International Journal of Management and Applied Research, 2023, Vol. 10, No. 2

Exploring Design Thinking in the Context of Open and Distance Education at the Open University of Sudan

Salha Mohammed Abdo

Open University of Sudan, Sudan

Abstract
Design thinking is a human-centred approach used in various fields, including the context of education, where it can be a powerful tool for reimagining and improving the learning experience. Educators can use design thinking to understand students' unique learning needs, interests and aspirations and tailor their teaching methods to better engage, support and inspire them. This paper is a reflective exploration of human-centred design in the context of open and distance learning (Open University of Sudan) and is particularly linked to specific curriculum design opportunities. In recent times, design thinking has gained significant importance in Open and Distance Learning. Professionals have embraced this approach to immerse themselves in students' perspectives, to understand how they think and solve problems. By adopting an innovative and creative mindset, educators seek effective solutions that cater to the unique needs of distance learners, enhancing the overall learning experience. This paper aims to delve into the strategies employed in ODL to establish more robust student engagement in the educational process, with a specific emphasis on the utilisation of Information and Communication Technology (ICT) in Open and Distance Learning (ODL). The future of design thinking in education is brimming with immense potential. It offers a transformative force, instilling students with indispensable 21st-century skills such as creativity, innovation, problem-solving, and collaboration. Design thinking can empower students to become active agents of positive change, paving the way for a brighter and more promising tomorrow. It, therefore, becomes a powerful catalyst for shaping a world of endless possibilities.

Keywords: Design Thinking, Open and Distance Learning, Human-Centered Design, ICT, Strategies, IDEO, Open University of Sudan

Received: 25 July 2023
Revised: 31 Aug 2023
Accepted: 18 Sept 2023

ISSN 2056-757X

https://doi.org/10.18646/2056.102.23-015

1. Introduction

Design thinking (DT) emerged in the 1960s and has since found widespread application in many different fields, including business, primary education, and medicine (Gottlieb et al. 2017). Its five-stage process—discovery, interpretation, ideation, experimentation, and evolution—prioritizes understanding end-user's perspectives to uncover unmet needs and design tailored solutions (Gottlieb et al., 2017; IDEO, 2013). As higher education faces increasing complexity and evolution, integrating Information Communication Technology (ICT) into the teaching-learning interaction has become essential. Interactive digital whiteboards have replaced traditional chalkboards, transforming the learning landscape (UNESCO, 2023). Introducing ICT alongside people-centered design enables the creation of engaging learning experiences that cater to student's interests and skill development needs.

In the realm of higher education, curriculum, and learning design must align with accreditation standards while fostering equitable and inclusive learning environments. Emphasising the links between quality assurance, quality enhancement, and staff engagement with learning design (Beetham and MacNeill, 2022) ensures the development of impactful courses. The ultimate aim of curriculum and learning design in higher education is to deliver meaningful and engaging learning experiences that empower students to achieve their academic and career objectives.

Design thinking can be a helpful approach to curriculum development, emphasizing empathy, experimentation, and iterative improvement. By combining design thinking into the curriculum development process, educators can create more engaging and effective student learning experiences like the curriculum of the Open University of Sudan. This can involve using design thinking to identify and solve problems, develop innovative solutions, and iterate on existing curricula. indeed, the policy of Open and Distance Learning separated teachers and students, the students learn by themselves, because in Open University of Sudan as an example, introduces design thinking in the curriculum by solving the problem of missing teachers in the education process. by developing curriculum with specific learning designing.

In the realm of open and distance learning, the application of design thinking takes on a distinct character due to the absence of face-to-face interactions between students and instructors. Consequently, educators face the crucial task of carefully considering students' preferences to bridge this gap effectively. With students getting access to education materials online, educators must adapt their approach to provide alternative forms of support. Developing high-quality and specifically tailored learning materials becomes paramount in addressing the unique challenges of this learning environment.

2. IDEO'S stages of design thinking

Design thinking was evangelized and popularized by IDEO beginning in the early 1990s (Brown, 2009); which is a comprehensive and iterative approach that places a strong emphasis on human-centered design. Overall, the IDEO design process exemplifies a holistic and dynamic approach to problem-solving, rooted in understanding and empathizing with the end-users. By involving users throughout the

process and embracing continuous iteration, designers can create truly impactful and meaningful solutions that cater to the real needs of the people they serve.

