. However, the training provided had some shortcomings, leaving instructors ill-prepared to meet the demands of distance education.

Conventional practitioners resisted efforts intended to familiarize them with the principles of distance education. In subsequent research analyzing the modular physics course materials developed for Project 17000, Tessema (2004) found they lacked essential attributes required for effective distance learning. Research by the Ministry of Education (MoE) (2018) confirmed that the quality of education in Ethiopia's higher education encompassing regular, continuing and distance education programs is wanting.

Due to poorly organized modular materials, the MoE (2018) highlighted that quality issues were more pronounced in continuing and distance education initiatives in private institutions than in regular and public institution programs. It underscored the need for ongoing training of university staff to identify required competencies, develop practical modules, and utilize teaching methodologies that prioritize student learning over teaching (MoE, 2018). In this context, the current study investigated the quality of distance learning materials utilized in selected HEIs in Ethiopia. Specifically, it addressed the following research question: How do selected Ethiopian higher education institutions use distance learning materials for self-directed learning?

Theoretical framework and literature review

This research is underpinned by Moore's theory of transactional distance and constructivist learning theory, which are triangulated to provide a solid theoretical base. It is critical because ODL is a pragmatic, interdisciplinary field that continuously adapts to changing paradigms (Bozkurt, 2019), necessitating multi-dimensional theories since no single theory can fully explain it. Moore first articulated the theory of transactional distance in 1972, defining *distance education* not merely as geographic separation but as a pedagogical concept encompassing teacher-learner relationships affected by space and time (Moore, 1997). He noted that this separation leads to unique behavioural patterns, significantly impacting teaching and learning. Moore explained that a psychological and communicative "transactional distance" can result in misunderstandings between the instructors' inputs and learners' interpretations, highlighting distance education's educational and psychological dimensions (Moore & Anderson, 2007).

Moore (1997) describes transactional distance as the relational distance between partners in education, influenced by the environment, behaviours, and interactions. He emphasizes that this concept includes critical elements like structure, dialogue, and autonomy, which shape educational communication. In a social context, distance refers to the separation of participants from the educational institution and is measured by the journey from home to an educational institution (Moore & Anderson, 2007). Effective dialogue emerges from interactions between teachers and learners aimed at enhancing understanding (Lee, 2017; Moore, 1997). This dialogue can occur through various means, such as face-to-face, phone, or online. Increasing dialogue, especially using technology in today's interconnected world, reduces transactional distance, enhances virtual presence and alleviates loneliness for the distance learner (Moore & Anderson, 2007; UNISA, 2024).

Moore and Anderson (2007) further note that reduced communication leads to increased separation, resulting in heightened feelings of isolation among learners when interaction with teachers or institutions is minimized. Increased transactional distance occurs when learners require more direct instruction and structure. By contrast, when learners have greater autonomy, transactional distance decreases as dialogue increases and structure diminishes. SDL in distance education emphasizes the learners' freedom to control their learning goals and activities. Incorporating opportunities for testing personal meaning and reconstructing social knowledge within educational transactions is essential. However, the challenge for

distance educators lies in integrating dialogue and collaboration into SDL frameworks (Charokar & Dulloo, 2022; Moore & Anderson, 2007).

Dewey (1959) posits that education is a collaborative reconstruction of experience, encompassing psychological (cognitive) and sociological dimensions. He argues that neglecting either aspect can lead to detrimental outcomes. The cognitive component of education has often been overlooked in SDL discussions within distance education. Ultimately, SDL relies on learners developing both the disposition and ability to learn effectively. While SDL is often linked to individual external control, it is fundamentally a transactional experience that connects a learner's world with the societal context (Charokar & Dulloo, 2022; Moore & Anderson, 2007). Thus, significant progress is needed to fully harness SDL within the distance education's transactional framework, meaning that SDL must be expanded to maximize its impact on learning.

