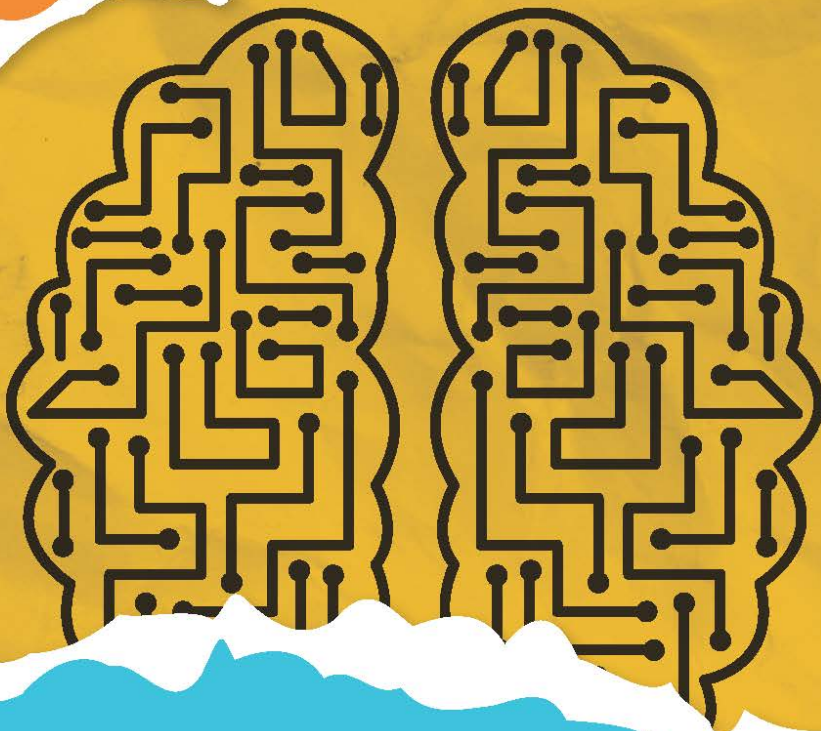


Reimagining South African Higher Education

Towards a Student-Centred
Learning and Teaching Future



Editors: Danie de Klerk, Greig Krull, Tshepiso Maleswena, Fiona MacAlister

CHAPTER 2

LEARNING REIMAGINED: A CASE STUDY OF CURRICULUM CO-DESIGN APPROACHES, BENEFITS, AND CHALLENGES

Ria van Zyl

Vega School

The Independent Institute of Education

<https://orcid.org/0000-0002-7159-2766>

Lizette Carstens

Vega School

The Independent Institute of Education

<https://orcid.org/0000-0001-9994-7912>

Abstract

Higher education in South Africa is challenged to meet the demands of rapid technological development, calls for social diversity and inclusion and a context in which the role of students has shifted from receivers of institutional knowledge to co-producers in the learning process. These demands require curriculum designers to find new ways of thinking about curricula and adopt appropriate processes and approaches for leveraging change to design diverse, inclusive, and contextually relevant curricula. This study explores the use of co-design to make curriculum design processes and approaches more relevant, inclusive, and student-centred. The Knowledge Production Modes 1 – 3 model provides a theoretical framework for the study. Mode 1 knowledge is seen as scientific knowledge less concerned with application and quality controlled by disciplinary peers. Mode 2 knowledge production centres around inter-, trans-, and multi-disciplinarity, social accountability, civic engagement, and reflexivity, and Mode 3 knowledge points to a multi-level knowledge system. A case study analyses practical examples where co-design principles and approaches were employed to actively involve stakeholders such as students, lecturers, and industry in curriculum design at a Private Institute of Higher Education. The experiences of the curriculum designers and lessons learnt are reflected on, and some of the benefits and challenges are highlighted. The study contributes to the theoretical discourse and potential practical application of co-design toward reimagining inclusive, contextually relevant curricula for the future.

Keywords: co-design; curriculum design; democratisation of knowledge; double-diamond design process; user experience

1. Introduction

The unprecedented technological development and digital transformation brought about by the fourth industrial revolution (4IR) promises a better future for all, yet simultaneously puts the world at the peril of increasing inequality and social tension or even a “recolonisation” (Schwab, 2016; Boughey & McKenna, 2021, p. 32). Urgent calls for sustainable ways of living and a deeper concern for social justice and equality are driving social, economic, political, and cultural shifts towards valuing innovation, customisation, interaction, and participation (Tan et al., 2017; Escobar, 2018). These shifts drive economic growth, social mobility, human capital demands in industry, and demands for equality and social justice from civil society (Tan et al., 2017; Escobar, 2018).