IDEO's approach, to design thinking consists of stages that emphasize the importance of human-centered design (IDEO, 2015). The process is iterative ensuring that designers truly understand and empathize with the end users. By involving users and continuously refining their solutions designers can create impactful solutions that cater to the real needs of the people they serve. As described by Archer (1979, p. 18), "there exists a designerly way of thinking and communication that is both different from scientific and scholarly methods of enquiry when applied to its own kinds of problems". Rowe (1987) outlined a systematic design process to problem solving that emphasized the role of the designer to address the needs of the client. Similarly, Cross (2001) described such process as "designerly ways of knowing" since it is a research practice and a way of processing information.

In relation to Open and Distance learning practices here's how I see each stage could be aligned to practices in Open learning;

1. Empathize: Educators and researchers in the Open University of Sudan (OUS) education carefully observe end users, and students to gain a deep understanding of their learning preferences and needs. This knowledge informs the development of Open and Distance Learning courses, and that is why the courses in OUS differ from courses in traditional education.
2. Define: Building upon observations from the empathize stage educators identify patterns of behavior, pain points, and challenges that students encounter during their learning journey.
3. Ideate: Armed with insights into user needs and problems educators brainstorm ideas and potential solutions tailored specifically for addressing challenges faced by students, in Open and Distance Learning environments.
4. Prototype: At this stage, educators begin creating solutions based on their ideas generated in stages. Educators employing the IDEOs design thinking model swiftly create prototypes like captivating multimedia materials, to experiment with and verify their proposed solutions.
5. Experiment: Give your solutions a go. Professionals, in education, actively involve students in the learning process by implementing prototypes and soliciting feedback. They collect input, from students to enhance and refine the solutions with the goal of addressing the needs identified in stages.

In the realm of higher education, educators, and professionals adopt diverse strategies to effectively integrate design thinking into open and distance learning settings. These approaches are geared towards aligning the curriculum and other practices with students' preferences, ensuring a more tailored and engaging learning experience for the learners.

3. Effective Strategies in Open and Distance Learning

In open and distance learning, various strategies are implemented to enhance the learning experience and support student success. Some key strategies include:

- Design Thinking: In preparation for open and distance learning courses, educators go through a careful curriculum development process involving several stages. This approach aims to identify students' learning preferences, goals and existing knowledge before the course begins. By gathering this valuable insight, the curriculum can be tailored to effectively meet the individual needs of learners. Throughout the design process, there are iterative cycles that allow for continuous improvement of solutions and increased knowledge. Analytical and synthetic phases are key features of this approach (Plattner et al., 2009, p. 60).

- Flexible Learning Paths: As investments in education technology continue to grow, students, parents, and educators face a seemingly endless array of education technologies from which to choose (Escueta et al., 2017). Hence, embracing Flexible Learning Paths (FLPs) is essential to cater to diverse learning practices among students. By offering a wide array of learning options, such as reading texts, watching videos, or engaging in online discussions, educators can enhance student engagement and participation. The United Nations Education 2030 Agenda strongly advocates for well-articulated education systems that incorporate FLPs. These paths provide multiple entry points and progression routes between institutions, courses, or educational levels, leading to numerous benefits for individuals and society as a whole. Notably, FLPs promote equity, improve employability prospects, and optimize the management of educational resources (Godonoga and Martin, 2020).

- Engaging multimedia materials: Multimedia materials encompass various tools used in education, particularly in open and distance education. These tools include videos, audio recordings, interactive simulations, and online quizzes. They are employed to present course content in diverse ways, enhancing student engagement and preventing feelings of isolation, particularly in Open and Distance Learning. According to Martin and Bolliger (2018), it is important for students to be able to interact with each other in an online learning environment. This interaction keeps students engaged, and to achieve this it is essential to include activities that get them communicating and collaborating. One way to do this is by using smart academic portals that allow students to actively engage with the course material and communicate with each other and the instructor. In addition, Revere and Kovach (2011) and Banna et al. (2015) found that more traditional methods, such as discussion boards, chat sessions, blogs, group assignments and peer evaluation, are also effective ways of encouraging student interaction in online courses. These tools can therefore help to keep students engaged and increase their chances of success in their studies, especially in the context of open education.