Moore and Anderson (2007) contend that the concepts of 'autonomy' and 'control' alone are insufficient for a comprehensive understanding of SDL. They emphasize that 21st-century distance education should focus on metacognitive and motivational factors to make SDL relevant in open learning contexts. Ultimately, learners engaged in SDL should develop the ability to learn effectively and acquire essential epistemological and metacognitive knowledge. Therefore, cognitive development, metacognitive awareness, and motivational factors are crucial for SDL and influence how learners achieve meaningful outcomes. Distance educators must also consider what it means to be autonomous and self-directed in this learning environment (Moore & Anderson, 2007; Schweder & Raufelder, 2022). In an SDL environment, students are responsible for developing learning objectives and monitoring their learning process (Schweder & Raufelder, 2022). Therefore, before assigning students SDL projects, ODL educators must understand their readiness for SDL, which shows their willingness for greater autonomy in their learning (Charokar & Dulloo, 2022). For distance education to stay relevant and lead to accessible, continuous learning, it must be adaptable and transformative.

The constructivist learning theory is influenced by Dewey (1938) and Vygotsky (1978), who highlight the significance of culture, language, and social context in learning and stress that meaning is constructed through students' activities rather than imposed through direct instruction. In contrast, the objectivist view assumes that knowledge exists independently and can be transmitted. Constructivists advocate that meaningful learning occurs when learners actively engage with and process information. This approach prioritizes knowledge construction over mere reproduction (Bada & Olusegun, 2015; Herrington & Standen, 2000). According to Collins and Ferguson (1993), epistemic tools are essential for helping learners identify, evaluate, and organize information patterns. These tools should be incorporated into distance learning materials to foster self-learning and create a cohesive learning environment that facilitates knowledge acquisition and transfer (Chin & Williams, 2006).

Well-designed print-based SIMs that promote interaction among learners, instructors, and institutions are fundamental to ODL and are the foundation for all other delivery systems (Iqbal et al., 2019). Heydenrych and Prinsloo (2010) agree that texts remain the core of the instructional medium across generations of distance education. Therefore, it is imperative to structure a learning environment that focuses on learner activities and enables knowledge construction through interactions (Elen & Clarebout, 2001). It is essential to apply Moore's transactional distance theory and constructivist learning theory, as they are universal and adaptable to various learning contexts. Well-organized SIMs, characterized by essential attributes, facilitate more effective transactions and promote SDL. Ultimately, adequately developed materials enhance learner engagement, making them more interactive and task-oriented while reducing reliance on support services.

Methodology

This research assessed distance learning materials utilized by selected HEIs in Ethiopia to determine if they met the minimum criteria for SIMs. It assessed whether these materials effectively facilitated self-learning among students. Accordingly, the study adopted a pragmatic interdisciplinary approach, which enabled the application of mixed methods research. This methodology allowed for a comprehensive examination of research variables, enhancing the validity of the findings by mitigating the inherent limitations associated with relying solely on either qualitative or quantitative methods. The mixed methods approach helps researchers address complex research circumstances as it integrates the advantages of both qualitative and quantitative methods (Taherdoost, 2022). It also enriches the comprehensive understanding of

phenomena by integrating different facets of data (Chaumba, 2013). Therefore, collecting diverse data is essential to effectively inform sound judgments regarding programs or policies (Peersman, 2014).

The study followed an explanatory descriptive research design and concurrent mixed methods strategies, prioritizing quantitative research to gain a deeper insight into how distance students benefited from the learning materials and developed independence as learners. It evaluated the professional development skills the course developers who created these materials acquired. The target population consisted of 600 individuals, comprising 150 senior students from each of four selected institutions: Addis Ababa University and Kotebe University of Education (public institutions), Renaissance Global College of Distance and Virtual Learning and Unity University (private institutions). These students were pursuing bachelor's degrees in management and ICT education through ODL.

For this research, a sample size of 235 senior students (approximately 39% of the total student population) was targeted. The response rate was 74.44% for students completing the questionnaires. Sampling in research involves selecting a subset from a larger group to represent the entire research population from which the sample is drawn, allowing researchers to draw inferences about the whole group (Dehalwar, 2024; Makwana et al., 2023). In this sense, it minimizes costs, time and resources, thus ensuring a robust framework for obtaining valid results.