Similar challenges and tensions are also seen in Higher Education (HE), such as maintaining a balance between students who can contribute to the knowledge-based economy and wider participation (the social imperative) (Boughey & McKenna, 2021). In South Africa, what started in 2015 as a call for fees to be removed to render HE accessible, quickly turned into a movement where students demanded change in knowledge and curricula (Fataar, 2018). They argued that a Eurocentric, modernist orientation in curricula created an alienating student experience and called for a complete overhaul of the curriculum to incorporate African-centred worldviews and the voices of previously marginalised people (Fataar, 2018; Boughey & McKenna, 2021). The impact of the COVID-19 pandemic highlights an urgent need for transformation towards inclusivity, equitability, accessibility, and connectivity to promote social justice and bridge the technological divide between the Global North and South (Fraser-Moleketi, 2021). Consequently, South African Higher Education Institutions (HEIs) are under pressure to adequately prepare students for shifts in human capital requirements, the social imperative and still meet their learning needs (Koopman & Koopman, 2021). Curriculum designers are therefore challenged to find innovative approaches to teaching, stakeholder empowerment, engagement, and support capable of responding to technological challenges, changing industry requirements and the new learning and social needs of students (Tan et al., 2017; Koopman & Koopman, 2021). These demands require curriculum designers to understand and anticipate changes in technologies, industry requirements and lecturer, student, and other stakeholder roles in HE. Curriculum designers need to find new ways of thinking about curricula and adopt appropriate processes and approaches for leveraging change to design diverse, inclusive, and contextually relevant curricula.

The question of how to practically make curriculum design processes and approaches more relevant and inclusive drives this enquiry that explores curriculum co-design approaches adopted from the broad field of design. The study starts with a theoretical exploration of the curriculum as a democratiser of knowledge and as a user experience. It then proceeds with the experiences and practical lessons learnt from employing co-design principles and processes in curriculum design at a Private Higher Education Institution (PHEI).

2. Knowledge Systems and Curricula

The 4IR is characterised by unprecedented access to knowledge (Schwab, 2016), but many developing countries, such as South Africa, are hampered by a lack of resources. Challenges such as pandemics and climate change pose complex, ill-defined, and networked problems that cannot be addressed from one disciplinary perspective alone (Dorst, 2018). Addressing these problems requires collaboration between governments, knowledge institutions, industry, and civil society and a combination of codified, scientific knowledge produced through research *and* tacit, indigenous knowledge developed from observation and experience and embedded in local contexts and practices (Lundvall, 2016). Moreover, HEIs face student demands for more inclusive and culturally relevant education (Prinsloo, 2017). Within this landscape of rapid change and uncertainty, HEIs must prepare students for jobs that may not yet exist (Prinsloo, 2017) and empower them to address challenges that are as yet unidentified and poorly understood (Schwab, 2016).

The current economic, sociological, and epistemological shifts that result from the 4IR present opportunities to consider more democratic, diverse, inclusive, and contextually relevant curricula. However, to allow students to imagine and build a better world, a move beyond everyday knowledge to abstract, principled knowledge is required (Boughey & McKenna, 2021). As such, curriculum designers must critically consider whose and what knowledge is included in curricula, to what purpose, on what assumptions, and how local knowledge is constituted and developed beyond everyday knowledge (Motala, 2015; Boughey & McKenna, 2021).

The Knowledge Production Modes 1 – 3 (Carayannis et al., 2016) provide a theoretical framework for thinking about how curricula can be democratised. Mode 1 knowledge is regarded as codified, scientific knowledge, less concerned with application, and quality controlled by disciplinary peers (Boehm, 2015). Mode 1 knowledge is disseminated through peer-reviewed publications and can be absorbed by others who understand its language (Lundvall, 2016). Learning from Mode 1 knowledge is seldom automatic and usually requires prior knowledge for effective learning (Lundvall, 2016).

