Bringing life: an inclusive national conversation to develop integrated engineering curricula in South Africa

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Abstract

Context and Purpose

This paper describes a national engineering curriculum renewal initiative designed to meaningfully integrate technical and professional competencies, to prepare graduates for the world of work and the challenges faced by society. The paper presents a descriptive case study to identify the underlying critical success factors of the project.

Approach

Using a social constructivist perspective of curriculum design, we adopt Kotter's model as a theoretical lens for the analysis. The case study draws on the personal reflections of the authors, two members of the project team.

Outcomes

The project is described in detail, and the importance and relevance of key phases and steps in the process are highlighted. The crucial roles of broad stakeholder engagement, structured interventions to provoke thinking differently, and sharing of best practices are discussed. Several challenges are identified specifically in relation to stakeholders entering and leaving the process at different points. The paper further shows the additional benefits that can arise through a national initiative of curriculum change.

Implications for curriculum renewal projects

Our reflections reveal the differences and similarities between curriculum renewal initiatives at a national and institutional level. A national project, as described in this paper, presents many opportunities, and yet there are complexities that need to be understood and managed throughout the process. We end this paper with insights gained regarding these complexities and how they can be mitigated.

Keywords—curriculum; integration; renewal; collaboration; national; community of practice

I. INTRODUCTION

ENGINEERING education in South Africa struggles with low throughput rates and overloaded academic staff. Engineering curricula are typically content heavy, with the first two years focused on mathematics and science fundamentals, and higher years centred around the technical, discipline-specific content. The development of professional competencies is often tacked on at the end of programmes to align with the expectations of accrediting bodies. Concurrently, universities are continuously questioned about the relevance of curricula and the preparedness of students to meet the needs of industry and society. Many of these challenges are not unique to South Africa, and globally institutions have responded by shifting to engineering curricula that are more holistic and integrated.

Inspired by such international initiatives, a project entitled *Bringing life to Engineering Curricula* (iecurricula.co.za) was formed to explore how South African engineering curricula could be transformed to address the experienced challenges by reimagining engineering curricula in an integrated way. This project is unique in that it aims to do this at a national level, involving all institutions that offer programmes in engineering. Changing curricula at a department or even faculty level can be a daunting task and therefore, the project identified the importance of clear change strategies from the outset. This paper describes the context, design and implementation of the project activities. The project is interpreted through the lens of change theory, and critical success factors and challenges that have emerged from the process are presented. The findings and implications of this paper provide insights into the principles that underpin curriculum design projects and specifically highlight the complexities at a national level where contexts, capacities and strategies differ. The paper further foregrounds the additional benefits that can be achieved by initiating national conversations around teaching, learning and curriculum in engineering education. The philosophy and thinking behind the change strategy design will be the focus of a separate paper.

Engineering curriculum renewal initiatives that cut across an entire faculty (Mitchell et al., 2019) are uncommon while those at a national level are even more rare. A national project was run in Australia in 2011 that looked at ways of re-imagining engineering design curricula. This national initiative brought together a range of stakeholders to workshop the possibilities of bringing together the three dimensions of an engineering graduate (technical, professional and personal competence) in relation to engineering design (Goldsmith et al., 2011). The

authors are however not aware of any other national project of this scale that aims to rethink entire engineering programme curricula.

II. LITERATURE REVIEW

A. The concept of an integrated curriculum

In the past few decades, there have been global calls for engineering curricula renewal from industry, professional institutions and government (Mitchell, 2021). Curriculum responsiveness is needed to adapt to a world that increasingly requires graduates who: exhibit strong professional skills without losing core technical competence, have an awareness of the societal context in which engineering activities take place and can transfer these competencies to the workplace. Many argue that this can only be successfully achieved with a curriculum that is coherent and interconnected (Graham, 2012). Ideas around a holistic or integrated curriculum have existed since the early 1990s (Shaeiwitz et al., 1994; Olds & Miller, 2004) and yet, many institutions around the globe still have programmes with traditional curricula that are often disconnected or heavily focused on the development of technical knowledge and skills.