The scope of the study included institutions with distance learners from Addis Ababa and regional areas and aimed to capture diverse characteristics from the student population, such as year of study, age, marital status, sex, and institution. Accordingly, a stratified random sampling technique was employed to gather representative data from senior students.

Data was collected through questionnaires made up of closed and open-ended questions for the sampled students. The closed questions evaluated the students' perceptions of the quality of course materials. Open-ended questions permitted respondents to express their views not adequately addressed by the closed questions. The qualitative responses were transcribed, coded, and thematically categorized for analysis. Quantitative and coded qualitative data were processed using IBM SPSS Statistics software versions 27/28 to facilitate comprehensive data interpretation.

The ethical clearance for this research was secured from the UNISA College of Education Ethics Review Committee (Certificate Number: Ref: 2021/05/12/67143970/29/AM) after it ensured that the rights of participants would be protected, including the right to withdraw from the study at any time without suffering any repercussions. Afterwards, the four participating institutions were approached to request permission to collect data and they all granted it. Subsequently, the course writers and coordinators were requested to administer the questionnaires to students.

Findings

As this study adopted a mixed methods approach, the findings are presented quantitatively and qualitatively to comprehensively address the following research question: How do selected Ethiopian higher education institutions use distance learning materials for self-directed learning?

Quantitative findings

Students' responses to the nature of SIMs used in distance learning materials were analyzed to determine the quality and characteristics of SDL. The discussion is organized into five characteristics, followed by students' reflections.

The self-explanatory nature of learning materials

Of the 175 student respondents, 90% from government institutions and 84.8% from private institutions reported that their learning modules presented the content systematically. Some 84.7% of private and 77.7% of government institutions' respondents reported being encouraged to engage with in-text questions (IQs), self-check exercises (SCEs), and other related activities. In this context, 67.7% of government and 55.3% of private institutions' respondents felt that the language of instruction in the content was straightforward. In comparison, 44.7% of private and 30.0% of government institutions' students found it unclear. Furthermore, 65.9% of private institutions' students reported lacking technological support, while 57.8% of government students said they received it. Additionally, 90.3% agreed that their learning materials included relevant examples for each lesson. Some 86.3% said they found the examples short and precise, while 69.1% said they

were not self-explanatory. Concerning graphs and diagrams, 86.3% of private and 73.7% of government institutions' respondents found them relevant and presented, while 57.2% from both institutions found the graphs irrelevant and explanatory references incorrect.

The self-directed nature of learning materials

Some 41.1% of government and 40.0% of private institutions' students were almost unanimous that the modules included hints and guidance. In comparison, 47.1% of private and 40.0% of government institutions' respondents reported that only some of their study materials contained hints and guidance. Most respondents (78.8%) from private and 76.7% from government institutions confirmed that all their modules provided the necessary information clearly and comprehensively on the cover pages. Regarding the introductory services of the course/module/unit, 73.7% of students across all the institutions agreed that their learning materials introduced the depth of the courses properly. However, 52% said they did not specify how much time should be spent on each part of their learning, while 48% reported receiving advice on managing their time for effective learning. Moreover, 61.2% of students agreed that the introduction sections offered guidance on assessing their learning progress to optimise their learning.

Linking prior knowledge to new content enhances learning, and 74.3% of student respondents felt that their modules encouraged them to connect with previously acquired knowledge, although 35.7% disagreed. Concerning forthcoming lessons, 69.8% said their learning materials highlighted what would come next, while 30.1% disagreed. Regarding the availability of feedback on the SCEs and learning activities (LAs) in the introduction, 77.1% of students stated that they were informed about the feedback options, and 22.9% said they were not. When asked whether their materials contained advice to resist seeking feedback before their assessments, 51.4% of students confirmed that such advice was included, while 48.6% disagreed. Overall, 68% perceived their learning materials to be like conventional textbooks, although these were intended to foster independent or self-directed learning. Conversely, 32% felt their materials had a different structure from traditional textbooks.