Mode 2 knowledge production centres around inter-, trans- and multi-disciplinarity, social accountability, and civic engagement; has overlapping phases of discovery and application, and quality is determined by the usefulness of solutions (Boehm, 2015; Nowotny et al, 2013). Mode 2 knowledge production and learning occur through observation, application, reflection, discussion of experiences, and information exchange within social networks (Lundvall, 2016). Consequently, Mode 2 knowledge production allows for industry and other stakeholders to participate in education, with work- or project-based learning and experiential competencies as part of the curriculum. In Mode 2 learning, the approach of lecturers transferring canonical knowledge shifts to a student-centred approach, with lecturers becoming facilitators of knowledge and students co-accountable for their learning (Nowotny et al., 2013).

Mode 3 knowledge is a catch-all term for a multi-level perspective that integrates Modes 1 and 2 and extends beyond the university and industry (Carayannis et al., 2016). Mode 3 is situated within the 4IR landscape and is concerned with the combined future of science, knowledge, and technology and students becoming active designers of local and global futures (Tan et al., 2017). In Mode 3, people bring their own needs and expectations, diverse realities, and reflexive and tacit knowledge about the contribution 'I/we' can make (Sandstrom, 2014).

3. Curriculum Design in a Shifting Landscape

A curriculum is the “what”, “who”, “how”, and “where” of learning and teaching and is never neutral (Boughey & McKenna, 2021, p. 73). In South Africa, the curriculum must align with the regulatory requirements such as the National Qualification Framework, the type of knowledge specific to the field and the type of institution (Boughey & McKenna, 2021). It also needs to contend with a new social and economic culture and changing student needs and expectations require knowledge, competencies, and aptitudes such as creativity, critical thinking, and collaboration, adaptability, resilience, intercultural understanding, and respect for freedom and human rights (Tan et al., 2017; Penprase, 2018). Cultivating such knowledge, competencies, and aptitudes requires curricula that focus on knowledge co-construction and developing and empowering students to become active co-creators of sustainable and just local and global futures (Tan et al., 2017).

When designing curricula, individual educators or subject matter experts traditionally followed a linear, top-down, topic-driven approach (Dodd, 2020; Vorvoreanu & Connolly, 2015). As learning needs and technologies changed, curriculum design shifted towards a holistic approach, considering interactions between the learner and curricula (Dodd, 2020). This process works backwards, starting with the outcomes, and subsequently addresses the content, topics, strategies, and materials (Dodd, 2020), resembling processes from the broad field of design.

Design as a broad discipline shifted from traditional design areas such as industrial design, engineering, and architecture, to people- and earth-centred design and service to society rather than a service to industry (Escobar, 2018). This shift challenged how designers, including curriculum designers, *think* and *work* to become more integrated and collaborative. When used in this chapter, design thinking refers to the inherent way designers think and frame problems and not as a standalone problem-solving activity. Like designers in traditional design fields, curriculum designers are challenged to take a collaborative approach, bring users into the design process as stakeholders and co-creators, and keep in mind inclusivity, diversity, and participant safety (Svihla, 2018). The “if-then” “what-if” thinking provides an integrated design thinking approach to problems and solutions that leads to continuous iterations and agility (Svihla, 2018; Drain & Sanders, 2019).

4. Curriculum as User Experience

User experience encompasses everything that touches upon the way someone experiences a product/service when using it (Norman, 2016). Traditional education centres around fixed, existing knowledge domains (Mode 1), with no room for critique, interrogation, or adaptation. The student is positioned at the centre when approaching a curriculum from a user experience perspective (Vorvoreanu & Conolly, 2015). Here, curriculum designers work backwards from defined outcomes and strategies and consider the student's holistic development, learning environment, and experience (Vorvoreanu & Connolly, 2015; Dodd, 2020). This is a shift to a Mode 3 approach that includes consideration for the diverse realities of students.

Therefore, the domain of curriculum design expanded from being concerned primarily with content and materials to being concerned with the entire environment where learning happens (Dodd, 2020; Escobar, 2018). Consequently, curriculum design has become a team activity that requires collaboration between people from diverse backgrounds, professions, and areas of expertise, such as educational specialists, subject matter experts, instructional designers, and information technology specialists (Dodd, 2020).