While thinking that encourages the integration of communication, teamwork, creativity and hands-on experience into engineering curricula has also existed since the early 2000s (Tryggvason et al., 2001), this is often done with modules still arranged in engineering discipline streams and fundamental and complementary modules separated from engineering modules. Integration of engineering curricula also frequently only occurs in the higher years, sometimes through a capstone project with little integration in earlier years (Bailey et al., 2002).

There are however an increasing number of institutions around the world that are designing and implementing engineering curricula that shake up traditional approaches and consider integration at multiple levels. While many of these take place in smaller private institutions that are more agile (Mitchell et al., 2021), there are several examples of successful programmes at larger institutions where constraints and contextual complexities can play a more significant role in curriculum change. Some of these examples include programmes at The Massachusetts Institute of Technology (MIT) in the United States of America, Tecnologico de Monterrey in Mexico, and University College London (UCL) in the United Kingdom.

The MIT New Engineering Education Transformation (NEET) programme was started in 2016 and is a student-focused, project-centred curriculum that includes inter-disciplinary content and engagement and is designed to be relevant and to narrow the gap between theory and practice. (Crawley, 2018). Tecnologico de Monterrey uses challenge-based learning in their curriculum for Sustainable Development Engineering that is designed to be student-centred, encourage a real-world perspective, and concurrently develop technical and professional competencies while focusing on sustainable development (Caratozzolo, 2021).

UCL implemented an engineering curriculum that is based on a student-centred pedagogy that integrates discipline-specific content with professional skills using a backbone of problem-based learning experiences in 2011 (Mitchell et al., 2021). The curriculum is integrated in two key ways: firstly it brings together theoretical knowledge, practical skills and transferable skills or professional competencies including teamwork, communication and awareness of social impact and secondly, the curriculum adopts an integrated view of engineering that encourages multi-disciplinary approaches to creative problem solving and innovation. What makes this example particularly unique is that it spans eight departments across a faculty. These case studies are an inspiration to engineering educators and show that an integrated approach to engineering education is possible even with large student numbers and in resource-constrained environments.

B. Approaches to curriculum renewal

Many examples of curriculum renewal highlight specific considerations that can affect the overall success of the change process and the effectiveness of the redesigned curriculum. Most significantly, the importance of context is foregrounded by several authors (Mitchell et al., 2021; Case et al., 2015). Case et al. (2015) show that context should affect both the process followed to redesign the curriculum and the ultimate curriculum that is designed and warn against merely adopting approaches or models developed elsewhere (Case et al. 2015).

Many studies reflect on foundational elements that support the development and change of a new curriculum. Walkington et al. (2002) emphasise the importance of a broad perspective of the curriculum that requires decisions to be made in relation to content, teaching, assessment, teaching resources and facilities. They further advocate for a broad range of stakeholders to inform this decision-making. Many studies highlight the need for a focus on individual educators which includes professional development (Caratozzolo, 2021; Jamieson & Lohmann, 2012; Dai et al., 2022), facilitating collaboration and building educator agency (Jamieson and Lohmann, 2012) and the development of communities of practice (Wenger 2000). Furthermore, the design of competency assessment standards (Caratozzolo, 2021) and a holistic assessment mechanism for the programme (Bailey et al., 2002) and the change (Walkington et al., 2002) are needed.

Overwhelmingly, studies on curriculum renewal reflect on the importance of managing the change process. Mitchell et al. (2021) discuss how curriculum renewal involves systematic change at three levels: the individual level, the organisational level, and the level at which these two integrate and interact. Walkington et al. (2002) specifically adopted guiding principles that included that change is a journey, non-linear and uncertain.

Case studies also indicate that a curriculum cannot be changed in isolation from the organisational culture (Kolmos, Hadgraft & Holgaard, 2016). Mitchell et al. (2021) report that even ten years after implementation, the organisational culture is still changing in relation to the curriculum.

Underlying many of these elements is the role of people, individually and collectively, in driving success. And while strong leadership is required (Mitchell et al., 2021), sustainability needs engagement with a broad community where every person involved is a change agent (Walkington et al., 2002). The UCL case study discusses how their curriculum renewal was a response to staff who wanted to bring about change and introduce innovations but were either not senior enough or did not have enough leadership support to do this. They unpack how these people were a key part of the process as they became the change agents and formed the core team that led and drove the project (Mitchell et al., 2021).