Furthermore, 56.5% of respondents agreed that the objectives for their courses and modules were similar, while 43.4% disagreed. Concerning clarity, 83.4% agreed that the objectives clearly outlined the learning goals. However, 51.4% said these objectives were not designed to help them acquire skills, while 48.6% felt otherwise. Additionally, 66.3% said the objectives helped them organize their learning activities more effectively, while 33.7% responded negatively. As a tool for tracking learning progress, objectives are included in both ODL materials and conventional textbooks. When asked whether the learning objectives helped them assess their progress, 52.6% of students responded affirmatively, while 47.4% responded negatively. These should ideally guide students in managing their study time properly and minimize misdirected efforts. However, 67.9% stated that this was not the case.

Moreover, the learning objectives serve as a mechanism for evaluating the learning process and planning what knowledge, attitudes, and skills to acquire from the course content. Some 71.2% agreed that they deepened their understanding of the content. Similarly, 76% felt that the objectives were framed to encourage changes in the learners' behaviours. Altogether, 53.1% of student respondents agreed that the objectives were clear and enabled them to manage their learning effectively, while 46.7% said they encountered some challenges.

Furthermore, 65.7% of students agreed that the nature and placement of white spaces in the learning materials encouraged them to work on separate sheets of paper, while 34.3% disagreed. Some 46.8% affirmed that they had utilized the white spaces for exercises and activity questions exclusively for learning activities. However, 53.2% disagreed that the spaces were designated solely for activity-related questions and problems. When asked about their engagement with IQs contained in their learning materials, 57.2% indicated that they had used the white spaces for IQs only, while 42.8% disagreed. As part of the access tools required for SIMs, the respondents were asked whether their materials provided white spaces for SCEs. The results were closely split, with 52.53% agreeing, while 47.43% disagreed. Regarding the adequacy of white spaces in their learning materials, 70.3% of the respondents said they did not have sufficient space for every task included in the course materials. Notably, 55.3% felt that they benefited from the presence of white spaces, while 44.7% disagreed.

The icons guide students through complex learning materials (Commonwealth of Learning, 2005), and this research sought to understand their benefit for students and invited them to share suggestions for enhancing

them. The majority characterized icons as access tools that effectively communicate the intended information on the learning materials and provide helpful guidance for navigating their modules. Notably, 62.3% of respondents reported that the icons were consistently applied throughout the course.

According to the mechanics guiding the development of SIMs, it is essential to include access devices in ODL materials during the content discussion phase. Verbal signposts are one such device intended to assist learners in navigating the text. Some 77.1% of respondents confirmed that their learning materials contained verbal signposts, while 22.9% disagreed. Regarding their frequency, 26.3% indicated that the verbal signposts appeared very frequently, 23.4% said they occurred very rarely, while others said they appeared "sometimes". A combination of the two groups shows that 42.3% of students felt that verbal signposts were absent. By contrast, 35.4% of students said they occurred frequently and often indicated they were regularly present. Furthermore, 69.7% indicated that they helped them understand each learning unit clearly, alerted them to upcoming lessons, highlighted potential misunderstandings, and aided them in grasping the connections between consecutive lessons. Finally, 61.7% of respondents said the verbal signposts reminded them to complete tasks outlined in their learning materials.

The self-motivating nature of learning materials

While 74.4% of government and 40.0% of private institutions' respondents agreed that the materials included reinforcements, 37.6% of respondents from private institutions disagreed. Some 63.3% believed that the content of their modules was presented in a friendly manner. However, 51.7% of private institutions' students said it was not, while 48.2% thought it was. Regarding the attractiveness of cover pages, 66.7% of government and 69.4% of private institutions' respondents said their materials were not engaging, potentially affecting course completion.

Although 71.5% of students expected comprehensive feedback for their online learning, most feedback was binary ('right or wrong'), with 83.5% stating that there was no explanation for incorrect answers and 80.5% noting a lack of discussion on the logic behind the correct answers. Consequently, 65.7% found the feedback unhelpful in assessing their learning progress.

Concerning assignments, 93.1% of students confirmed that they completed and submitted them for grading, and 90.3% said they completed all required assignments on time. Most students (63.4%) said they worked on assignments independently, while 25.7% sought support. The primary reasons cited for needing support were a lack of time (36.4%) and question difficulty (32.7%), followed by vagueness of questions and course difficulty. Regarding the assignment structure, 78.3% agreed that the instructions were clear, 65.7% said examples were not provided for guidance, and 52.6% said no time was specified for completing each activity. However, 76.5% stated that assignments helped them identify key course elements, tackle assessment problems effectively, pace their learning, and understand the expected standard of work across the course.