5. Co-Design as Approach

Co-design is a collaborative approach where designers work *with* users and stakeholders as experts of their own lived experience to co-create relevant, meaningful solutions based on the guiding principles of democratic practices, equalising power relations, mutual learning, and context-based actions (Sanders & Simons, 2009; Drain & Sanders, 2019). The collective knowledge of participants provides a multi-dimensional and immediate snapshot of the status quo, making the early identification of possible synergies and obstacles possible (Sanders & Simons, 2009). When designing curricula, such an approach has the potential to bring local voices and knowledge to the table, which may contribute to decolonised curricula.

Participation in co-design gives stakeholders a voice in shaping their future and an opportunity to share in the ownership of the outcome, paving the way to continual sharing of ideas, prototyping and iteration and resulting in ownership and collective pride in the outcome (Drain & Sanders, 2019; Svihla, 2018). Its open, democratic nature promotes transparency of biases, assumptions, concerns, and judgments, allowing participants to negotiate shared meaning, ideas, and visions for the future from differing value perspectives. In the process, participants learn from each other, shifting their views towards a shared understanding (Drain & Sanders, 2019). During co-design, the role of the designer shifts, from shape-giver to facilitator of creativity, provocateur, and process guide (Sanders & Simons, 2009).

Involving users (students and lecturers) and other stakeholders, such as industry representatives, early and frequently in the curriculum design process helps curriculum designers identify and understand user needs, expectations, and experiences and how the curriculum will function as needed (Svihla, 2018). Designing with stakeholders can help the curriculum design team understand industry, lecturer and student needs, and requirements and institutional and regulatory goals and objectives, which can be combined to define curriculum purpose and outcomes and content and functional requirements (Vorvoreanu & Connolly, 2015).

6. Using Co-Design: Case Study

6.1. Context

This case describes a curriculum design process used at a multi-site PHEI over eight years in the degree spaces of Graphic, Digital, and Game design. The careers of the programme managers tasked with curricula development evolved from senior design practitioners to lecturers to academic managers. In grappling with meeting the demands of HE, curriculum design, and time and budget constraints, they employed design approaches and processes that they were familiar with, such as User Experience and agile design, co-design, and the Double Diamond Design Process (see figure 2.1).

The process started when the PHEI needed to review and rationalise current qualifications and look at the long-term potential for new qualifications in design education's evolving and competitive space. Teaching in design is still battling to shift away from the master-apprentice model with a high regard for craft and a tension between practical and theoretical knowledge (Burger & van Zyl, 2020). Finding employment is competitive, and students must evidence a portfolio of work and a qualification. The small number of textbooks and literature with local examples and suitable for undergraduate design education further challenges curriculum designers in this field.