III. THEORETICAL FRAMEWORK AND METHODOLOGY

This reflective case study views curriculum development as a collaborative process of social construction, adopting Dai et al.'s view that "curriculum development can be conceptualised as an evolving dialogue between stakeholders with different interests, beliefs, and commitments to education, where they collaboratively navigate, negotiate, and construct new meanings and practices" (Dai et al., 2022, page 25). Kotter's 8-step change model (Kotter, 1996) is adopted as a theoretical framework for analysing the project process. Kotter's model is believed to be particularly useful at encompassing the behavioural, cognitive and affective elements of change (Calgarie et al., 2015) and its use is well established in engineering education literature (Borrego & Henderson, 2014; Goncher et al., 2023). Kotter's model includes 8 steps that are designed to guide the change process:

1) **create a sense of urgency:** this includes identifying and involving key stakeholders and recognising opportunities and potential threats, and can be done through an analysis of the current state;

2) **build a guiding team:** this includes establishing a team of committed individuals who have sufficient power to initiate the change;

3) **get the vision right:** both the development of a vision and a strategy to achieve the vision are important;

4) **communicate the vision for buy-in:** this includes handling any concerns or issues as they arise;

5) **empower action:** this considers potential obstacles or barriers that exist or could arise to empower stakeholders involved in the change;

6) **create short-term wins:** this includes breaking the longer-term goal into short-term targets to maintain momentum;

7) **don't let up:** can be achieved by analysing success stories and identifying areas for further improvement; and

8) **make change stick:** often requires focus on the underlying structures and support to ensure that change is not superficial.

When using Kotter's model in higher education contexts, Calgary et al. (2015) noticed the importance of transparency in the process and adaptation of steps to contextual needs. Furthermore, they noticed that the model should not be seen as a linear journey and that cycling back through the steps may be inevitable. The model is therefore used to interpret the process taking this thinking into consideration.

This paper makes use of a descriptive case study methodological approach (Yin, 2014). The paper first describes the national curriculum project design and experiences. Thereafter, the findings and discussion present an interpretation and analysis of the project process in relation to the chosen theoretical framework, highlighting critical success factors and challenges experienced.

Multiple dimensions of the broader project are currently being analysed and documented for publication. This first paper focuses on the implementation of the first stages of the project. We are two active members of the core project team. The second author contributed from the proposal writing stage, and the first author joined the team in the early months of the project. This case study is written based on our perceptions of the project, supplemented by the notes and resources which have been generated over the life of the project. As we participate and roll out new stages, this paper has offered us the opportunity to look back critically and gaze forward as we think about how the interactions described in this paper can continue to have a growing impact on our universities and on others around the world. The perspectives in the paper are necessarily our own, and we cannot claim objectivity, although we have attempted to ground our discussion in the project resources.

IV. DESCRIPTION OF THE CASE

A. Context of the Project

South Africa has 16 universities which are accredited by the Engineering Council of South Africa (ECSA) to educate students towards registration as Professional Engineers or Professional Engineering Technologists. Of these universities, six are research-intensive universities, graduating engineers, seven are Universities of Technology, graduating engineering technologists, and three are comprehensive universities, with programs for both engineers and engineering technologists.

ECSA is a member of the International Engineering Alliance (IEA) and a signatory of the Washington, Sydney and Dublin Accords, which allow professional recognition of graduates from other member countries. ECSA ensures compliance with these Accords by requiring universities to provide evidence that every graduate has demonstrated competence in eleven Graduate Attributes, spanning technical and professional competencies (ECSA, 2020a; ECSA, 2020b).

As already discussed, global engineering education trends

show an increased focus on developing professional competencies (Graham, 2018). A leading example of this is the University College London (UCL)'s Integrated Engineering Programme (IEP), which was introduced in 2014 and extends across 8 programmes in different departments. The IEP adopts a student-centred pedagogy that integrates existing discipline-specific content with the development of professional skills through a backbone of project-based learning experiences (Mitchell et al., 2021).