The self-evaluating nature of the learning materials

Altogether, 78.3% of student respondents indicated that their learning materials lacked IQs, which enhance learning and motivate students. Among 38 students from Renaissance Global College of Open and Virtual Learning (RGCOVL) (a private institution) who claimed that IQs were available, only 15 (39.5%) attempted them, while 13 (34.2%) completed some. Additionally, 78.9% of these students noted that IQs were not placed immediately after critical concepts, making it difficult to pause their reading and assess their progress, and 44.7% found them helpful for checking their learning. Furthermore, 79.0% believed the IQs did not facilitate virtual communication with their instructors, while 76.3% agreed that they worked on IQs after completing a unit or for revision.

Regarding learning activities (LAs), 75.4% of students reported that they were at the end of the lessons, and 24.6% felt their materials did not provide opportunities to engage in LAs immediately after finishing a lesson. While 80% acknowledged that LAs were located at the end of each unit, 20% said they did not find them there. A majority (61.1%) confirmed that the LAs appeared frequently, while 43.5% said they were scattered throughout the material. Notably, 82.3% agreed that their materials contained various types of learning activity questions, with fill-in-the-blank, true/false, and short answer questions being the most common at 72.6%, 68.5%, and 61.8%, respectively.

The respondents were also asked about the location of *self-check exercises (SCEs),* where most students (86.8%) reported that they were placed immediately after each unit of study. However, 60% said they followed a lesson within a section, while 58.8% said they appeared at the end of a module. Regarding the structure of the SCE questions, 94.35% noted that the exercises were organized to help them recall what they had learned. In comparison, 73.1% believed the SCEs were designed to evaluate their ability to apply knowledge in practical contexts. Although it ranked third, a notable number of students agreed that the SCEs assessed their ability to generate new ideas.

When asked to share their views about the time allocated to complete the SCEs, 4.2% of students said it was insufficient to work effectively on each set of questions. Some 83.4% agreed that their learning materials included the SCEs with various question formats, with multiple-choice questions being the most prevalent, as reported by 68.6% of respondents. A significant proportion also mentioned including short answer questions (57.1%) and essay questions (51.4%). Concerning the benefits of engaging with SCEs, 73.8% stated that they reinforced their studies by allowing them to evaluate their understanding. In comparison, 66.9% felt that working on SCEs contributed to their success in the final examinations. However, 55.4% disagreed that these exercises facilitated the timely completion and submission of assignments.

Regarding *unit summaries*, 90.8% of students confirmed they were available in learning materials. As for their benefits, 81% reported that they helped them streamline their studies, 79.3% said the unit summaries helped them focus on essential points, 74.4% indicated that they enabled them to reflect on the required tasks within the course materials, and 77.9% said they highlighted the key learning objectives. Moreover, 83.9% stated that the unit summaries were concise and comprehensive, while 91.1% believed they provided reminders of previously learned topics. However, 87.5% noted that they did not include built-in examples.

When asked about the *glossaries*, 94.3% of the students indicated they were absent from their learning materials and could not gain the associated benefits. On the other hand, 75.4% stated that their learning materials did not contain *post-tests* as assessment tools meant to help them assess their understanding of a unit. Among those who reported having post-tests, 24.6% were from RGCOVL. Of those who engaged in post-tests, 75.0% agreed that most were directly related to the unit's objectives, while 70.0% noted that no specific time was allocated for completing the self-checklists.

The self-contained nature of the learning materials

According to the students, 71.4% of the course materials did not specify how much time to allocate for learning. Consequently, 74.4% of government and 61.2% of private institution students said they often had to consult dictionaries to understand the terminology. Regarding the icons, 60.6% felt they conveyed the intended messages effectively, 65.7% believed they provided guidance and 62.3% acknowledged their uniformity. Furthermore, 65.9% of private and 57.8% of government institutions' respondents reported that educational technologies did not support their learning.