- Prompt and supportive communication: Maintain open lines of communication with students through regular announcements, emails, discussion forums, or virtual office hours. Being accessible and responsive to student queries can help create a supportive learning environment.

- Student engagement: According to Kuh (2009, p. 683), student engagement refers to “the time and effort students devote to activities that are empirically linked to desired outcomes of college and what institutions do to induce students to

participate in these activities". It also encompasses the strategies and efforts made by educational institutions to encourage and motivate students to actively participate in these activities.

- Regular feedback and assessment: Eraut (2006) emphasized the significance of feedback in shaping future practices and enhancing students' learning. In light of this, it is imperative for lecturers to re-evaluate their feedback-providing process. Timely feedback on student progress and performance is crucial. Employing formative assessments and continuous feedback mechanisms aids students in staying on track and achieving better learning outcomes.

4. Enriching Open and Distance Learning by Implementing Design Thinking with the Open University of Sudan's Curriculum

Defining Open and Distance Learning Open learning is an approach that provides learning in a flexible manner, organized around the geographical, social, and time constraints of the learner rather than an institution (Bates 1995). Distance education is a means to that end because it is an educational process in which a significant part of the teaching is done by someone who is distant in time or space from the learner (Perraton 1993). When combined with ICT in a well-designed, local school-based support system, open and distance learning can meet the challenges that education systems in developing countries are facing today (Moon et al., 2005).

There was a huge expansion in education in Sudan. Higher education institutions were provided with computers and connected to the Internet. In 2002 a set of computers was distributed to secondary schools in all states and computer material was also announced in the secondary school curriculum and university (Hamdy, 2007).

The Open University of Sudan (OUS) is Sudan's only university dedicated to open and distance learning. OUS was founded in 2002 with most courses' previous qualifications such as high school graduates required to study and there is no upper age limit. We have around 56,000 undergraduate and more than 500 postgraduate students, some of students have disabilities (Abdo, 2021). The Open University style of teaching is called supported open learning. The Open University of Sudan, which was established in 2002 and the University aims to adopt modern teaching techniques and to provide an outstanding education for those interested in anywhere and anytime. In 2003, the E-Learning Support Unit was established in this university. This unit contains six divisions: educational websites, live broadcasting (videoconferencing), production of educational discs, virtual laboratories, electronic library, and support division that contains: research, education, training, curricula, and modules.

Open University of Sudan is the largest open and distance learning institution in Sudan, OUS has more than 450 textbooks, recruiting 10,000-16,000 students every semester (Abdo, 2021). The OUS basic philosophies of distance learning and their consequences for the development of a learning environment supporting distance learners.

Of the nature of open education that is based on self-learning, each educational subject undergoes a specific instructional design by using the design as a thinking process. The university has trained over a hundred instructional designers to perform this role, and perhaps the university has subjected this design to reviews and revisions by the designers among themselves to ensure the quality of all types of designs (design thinking or instructional design).

The university electronically gathers this educational material and subjects it to linguistic and technical editing to produce the printed material in a form that is suitable for the university and meets the aspirations of the learner. Then, after all of that, the educational material is sent for final printing. This refinement also applies to audio and visual material."

5. Conclusion

This article aims to investigate the utilization of Design Thinking in the context of Open and Distance Education at the Open University of Sudan. The purpose is to elevate the quality of Open and Distance Learning by incorporating Design Thinking principles into the curriculum of the Open University of Sudan taking into consideration the diversity of students in an open and distance learning context.

Nowadays higher education professionals have the opportunity to establish an environment that focuses on the learner, fostering an increase in student participation, motivation, and academic achievement. This can be realised by the application of design thinking principles, thereby making sure the curriculum and educational materials are within reach of every student, and catered to their diverse learning needs or potential learning differences. It is pivotal to continually collect and analyse student feedback and performance metrics in a consistent manner, which helps in maintaining and upgrading the learning modules. This data-driven approach supports necessary modifications and fine-tuning, providing an optimal learning journey for all participants. Moreover, when open and distance learning methodologies are in place, researchers study end clients, while educators pinpoint challenges and engage in generating customised solutions. The learning process benefits significantly from the active participation of students, which leads to the advancement and perfection of the entire system.

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