A Royal Academy of Engineering grant call in 2020 provided the catalyst for several South African universities and organisations to begin a collaboration with University College London (UCL). The aim of this collaboration was to develop a framework for implementing integrated and holistic curricula in South Africa, adapting the ideas to be feasible with financial as well as human resource constraints, to accommodate entering students who have received schooling with wide variations in quality, and to be applicable across our diverse institutional contexts. A core idea underpinning the project was that the re-imagined curricula should promote both staff and student well-being. The project objectives are:

1. To develop a framework within the South African context for implementing an integrated curriculum in engineering programs;
2. To identify areas where it is feasible to implement integrated curricular approaches as pilots within faculties, including strategies for approval; and
3. To develop a training program for staff to become expert facilitators of active integrated learning.

The initial project team included representatives from five South African universities, the South African Society of Engineering Education (SASEE), as well as UCL. Over the duration of the project, the team has expanded to include representatives from an additional four South African universities. The project has always aimed for inclusivity and open sharing of ideas between all institutions. Leveraging the cooperation and participation of multiple South African universities has enabled wide sharing of ideas, experiences, and best practices. Collaborating across institutions and academic departments has also allowed us to think broadly about the principles and practices of engineering education, separate from specialised disciplinary knowledge or current institutional structures.

B. Project Design and Implementation

From the project launch in early 2021, the project team met online every two weeks for two hours. These project team sessions helped us to articulate and evolve our understanding of the curricular needs of our universities, and to understand each other's contexts and perspectives. Through these meetings we co-created the project activities (listed in Table 1) which included a range of interactions, meetings, and workshops.

The first principle of the project was to intentionally structure activities to meaningfully include the voices of a wide range of stakeholders. Deans from all the South African universities were consulted at the beginning of the project with a presentation and open discussion at the Engineering Deans' Forum and agreed to support the project by promoting participation from their staff. Throughout the project, presentations at the Engineering Deans' Forum have kept the Deans updated on progress. The project represents voices from research-intensive universities, universities of technology and comprehensive universities, ensuring that the perspectives on curriculum are not biased towards one type of institution. It was vitally important to have the contribution of committed lecturers, who know what is happening in classrooms and who will be responsible for implementing and teaching new curricula. Lecturers were recruited via multiple channels and, through participation in workshops, made an important contribution to shaping the direction of the project. A strong relationship was formed between the project lead and ECSA representatives, with regular meetings to explore the regulatory constraints and opportunities. This has opened the possibility of influencing the framing of regulations. Industry partners were invited to participate in several workshops, sharing their expertise on graduate competencies and workplace training and mentoring. In some universities, students were also involved in a few workshops.

Before imagining the design of new curricula, it is important to understand the regulations, processes and constraints which govern change both at an institutional and a national level. One of the first major project activities was to conduct interviews with departmental undergraduate programme coordinators, to understand current practices around curriculum renewal. All programme coordinators were invited to be interviewed, and 28 programme coordinators from 14 universities participated in 16 online focus group discussions. The information from these interviews informed our understanding of the current state, explored the range of practices in different departments, and allowed the identification of potential barriers to curriculum renewal.

A series of online workshops focused on understanding what can be integrated into the curriculum, what an integrated curriculum could look like, and what it can offer to improve the education of engineering students in South Africa. A key concern of many participants was that it would not be feasible to implement a model which has been successful in UCL in our considerably more resource-constrained institutions. However, as mentioned in the literature (Graham, 2012), integrated curricula have been developed in response to the need to educate more professionally competent engineers for workplaces which are more multidisciplinary, multicultural, and sustainability-focused than ever before. This is equally true in South Africa, and these workshops have provided a lens for critically examining why we teach the way we do, and whether our practices remain relevant and appropriate. To counter the