Qualitative findings

Open-ended questions in students' questionnaires were intended to generate qualitative data. Specifically, students were asked to express their views on how well their learning materials encouraged reading. Most private (69.4%) and government (66.7%) institutions' students reported that their materials were not stimulating, significantly affecting course completion. Regarding IQs that should be included in the materials, a smaller group of 23 students noted that the purported answers were often missing. While IQs are intended to prompt learners to pause and assess their understanding, some students found them time-consuming, complicated, and repetitive.

On assignments, 42.7% (64 out of 150) of students emphasized the need for timely feedback, including comments to help them gauge their progress and readiness for final examinations. Some 20 respondents suggested having one tutor mark assignments per module, while 15 felt the assignment questions should better cover all content discussed. Only 115 out of 175 respondents shared their views on the icons, with 29 (25.2%) indicating they failed to communicate their meanings. They suggested that the definitions for these icons should be provided before their integration into the materials. Altogether, 120 respondents answered an open-ended question about the usefulness of a glossary. Some 65 (54.2%) stated that it supports distance learners by offering definitions of key terms central to the lesson, while 33 (27.5%) said it translates new or ambiguous words.

Discussion

The study utilized concurrent mixed methods strategies, revealing varied results from the quantitative approach applied to students. Most student respondents indicated that the course materials did not adequately inform them about the time required for learning, leading them to frequently consult additional resources and dictionaries to clarify specific terms and concepts. Self-learning materials should be designed to ensure that the course content is self-sufficient, enabling learners to save time and reducing the need to seek additional resources, thereby making the materials fully self-contained (Dhanarajan & Timmers, 1992; Iqbal et al., 2019). Consequently, feedback from students indicated that the distance learning materials did not have the necessary access devices to be truly self-contained.

While most students expressed satisfaction with the logical structure of the texts and the adequacy of examples in their learning materials, they raised concerns about the self-explanatory nature of the examples, images, and diagrams provided. The course materials must be self-explanatory and of good quality, possess intellectual clarity and linguistic simplicity and incorporate concrete illustrations, diagrams, and pictures along with their explanations (Jayaram & Dorababu, 2015).

Moreover, many students reported that their learning materials did not include sufficient white spaces for practising all required tasks and failed to specify the time needed to complete each activity. Additionally, most students felt that the materials lacked verbal signposts, which help learners navigate the connections between ideas presented in the text. According to Fry et al. (2009), self-learning materials that provide learners with the necessary guidance, clues, and suggestions at every stage of their learning process promote self-directedness.

Concerning the availability of IQs, LAs, and SCEs, as well as feedback on these exercises, most students from both sectors reported that their learning materials lacked IQs, with only a significant number of RGCOVL students commenting on their availability. Those who encountered IQs noted that they did not have constructive answers accompanying them and were often time-consuming, complicated, and repetitive. Similarly, the LAs were provided at the end of each unit. However, the questions primarily encouraged rote memorization of content. Despite this, most students believed they benefited from working on LAs, as they helped them challenge themselves and succeed in their final examinations.

Most respondents also observed that the SCEs were largely designed to promote memorization of content, with no specified time allocated for completing each SCE. Nevertheless, many students felt that working on the SCEs helped them pass their final examinations more easily. While most students confirmed that their learning materials did not include self-checklists or post-tests, some RGCOVL respondents acknowledged the availability of these tools.

Overall, most students indicated that their materials had the SCEs and LAs. However, they noted that the types of questions in both SCEs and LAs mainly encouraged rote memorization and did not provide a way to assess their learning paces. Given these shortcomings, the learning materials did not meet the self-evaluation criteria. This observation aligns with Rahman's (2015) assertion that effective self-evaluating distance learning materials should provide students with integrated feedback, as they largely remain disconnected from the distance learning institution and instructors for extended periods or throughout the course. Tullis and Benjamin (2011) emphasized the necessity for self-learning materials to offer feedback on students' progress, as this guidance motivates learners by providing a clear direction on their educational journey.