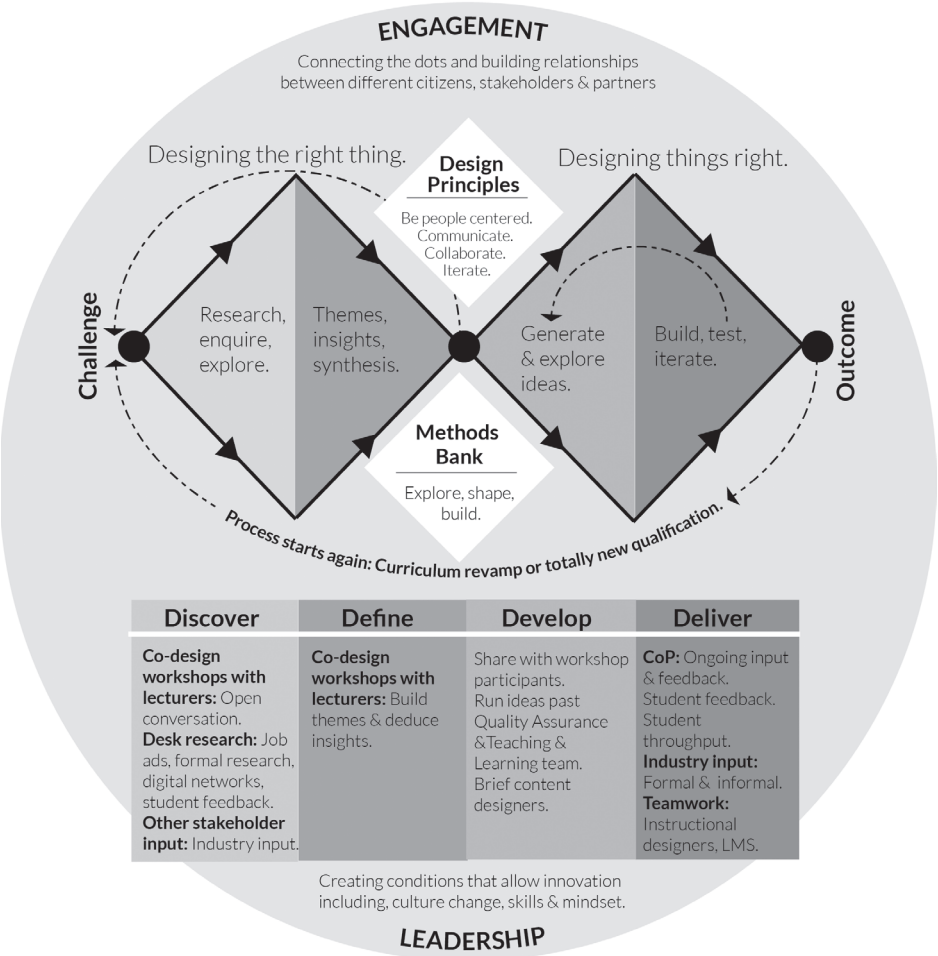


Figure 2.1: Aligning co-design activities and stakeholder input with the different stages in the design process as applied in this case study (adapted from The Design Council, 2023)

6.2. Discovering needs and expectations

The iterative Double Diamond Design Process (DDDP), used in design and innovation projects (Ball, 2019), was applied to structure the curriculum design process. The DDDP (Figure 2.1) comprises iterative phases of Discovery, Definition, Development, and Delivery and provides a practical flow for any design process (such as industrial design, a user experience or curriculum design). In Figure 2.1, descriptions of the curriculum design activities are added below the Discover, Define, Develop and Deliver phases of the DDDP model to illustrate how the curriculum design process aligned with the DDDP in this case study. The DDDP allows for stakeholder participation throughout the process in either feedback or more generative participation as co-designers. At the outset of the DDDP, the challenge is unstructured and open, and all that is known is the desired outcome. It, therefore, lends itself well to a Backwards Curriculum Design approach (Sanders & Simons, 2009; Dodd, 2020).

The Discovery and Define Phases of the Double Diamond Design Process aims to explore the fundamental problems and opportunities and determine what should or should not be designed (Ball, n.d.). Conversations are focused on needs and aspirations and aim to uncover what others do not perceive as a need or opportunity, do not understand as a problem, or do not know how to address (Sanders & Simons, 2009).

Desktop research, such as analysing recruitment advertisements, posts in community-of-practice forums and available formal research (such as published by DEFSA¹) provided rich insights into the skills, knowledge, and personal competencies expected from graduates. Information was continuously supplemented with direct input from a network of design professionals in the form of emails and conversations. Available student and alumni feedback, as well as data from student focus groups were analysed to gain an understanding of student expectations and frustrations.

Current lecturers were invited to participate and collaborate in six regional co-design workshops of between three and five hours each, comprising 10 – 15 lecturers. These lecturers are in regular contact with students and have first-hand experience with the current curriculum and student experience, especially in the studio-based modules. Most of the lecturers came from or were still actively engaged as design practitioners and therefore also contributed to industry perspectives. Undergraduate degree students were not included in the workshops since they rely on lecturer and institutional guidance regarding what knowledge should be acquired, and their participation would therefore be limited to perceptions and experiences and less about knowledge and skills (Noor et al., 2012). Data regarding student views were obtained from student feedback and focus groups with students. One co-design workshop was conducted with a small class of honours students, to get input from recent graduates.

One of the fundamental principles of co-design relates to power dynamics. Co-design is democratic; all participants are regarded as experts of their own experience, and, therefore, all viewpoints are regarded as equally valuable (Sanders & Simons, 2009). Consequently, the principles of equality and democracy on which the workshops would be conducted were explained to participants at the start of the workshops. Workshops followed an open, unstructured approach to encourage open-ended conversations and to avoid stifling creativity with a set, structured agenda. The workshops were conducted along one central theme, namely, what a competent graduate of the future in the field of design might look like. Post-it notes, sheets of paper, and whiteboards were made available, and the participants could choose what to use. Participants debated their vision of a competent, future-ready graduate and started to organise ideas into themes such as designerly thinking, creativity, critical thinking, research, crafting, communication, and personal (Figure 2.2). The curriculum designers acted as back-stage facilitators and encouraged participants to discuss and debate their views freely. The sessions

1 The Design Education Forum of Southern Africa is an important local resource for design education, with a biannual peer reviewed conference (www.defsa.org.za).