TABLE I
PROJECT TIMELINE AND ACTIVITIES

Date	Activity
June 2021	Presentation to the national Deans' forum to launch the project and get buy-in for participation of staff
July to December 2021	Interviews with departmental undergraduate coordinators to understand current practices and constraints around curriculum renewal.
January to April 2022	Design and run an online workshop series to develop a shared framework for an integrated curriculum:
	1. What is an integrated curriculum? And how does it bring life?
	2. Integrating ECSA
	3. Assessment strategies for an integrated curriculum
	4. Sustainable integration: Collaborations to ensure sustainability of the curriculum change
	5. Cultivating Life: how do we make our integrated curriculum ideas reality
July 2022	Release of showcase videos highlighting current cases of integration as examples of best practices in South African universities:
	1. Integrating theory and practice
	2. Integrating professional competencies
	3. Integrating the workplace
July to November 2022	Online / hybrid workshop series of structured conversations to imagine change
	1. Imagining the ideal classroom
	2. Imagining an integrated first year
	3. Unpacking graduate attributes: Teamwork
	4. Joint workshop with industry / ECSA / academics

fear that integration would not be possible in our context, a series of videos were developed to showcase current examples of integrated practices in South Africa.

An important contribution of this project has been the development of a series of conversations which allowed us to imagine different ways of teaching and learning. These structured conversations were built around simple reflective questions which prompt conversation without triggering resistance. For example, thinking about their ideal classroom experience prompted lecturers to notice the gap between what they experience and what they hope for. Asking what experiences engineering students should have in their first year of study provided an opportunity for recognising the benefits of early integration. Similarly, identifying what our graduates will do in the workplace allowed a reality check on what is essential in the curriculum. For each Graduate Attribute, asking the question: "What distinguishes an expert from a novice?" (in, for example, teamwork) promotes an open and reflective conversation that can help lecturers to design activities and assessments which could promote the development of those attributes.

C. Tracking the progress and success of the project

The progress and success of the project was tracked through the achievement of activities, engagements and overall project objectives. More importantly, the success of the project has been monitored through stakeholder engagement and feedback. For each activity that is run, the number of people who

participate is noted. This enables us to see if participants (and by extension, institutions) are returning for multiple sessions and if new people are joining. After each engagement a feedback survey is used to elicit participant feedback that can be used for project team reflections on the design of future engagements. The team reflected collectively after each engagement about what was effective, and what was learned.

V. ANALYSIS

In this section, we use the 8 steps of Kotter's change model as a theoretical lens to interpret and analyse our experience of this ongoing national conversation. Our analysis of key strengths and lessons learned provides insight into how to implement further initiatives in South Africa as well as other contexts.

1) **Creating a sense of urgency:**

The project began by identifying and engaging key stakeholders, starting with those in senior leadership positions to create an awareness of the project and to make space in institutions for individuals to participate. The UCL partner was drawn in to create excitement about the possibilities of an integrated curriculum. The focus group sessions held with programme coordinators at institutions enabled the mapping of the current state to understand the national landscape.

2) **Building a guiding team:**

The guiding team was created from enthusiastic educators who were passionate about the project and volunteered and committed their time to achieving the longer-term purpose. The team was small enough to ensure that strong connections between team members could be established while still providing room for different perspectives. The regular meetings of the team kept momentum and focus.

3) **Getting the vision right** and 4) **Communicating the vision for buy-in:**

The vision for the project was collectively developed. This process was not rushed, and no assumptions were made about individual or institutional needs and complexities. This also ensured that a broad range of stakeholders were involved in the process of developing the curriculum framework and that issues were collectively tackled as they arose.

5) **Empowering action:**

Many individuals who are active participants in the project are isolated but enthusiastic individuals within departments and institutions. Supporting these individuals specifically is therefore a project priority. The project actively seeks to build communities of practice and develop capacity to empower individuals and drive agency for change.

6) **Creating short-term wins:**

Although the project has had guiding timelines, the focus has not been on meeting deadlines but rather on ensuring that the shared understanding and development of individuals is a priority. Momentum has been maintained by regular and frequent engagements and communication and tracking of

participation and convergence of thinking. The project team values and appreciates that holistic change of engineering education curricula is a long-term endeavour and that breaking the project up into achievable parts can more easily maintain focus and energy.

7) Not letting up:

The project activities were designed to continuously reflect on gains made and opportunities for further improvement. The regular nature of activities kept momentum going. Through the showcase videos, specific success stories were shared to encourage and excite stakeholders about the possibilities for change. Regular and detailed updates were shared with Deans specifically drawing attention to the progress made and how this fits into the bigger picture.

