

A design thinking approach to developing an online curriculum in interprofessional education in health in South Africa

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Background. The design of contemporary curricula in health professions education in South Africa (SA) is constantly evolving, as there is a need to ensure that students are adequately prepared to work in complex healthcare environments. The World Health Organization proposes that a way to accomplish this is through interprofessional education (IPE), where students from two or more professions learn from one another to improve health outcomes.

Objectives. To reflect on the design of an introductory module of a postgraduate diploma in IPE in health at a historically disadvantaged institution in SA, where a student-centred approach to learning and teaching was adopted.

Methods. Through an auto-ethnographic methodology, a design thinking approach was used to carefully construct and align an introductory module in IPE in the postgraduate programme. Considering the remote learning environment, this article also examines the importance of educational technologies in the design process of this online curriculum.

Results. The results of this study demonstrated the process used in the design of an IPE module supported by the five stages of design thinking to critically appraise the student-centred approach to learning and teaching. The instructional design tools used for this module included the university's learning management system, Google Suite, Flip, Google Jamboard, webinars, presentations, elevator speeches, quizzes and guest speakers. The end product was an interactive online module that was intentionally designed to be interactive and provide students with a core understanding of IPE.

Conclusion. This article demonstrates how an IPE module with a focus on theories, models and concepts can provide the foundation for students to understand the importance of IPE to transform the future of healthcare in SA.

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Interprofessional education (IPE) has become a global trend in transforming higher education curricula in preparing future health professionals by effectively addressing priority areas in healthcare. The concept of IPE comprises the development of the necessary competencies in students from health education disciplines for interprofessional collaboration (IPC) as practitioners.^[1] The 'inter' in IPE emphasises interprofessional learning with, from and about each other in a carefully constructed curriculum over the continuum of learning. In the African context, the design of such a curriculum is referred to as a scaffolded approach to learning.^[2,3]

The health system of any country is largely dependent on the competence of its health workforce. IPE incorporates a people-centred approach to healthcare and calls for a reform of the current health system.^[4] In Africa, governance of the current health workforce remains a challenge, especially where there is a mixture of health professionals who have been in the system for a while and are working in silos, and new graduates who are ready to engage in collaborative practice. Hazarika^[5] suggests that these governance processes allowing siloed approaches need to be challenged. There are two sustainable development goals (SDGs) that refer to strategies to improve health and education within the 2030 Agenda for Sustainable Development, i.e. SDG 3: Ensure healthy lives and promote wellbeing for all at all ages; and SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.^[6] To meet the targets of SDG 3 and SDG 4, higher education institutions (HEIs) need to ensure

that there is a transformation of health professions education (HPE) that will produce a health workforce that can significantly improve the health outcomes of the population. Aspiration 6 of Agenda 2063 refers to the potential of the African people and development, which are people driven.

Filies,^[8] at a South African (SA) university, developed an IPE model for allied health science students with the intention to instil interprofessional core competencies for collaborative practice. Furthermore, it is important to develop innovative learning activities to enhance health and social science students' knowledge, skills, attitudes and values through engagement in an IPE curriculum.^[9] A university in the Western Cape Province of SA has successfully established an undergraduate IPE curriculum and has embarked on the development of a novel online postgraduate diploma in IPE in health. This new diploma was conceptualised and implemented in 2021. The target group for this programme comprised health and social services professionals who serve on clinical and service delivery platforms but have not experienced an IPE curriculum as part of their health professions training. This innovative programme by Western Cape academics will ultimately contribute to improving the health outcomes for all people. This article aims to reflect on the design of an introductory module of the postgraduate diploma in IPE in health at a historically disadvantaged institution (HDI), where a student-centred approach to learning and teaching was adopted. It reflects on the design thinking approach used to conceptualise an introductory IPE module.

Methods

Approach

The researchers made use of a qualitative research method – auto-ethnography. Auto-ethnography is a research method that allows health educators to research their own practices and culture by way of sharing their insights regarding their learning and teaching journeys.^[10] O'Hara^[11] suggests that an auto-ethnographic approach is a scientific method to conceptualise experiences in social, cultural, personal and political history through an evidence-based approach. This approach may provide future professionals with insight regarding their learning and teaching practices within the academic space. Auto-ethnography is deemed to be an approach to the production of knowledge in a manner that is deep and slow. This form of knowledge production is more careful and deliberate in the selection of methodological approaches.^[12,13] The use of auto-ethnography was therefore appropriate, as it allowed the researchers to examine their own experiences of developing an online curriculum while addressing a topic of interest (i.e. IPE). The approach used in this article draws on auto-ethnography to describe the process of the development of an online IPE module within a postgraduate programme.