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were not recorded, but notes were made and mapped post-its photographed. Special care was taken to keep conversations as “blue-sky” and fluid as possible and to steer conversations away from existing modules and curriculum structure.

Designerly Thinking		Research	Crafting	Communication	Personal
Holistic thinking		Understand User	Strong software skills	Present work verbally and written	Self-directed continuous learning
Contextual thinking		Understand and predict trends	Strong digital crafting skills	Defend design decisions	Time management
Creativity	Critical Thinking	Immersive empathy	Strong traditional crafting skills	Rationalise and explain ideas and concepts	Adaptable to change / flexible
Design thinking	Knowledge of theory /history of design	Understand discipline-specific research tools and practices	Know and apply fundamental elements, principles and theories	Communicate visually	Take ownership of projects
Problem solving	Analytical thinking	Strong writing skills	Ability to use tools and technologies of discipline	Identify and relate underlying narratives	Can work in teams / collaborate
Fearless Exploration	Ethical & sustainable practice	Know what questions to ask	Know understand technology of printing / digital media	Articulate ideas	Perseverance – iterate until it is perfect
Playfulness	Understand / know roles of related disciplines	Know and select appropriate research tools	Drawing skills		Can plan & manage project and process
Conceptual development	User centered design				Passion
Visualise ideas: scamp / draw / photos	Understand and prepared for real world / design industry				Self-discipline
Curiosity	Know what questions to ask				Networking
					Can seek and learn from criticism

Figure 2.2: First thematic analysis of graduate attributes

6.3. Defining what should be designed

Boundaries between phases in an agile design process are blurred, and work in the next phase can commence before completion of the previous phase (Garrett, 2010; Svihla, 2021). Participants naturally moved between the Discovery phase to the Define and Develop phases during the co-design workshops. After identifying themes, participants organised themselves into groups according to their areas of

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expertise and experience, and proceeded to generate ideas on how the knowledge, skills, and competencies related to the selected themes could best be developed (Figure 2.3). This stage provided ideas for outcomes and assessments. At the end of this stage, the workshops were concluded, and the curriculum designers proceeded to integrate the workshop outputs with desktop research insights.

Creativity	Critical Thinking	Crafting	Communication	Research
• Observe, document and explore environment • Immerse in different contexts – develop empathy • Dare to do new things • Embrace discomfort • Play • Experiment with ideas • Explore • Collaborate in teams, exchange ideas and perspectives • Visualise and communicate ideas (scamp, tell stories) • Give and receive critique • Iterate	• Analyse, evaluate and discuss case studies • Debate current theories and discourse (ethical, sustainable, inclusive design, design and the media etc) • Critically evaluate style and substance • Learn theory related to principles, processes • Critique / discuss own and each other’s work and ideas • Defend work and ideas • Analyse / define problems and know what questions to ask	• Practise and apply discipline specific tools and Computer skills, • Apply theoretical knowledge in practical context • Submit project plans • Give and receive feedback • Self-discipline & motivation • Persevere • Adapt, be flexible -change project requirements or contexts • Present work • Collaborate • Experience real-life conditions	• Present, critique, rationalise and defend ideas, concepts and final solutions • Collaborate and discuss • Apply design “tool box” to communicate (creative solution) • Work in teams • Be flexible • Develop empathy through research, communication and understanding • Visually communicate and explain information (processes, profiles, diagrams etc.)	• Learn about different research tools and methods for different contexts • Learn about user centered design / user experience • Apply research tools to solve design problems in various contexts. • Present research defend design decisions

Figure 2.3: Ideas on how to develop identified competencies within specific categories

In accordance with the co-design principle of transparency (Sanders & Simons, 2008), the proposed curriculum structure, module purposes and outcomes, teaching and learning and assessment strategies were shared with workshop participants, and feedback and further input were welcomed. The institutional teaching and learning experts were consulted for feedback and refinement before proceeding to the content development phase of the process.