8) Making change stick:

It is not easy to integrate engineering curricula. Anyone implementing curricular change in their department or university will require significant support. We felt that the project developed our capacity through building a robust community of practice. Educators were empowered to embark on sustainable long-term change by a combination of tested approaches to initiate conversations, along with connections with supportive colleagues at multiple institutions.

In our experience of this project we have identified two important levels at which change has happened. The first level was the national conversations working towards a shared understanding of an integrated approach to curriculum design for South Africa. The second level was the replication of

elements of this process within departments at institutions, in which participants became facilitators. This experience is illustrated schematically in Figure 1. The process is shown as a labyrinth, to represent the complex and nonlinear nature of the work, in which it can feel like we are re-walking the same path, although each time it is different and we are changed in new ways. A labyrinth allows different people to engage with the process at different times and different speeds. The arrows suggest that the process will not reach a final conclusion, but that participants will become guides and will re-walk the journey with other people, as the process is re-enacted with wider groups and in different contexts. This highlights the importance of having a team, in which some facilitators may spend more time forging ahead with the early adopters, while others remain available to welcome and guide new participants through the process.

VI. DISCUSSION

Our personal reflection on the process in relation to the chosen theoretical lens has enabled us to identify what we believe are critical success factors for this project.

Purposeful engagement with a broad range of stakeholders: Our purposeful engagement sought out a broad range of voices that could add to the richness of the curriculum renewal conversations. This intentional inclusion proactively built buy-in from key stakeholders at various levels and places within the eco-system. This contributed to the development of a robust shared understanding of the vision. The importance of
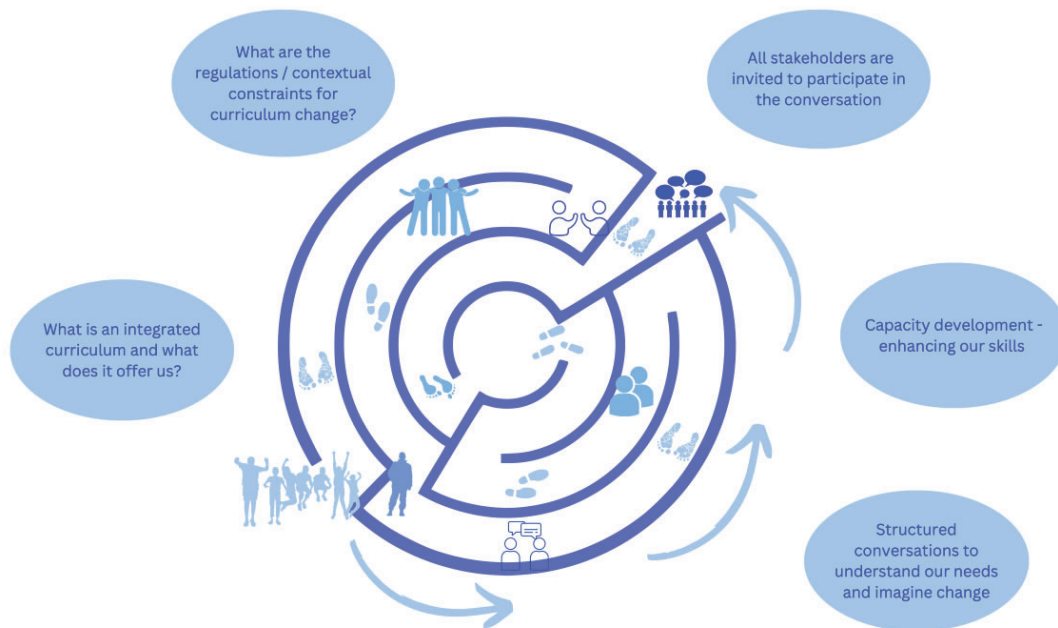

Fig. 1. A labyrinth as a metaphor for the nonlinear, interactive, and co-created curriculum change process.

stakeholder engagement emerged as a key critical success factor as predicted by literature (Walkington, 2002).