Setting

This study was performed at a university in the Western Cape, which has been running an IPE curriculum for the past 20 years.

Study population

The study considers the reflections with regard to the design of an online curriculum by the two curriculum designers, who are also the facilitators of a module called Theories, Models and Concepts for Interprofessional Education. The module has been through three iterations, and 32 postgraduate students have come through the programme.

Instruments

The curriculum designers used a shared Google Drive to document the process of the module development. Initially, a blueprint was developed that took into account all the pedagogical aspects of the module. This blueprint was used in the design thinking approach, as it included aspects regarding the purpose of the module, its theoretical underpinning, learning principles, graduate attributes and module plans.

Data analysis

The researchers deductively analysed retroactive reflections by the curriculum designers, as well as module evaluations and online planning discussions using the design thinking principles, i.e. empathise, define, ideate, prototype and test. Data were categorised according to the design thinking principles. The categorised data were then interpreted to construct meaning that was in line with the principles, thus connecting the findings to the context of the curriculum designers, allowing them to reach valid explanations about the various design thinking principles and how these have shaped their perspective of the curriculum design of an online module.

Theoretical framework

A design thinking approach was used to conceptualise and develop the postgraduate module, as it provided a solution-based approach to include practitioners who have not been exposed to an interprofessional curriculum

as part of their training. Design thinking was popularised by IDEO (IDEO, USA), which was later applied to a wide range of innovative solutions to various design challenges.^[14] This model has been increasingly used in the higher education sector to develop innovative and transformative curricula. Although the World Health Organization has called for IPE and collaborative practice to be included in higher education, there is a cohort of health professionals in the current health system that has not been exposed to this approach. The Theories, Models and Concepts for Interprofessional Education module used design thinking principles, with the understanding that most of the students who are enrolled in this module had unique perspectives and experiences that they brought into the classroom. These experiences, combined with global imperatives, encouraged the development of a module that used responsive learning and teaching approaches in IPE. This module is one of four core modules in the postgraduate diploma in IPE in Health. Other modules include Shared Decision-Making, Leadership in Interprofessional Education and an Interprofessional Research Project.

Using Fig. 1, a general overview of the design thinking approach demonstrates how the principles of this approach were used to develop a module that provided foundational underpinnings of core competencies and other theories, models and concepts used in IPE.

For this study, we followed the design thinking process developed at the Hasso Plattner Institute of Design, Stanford, USA. Below is a brief overview of how this process was followed.

To start the process, during the *empathise* phase, designers pay the necessary attention to the problem. For this process, the curriculum designers considered how students as health professionals were placed at the centre of the process to obtain an understanding of their experiences and the challenges they face in their professional workplaces. The next step was to *define* the challenge, where there is consideration of the need for the product/curriculum. In this case, the curriculum designers, who were also content matter experts, articulated the challenge regarding the lack of exposure to IPE on clinical and social services platforms. The curriculum designers then *ideated* and used divergent thinking strategies to generate different ideas and concepts through a process of brainstorming. They considered how the curriculum impacted the broader student experience and previous content and solutions. Old ideas were redeveloped, and new ones were generated. Finally, a *prototype* of the module was developed in the form of a blueprint, with some educational technology tools to support the implementation. In the *test* phase, the curriculum designers implemented the ideas, evaluated the programme and refined the prototype.

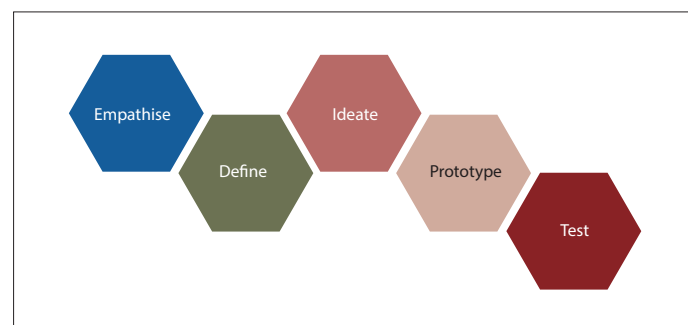


Fig. 1. The design thinking model developed at the Hasso Plattner Institute of Design, Stanford, USA.

Results and discussion

The results of this study are based on the experiences of two curriculum designers with >25 years of collective experience in HPE. The discussion below follows the design thinking process used to design the module.