6.4. Developing solutions

During the development and delivery phases of the DDDP, multiple ideas are generated, prototyped, tested, evaluated, and refined until an appropriate solution emerges (Ball, n.d.). A challenge for curriculum design is that a prototype cannot be developed and tested in the same way an industrial invention can be tested, and curriculum designers continue to rely on feedback, input, and quality assurance throughout the design, development, and delivery processes. Input

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from internal Teaching and Learning experts and Quality Assurance teams is systematically incorporated. Any significant structural changes to the curriculum and prescribed material was documented and motivated at governance levels (such as the Faculty and Senate). These steps are essential to reduce the risk of ill-considered curriculum changes that may negatively impact on learning and to align curriculum with operational requirements. Smaller changes to content and assessments were documented, shared with lecturers before the start of every new semester and saved on the institutional collaborative platform for reference for the following year when a new content development cycle commences.

6.5. Delivering solutions and starting again

Getting feedback from stakeholders who used or experienced the designed outcomes is an important part of user experience design (Garrett, 2010). The curriculum design went through multiple, increasingly smaller iterations for several years after the first iteration was completed. A cloud-based collaboration platform was created where curriculum designers, academic managers, and lecturers continued sharing input and feedback during the delivery stages. Deci et al. (1999), argue that people are intrinsically motivated to collaborate when they feel that it supports their freedom of choice. Providing all lecturers with an opportunity to collaborate gave them a voice in decisions about the subject matter and teaching approaches that would directly affect them. It empowered them to take ownership of the process and the outcomes (Drain & Sanders, 2019). The curriculum designers met regularly with lecturers to get their feedback and ideas on how to improve the entire curriculum experience (Figure 2.4). Feedback and ideas were also gathered from operational and administrative staff on campuses to understand challenges and inform refinements to teaching and learning strategies, different learning environment requirements, and managing multi-disciplinary student collaborations.



Figure 2.4: *Lecturers, academic managers and postgraduate students sharing ideas and knowledge across disciplines and faculties²*

The curriculum designers supplemented findings from standard institutional Student Evaluation of Teaching surveys and held open conversations with student groups. Class representative feedback and complaints all contributed to a better

2 Permission for publication of the above images have been obtained from all identifiable participants and is available from the authors on request.

understanding of students' experiences. Critical conversations with students and regard for students as active participants in the educational journey are crucial to evaluating, understanding, and creating contextually relevant, successful educational journeys (Boughey & McKenna, 2021). Curriculum designers in this faculty are in a fortunate position to have direct access to students. Where dissatisfaction is communicated, they can explain the curriculum and reasons behind choices to students. Student feedback resulted in surprising insights about the direct role of students' daily life and their home circumstances in their learning experiences as well as about significant shifts in the way students view their roles, the roles of lecturers, institutions, and the curriculum in their own learning. A lesson learned from student feedback is to consider ways in which curriculum decisions and rationales can be included in student material, such as module guides so that students understand the curriculum decisions better.

More conventional institutional data sources such as assessment, module and programme pass rates, and throughput rates were also monitored. This provided the curriculum designers with multi-dimensional perspectives to evaluate the curriculum. On the one hand, feedback often served as an early warning system for potential declines in pass and throughput rates, enabling pro-active interventions where possible and providing context for understanding declines when they occurred. On the other hand, comparing changes in assessment, module, and programme success rates with changes in the curriculum provided a means to evaluate the impact of changes. Information from institutional systems such as programme review feedback as well as industry feedback on student performance in real-life projects and during industry immersions was analysed to evaluate the curriculum in terms of industry requirements.

The industry is a continuous source of input for curriculum designers, such as analysis of recruitment advertisements, participating in communities of practice, attending industry events and conferences, and engaging with industry practitioners to keep track of shifts in industry requirements. This approach led to the identification of significant changes in the industry that led to the development of new qualifications in response.