Facilitation of a national conversation: The national nature of this project meant that experiences, perceptions and needs from different contexts were incorporated into all activities. This provided different perspectives which enabled creativity and the generation of new and different ideas. It also facilitated engagements that were sensitive to context and did not make any assumptions about what would or would not work. These conversations privilege all voices including those that are often marginalised at higher education institutions, such as students and low-rank academic staff. Reducing power relationships, both between individuals and between institutions, created spaces which valued every voice. We believe that this sensitivity ensured that context was built into the experience from the outset (Case et al., 2015; Kolmos et al., 2016).

Critical and reflective conversations: The project centred around critical and reflective conversations that took place within the project team and were designed into all broader national stakeholder engagements. One of the guiding principles for the project was the importance of creating spaces for conversations. This enabled collective construction of ideas and understanding and the building of individual confidence and agency (Jamieson & Lohmann, 2012). This ensured that the project did not pre-determine or dictate what solutions should be, allowing solutions to be adapted to unique contexts and sharing the process to reach solutions to facilitate capacity building and sustainability. The conversations also enabled many participants to share their frustrations and constraints with the current state which built trust and openness.

Agile and evolving process: This success factor relates to the evolving and agile nature of the process. Acknowledging the non-linear process of change (Walkington, 2002), although the high-level nature and progression of activities was carefully designed by the project team from the outset, the detail remained fluid so that engagements could adapt to the collective needs of the stakeholders. The bi-weekly project team meetings allowed for a responsive approach, incorporating co-creation through the stakeholder feedback and observations of activity effectiveness. For each engagement, although the intended purpose was clear, no predetermined outcome was assumed. Space was created to allow stakeholder current needs to emerge.

Involving stakeholders in the process: The importance of taking each stakeholder on a journey of discovery and individual development emerged as one of the most valuable aspects of the project. We discovered that when new partners joined the journey, it was not possible to shortcut their experience of learning and sharing. This confirms the notion that curriculum renewal is as much about the process as it is about the outcome (Case et al., 2015). Throughout this process, not only is a curriculum designed but capacity is built, communities are formed, and confidence and agency are

initiated. This also supports sustainability as the individuals who form part of the process become the change agents (Mitchell et al., 2021).

VII. Conclusions and Implications

This paper details an ongoing conversation which has progressed over three years, and which continues to evolve. The implementation has been flexible and responsive, leaving the outcomes of each engagement open. The project has solicited input from the ground up, embracing different opinions, developing capacity, creating a common understanding, and consciously privileging voices which are often marginalised by power structures. This co-creation of knowledge incorporated interviews with program coordinators to understand the drivers of and constraints on curriculum renewal, and online national workshops to capture and understand the experience of academics, industry, and the national accreditation body. Through this broad engagement, the project has created spaces and templates for conversations to overcome internal resistance to curriculum renewal.

This case study has implications for research and practice. The reflective analysis reveals the opportunities and complexities of developing a curriculum renewal strategy that is suitable across institutions at a national level while working towards a framework that is more universally applicable than those that are developed within a specific faculty or institution.

This project amplified the importance of context as discussed in the literature. Different contexts have different needs, opportunities, and constraints even within a single country. The different journeys of each participant and institution drove diverse narratives and experiences. National conversations illuminate these differences, challenging thinking and prompting further agility in the curriculum renewal process and outcome. Institutional activities will further need to incorporate the voice of the student to interrogate and address contextual nuance more deeply.

Curriculum review processes can often be focused on reaching an end product which can be implemented. This project emphasised that curriculum renewal is not only about the outcome – the new curriculum – but also about the individual and collective value experienced through the process of building trust and deepening shared understanding of what the curriculum is for. Implementing a curriculum or even a combination of curriculum ideas from elsewhere is not only potentially contextually inappropriate but misses the value of capacity development and the shifting perspectives and paradigms that can occur as individuals immerse themselves in thinking about how a curriculum enables and encourages different approaches to teaching and learning.

As the project unfolds, capacity development and communities of practice will become key areas to ensure sustainable engagement with curriculum renewal initiatives at institutional levels while retaining the value of national

collaboration and support. This is critical as the initial excitement wears off and the hard work of change continues. Curriculum renewal, like any broad-reaching shift in an operational environment, must be seen as a long journey that cannot be rushed, and that requires intentional engagements and ongoing encouragement to be sustained.

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