Many respondents from government HEIs compared to private HEIs indicated that their distance learning materials lacked engaging qualities, describing them as uninspiring. Their concerns encompassed various aspects, including the colours of the modular materials, the binding style, the method of feedback provision, the specification of time for different activities, and the typography and layout. Additionally, many students reported that the feedback in their learning materials was limited to "right" or "wrong" answers without any explanatory context, rendering the feedback unhelpful and discouraging interaction with instructors. According to Chaudhary and Reddy (2018), SIMs should be designed to motivate students and stimulate their interest in learning while capturing and maintaining their attention on the subject matter. Similarly, Dislen (2013) posited that SIMs should inspire and provide students with a clear purpose and direction and encourage attentive reading to help them achieve their goals. Many students' observations that their learning materials lacked self-motivating features align with the points made by both Dislen (2013) and Chaudhary and Reddy (2018).

A synthesis of most participants' responses indicates that the learning materials used by the selected ODL institutions did not adequately satisfy four fundamental characteristics of being self-explanatory, self-directed, self-motivating and self-evaluating and only moderately fulfilled the characteristic of being self-explaining. Thus, based on the findings presented, it is reasonable to conclude that the learning materials utilized by the institutions in this study were insufficient to be classified as self-instructional.

Conclusion

This research aimed to assess the quality of distance learning materials at selected Ethiopian HEIs and recommend strategies for developing effective SIMs for ODL. Distance education in Ethiopia began in the 1950s with audio-visual centres for primary and secondary education (Tilson & Bekele, 2000). The Higher Education Policy and Strategy of Ethiopia (MoE, 2020) recognizes ODL as a vital component of higher education, in line with the constitutional right to education. However, despite two decades of expansion, a recent government-sponsored study revealed significant quality concerns in Ethiopia's higher education system. Quality issues are prevalent in regular, continuing, and distance education programs, with a notable decline in private continuing and distance education compared to public and regular programs. The study indicated that the organization of modular materials had some weaknesses and emphasized the need for ongoing training for university staff to implement a modular approach that prioritizes learning over teaching effectively. Continuous training is essential for staff to identify required competencies, prepare modules, and apply appropriate teaching methodologies.

Except for one private institution, the study found that three HEIs did not develop suitable course materials for distance learning, which requires SIMs. The key factors contributing to this issue included the negative attitudes of course writers towards ODL and their lack of professional skills in material development. Similar trends exist in other institutions offering distance education. Rahman (2006) emphasizes that writing for ODL is more challenging than traditional writing because it requires specific styles and techniques informed by learning theories.

Recommendations

Based on the research findings, it is recommended that HEIs involved in ODL receive intensive training on how to develop ODL materials before embarking on the task and be guided on how to develop SIMs. All stakeholders must be guided in evaluating courses for ODL using a standard quality measuring rubric.

Most institutions in this study did not meet the minimum requirements for SIMs except for one private HEI. While they possess Open and Distance Education (ODE) licenses, HEIs must ensure that course materials support self-learning. According to Maphosa et al. (2019), ODL relies on SIMs and allows students to learn independently. COL (2005) emphasizes that ODL courses require detailed preparation before the study begins, necessitating skilled writers and coordinators. Consistent with Moyo and Renard's (2016) assertion, it is also recommended that HEIs strengthen collaboration to unify efforts and enhance the profession.

Moreover, the Ministry of Education (MoE) and the Education and Training Authority (ETA) should provide training in ODE to enhance its recognition as a professional career. This intervention would ensure that experts manage the system properly. The MoE, ETA and individual institutions should develop and offer a postgraduate diploma programme in ODL, followed by potential career advancements based on the impact of these graduates. This approach could attract scholars and improve the quality of education in ODL institutions. Many HEIs offering ODL do not serve students uniformly, though their qualifications are treated equally. To address this disparity, the MoE and ETA should create a body of ODL experts to oversee the planning, implementation, and execution of ODE programs.

Finally, the Ethiopian government and Ministry of Education (MoE) should develop a framework for assessing the effectiveness of ODL course materials based on the Quality Matters review criteria endorsed by the International Council for Distance Education (ICDE). With some modifications, these criteria could help evaluate the quality of ODL materials more effectively.

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