Empathise

At a broader level, our institution follows a student-centred approach to learning and teaching (Institutional Operating Plan 2021 - 2025)^[15] and in doing so we strive to meet the needs of students to ensure student success. In the health sciences, there is a responsiveness to curriculum development that is grounded in our close connection with our students. As pioneers in IPE, our institution runs various community engagement activities where students work in interprofessional teams. Thus, when servicing the clinical platform, we have a keen understanding regarding the student experience in these spaces, based on formal feedback. This experience provided us with an overarching idea of the students we would attract to the Postgraduate Diploma in Interprofessional Education in Health. Hence, such students would have had at least 2 years of experience on a clinical, health or social development platform and enter the programme with unique work experiences.

Define

The curriculum designers defined the need for this curriculum, based on their experiences and knowledge of IPE as facilitators of learning. We considered the realities of the clinical platform in SA and were able to identify specific knowledge, skills and attitudes that students needed to develop. These were inextricably linked to IPE competencies, theories and models that could potentially be used in practice.

Ideate

Often, creativity and innovation are generated when resources are few. Therefore, crafting transformative ideas in an under-resourced context allowed for numerous solutions to the design challenge. As a team, the curriculum designers researched and brainstormed various ideas, including innovative teaching methods and interactive activities, considering resources that would meet the objectives of this module. Some of these innovative teaching strategies and activities included the use of the Flip (Microsoft Corp., USA) application as a socialisation and reflection platform. Google Jamboard was used to create workplace audits to allow students to reflect on their workplaces and how IPE is enacted in their environments. Two-minute elevator speeches were also incorporated into the activities to allow students to consolidate and express their ideas succinctly and timeously. Furthermore, students were also expected to facilitate an online workshop about a specific IPE topic.

Prototype

A detailed lesson plan was developed, with design activities for each of the learning sessions. All these activities were flexible and were improved upon with each iteration, of which we have had three. Some activities included synchronous online lectures using the Google Meet platform, Jamboard for workplace audits, Flip video lessons for socialising, and gathering an understanding of IPE and reflections. The Flip platform was also used to co-create some of the curriculum ideas. Elevator speeches were used for students to investigate their position regarding IPE, facilitation and participation in online webinars, guest lectures and an online ethics activity using video recordings on the institutional learner management system, which was followed by a quiz.

Test

By implementing the prototyped curriculum into a controlled environment, we observed the learners' engagement, especially at the beginning, when we used the Flip platform. Students were given ample time to engage with the platform as a pre-activity. During the class, we obtained feedback regarding their use and experience of the activity and to reflect on the first class that they attended.

Iterate

Based on the insights from the first iteration of the programme, the module was slightly redesigned for better implementation for the second cohort. Each year, a new facilitator was added and needed training. The programme was evaluated, and all changes were implemented. The other benefits of iterations were that we were able to observe students, and listen to some of their challenges and some of the highlights. This was mostly done during the soapbox exercise, which allowed us to develop a responsive approach to our curriculum design.

Throughout our design thinking process, we collaborated with the relevant stakeholders where diverse perspectives were important to contribute to a responsive and reflexive curriculum. The flexibility of a design thinking approach encourages creativity and ensures that the curriculum addresses specific IPE needs and promotes a holistic approach to IPE and HPE.

Outcome

The implementation of this postgraduate diploma facilitates the development of interprofessional core competencies (roles and responsibilities, leadership, communication, ethics and values) through the learning outcomes of the programme. The learning outcomes, activities and assessment methods are set out in Table 1.

Fig. 2 demonstrates the engagement on the Flip platform as part of the pre-activity of the third cohort. This allowed students to orientate themselves, virtually learn about their peers and offer their perceptions and understanding of the concept of IPE. This Flip activity garnered 289 views and 7 hours of discussion time.

Fig. 3 is an example of a student output that is part of the first study unit of this module. The artefact is an example of a workplace audit conducted by a student from the first cohort.

Conclusion

This article demonstrated that using a design thinking approach for the development of a curriculum may lead to improved focus on student-centred learning. The approach facilitated a deep understanding of the roles and responsibilities of all stakeholders in the development of novel curricula while being cognisant of the challenges for design and

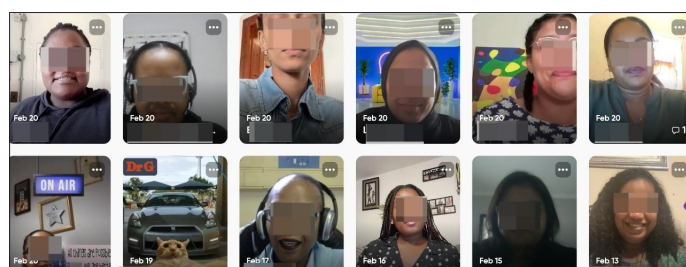


Fig. 2. Flip activity.