7. Lessons Learnt

Lessons learned during this case study brought to light some benefits and challenges of following a co-design process for curriculum design. A key benefit of the generative co-design workshops used in this case is the harnessing of creativity and "blue-sky" thinking that enabled participants to move beyond the constraints of what already exists to what might be and to discover new, innovative possibilities. Such approaches are particularly relevant when planning curricula for the future in new areas where the curriculum designers have never taught or worked (Boughey & McKenna, 2021). In these instances, a co-design approach with *different* stakeholders promotes diverse knowledge perspectives, supports contextual sense-making, and meaningfully guides decisions on appropriate design solutions (Sanders & Simons, 2008; Drain & Sanders, 2019).

Generative co-design approaches during the early stages and stakeholder involvement in curriculum design take time and effort. Co-design is, therefore, best approached as a marathon, taking time to gather information, test, evaluate and refine, and not as a sprint that uses vast amounts of energy and resources (Garrett, 2010).

During the design process, stakeholders from the industry with diverse knowledge perspectives were sought, and input supplemented with desk research. The benefit of such an approach is that it allows for various voices that contribute to a more inclusive curriculum incorporating local and international knowledge perspectives, canonical knowledge, industry experience, and socially constructed knowledge. These insights inform considered, deliberate design decisions that save time and development costs in the long run and produce better learning experiences.

Active lecturer participation in curriculum design was beneficial, especially since lecturers experience the curriculum with the students first-hand. Involving lecturers actively, resulted in invested lecturers who continue to participate in refining the curriculum over time. Boughey and McKenna (2021) critique the lack of triangulating information from different sources when making decisions about curriculum design. In this case study, their critique was overcome by incorporating insights from stakeholders such as employers, industry, and lecturers.

Although student feedback, criticism, and suggestions were analysed to inform decisions about designing the curriculum in this study, active student participation in the curriculum design was still limited. Upon reflection, we realised that we too often view student criticism and push-back as entitlement. Like all other stakeholders, students are agents and experts of their lived experience and can contribute meaningfully to curriculum design. Boughey and McKenna (2021) caution against viewing students as customers and satisfaction becoming more important than learning. However, the root element of user experience relates to satisfying user needs by providing an efficient and user-friendly (learning) experience and meeting “product” objectives (Garret, 2010). A curriculum aims to meet its defined purpose and exit level outcomes, and by better explaining these to students and actively listening to the student voices during delivery as opposed to waiting for post-module feedback could be one way to enhance student participation.

Co-design approaches need institutional support and leadership that encourage innovation and allow experimentation and learning in open, agile projects (Tidd & Bessant, 2020). We are fortunate to be allowed such freedom and space. Still, institutional processes must be adhered to and aligning longer co-design timelines with complex institutional processes remains a continuous challenge.

The design field where this study was situated is still developing a theoretical base, especially in South Africa, where we need more locally produced research, literature, and textbooks. Furthermore, the curriculum designers, in this case, are familiar with generative, co-design methods, and user-centred design processes.

The question to consider is whether curriculum designers in other disciplines can (or should) employ co-design, supported by such levels of stakeholder input and if this approach followed in a private HEI would be of value for the public HE sector. Would lecturers in an established discipline with a curriculum that was designed using the established Mode 1 top-down approach and suitable local textbooks consider using co-design? More research and other examples are needed here. In our case, co-design assisted us in building a curriculum from the ground up in a developing field that resulted in a more relevant curriculum with the inclusion of decolonised knowledge, as is characteristic of Mode 2 and 3.

8. Conclusion

The study aims to contribute to the theoretical discourse and potential practical application of co-design toward reimagining inclusive, contextually relevant curricula for the future. Like any product or service, curricula require constant innovation to remain relevant. Throughout this journey over several years, we have observed changes in existing and emerging new technologies and shifts in disciplinary knowledge and practice, impacting curriculum content. However, as confirmed by Boughey & McKenna (2021), we have also seen vast economic, socio-political, and epistemological changes resulting in a new generation of students with new worldviews, needs, and expectations. A co-design approach affords institutions more agility to respond appropriately to curriculum problems rather than simply adding bridging or foundational interventions based on assumptions that the root of the problems lies with the student or the student's schooling, motivation, or cognitive ability (Boughey & McKenna, 2021). In curriculum design, the design problems of what to design and how it should be designed constantly shift, requiring ongoing iterative cycles of gathering information, design and development, evaluation, and critical reflection and refinement. This case study practically shows the benefits and challenges of co-designing curricula to balance ever-changing contexts, learning requirements, and student needs.

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