Table 1. Learning outcomes, activities and assessment methods of the IPE711 module

Learning outcomes: at the end of this module, the student should be able to	Teaching activity	Assessment
Analyse, integrate and apply IPE theories and models	Online lecture; online class discussion; Flip activity (Fig. 2); Jamboard (Fig. 3); block lesson	Flipgrid; workplace audit (Jamboard); work audit; plenary (Google Meet); presentation; position paper/proposal
Understand IPE assessment principles, strategies and methods	Online lecture; online class discussion; webinar series	Quiz; presentations; position paper/proposal
Understand ethics v. professionalism	Online lecture; online class discussion; webinar; case study	Webinar; online facilitation and participation; position paper/proposal
Identify and apply ethical issues related to the context	Online lecture; online class discussion; webinar	Test; structured position paper/proposal

IPE = interprofessional education.

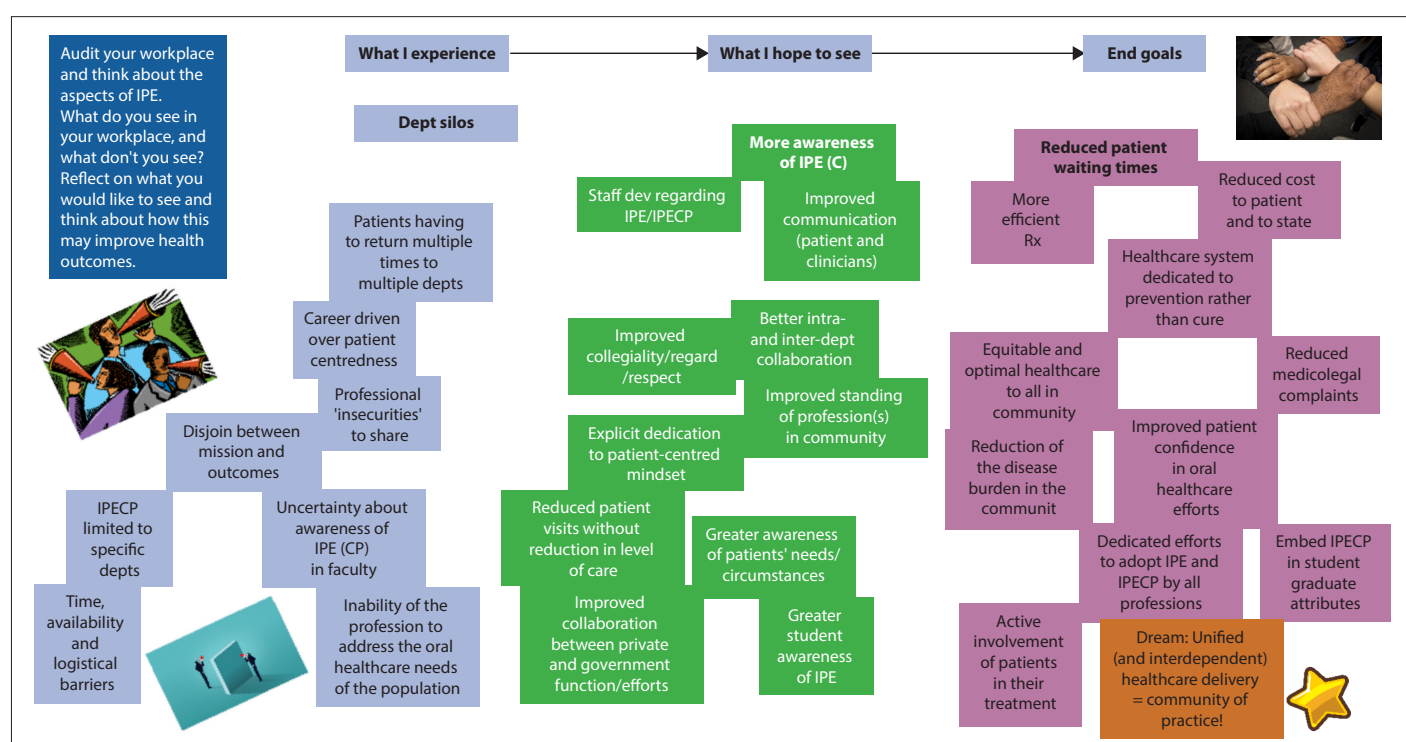


Fig. 3. Jamboard audit. (IPE = interprofessional education; dept = department; IPECP = Interprofessional Education and Collaborative Practice; dev = development; Rx = treatment.)

implementation. It also demonstrated that using design thinking in the approach to the development of curricula may be considered as an improved strategy for implementing IPE and collaborative practice in the workplace. While the objective of this article has been met, further research should be conducted into the experiences of students in this module.

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