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Strategic Curriculum Redesign: A Triad Approach with Action Mapping, Design Thinking, and Change Management

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Abstract

As new academics within a university's Centre for Teaching and Learning unit, we were assigned to teach the core module (*Foundations*) for the Certificate of Teaching in Higher Education. Recognising that the existing course fell short of desired standards, consistency, and rigour, we initiated a deliberate process of improvement. In this *practice paper*, we present a single case study that demonstrates how the fusion of *action mapping* and *design thinking* facilitated change management, ultimately leading to a redesigned Certificate. Our approach leveraged Cathy Moore's *action mapping* model, which proved transformative. By combining it with *design thinking* principles, we created a structured, learner-centric framework for curriculum design – one that fosters

active and engaging learning experiences. At its core, action mapping involves identifying performance-based objectives, designing relevant activities, and integrating formative feedback. Throughout this process, we navigated the challenges of *change management* – consulting stakeholders, addressing resistance, and ensuring buy-in from faculty. The redesign process yielded a revised *Foundations* module (focused on didactics), an additional core module (*Learning by Design*, emphasising pedagogy), and a completely revamped Certificate. This creative and sometimes 'messy' process aligned curriculum design with the practical challenges faced by educators, leading us as curriculum designers on an enriching journey of self-discovery. The implications of this integrated approach go beyond this case study and offer guidelines and the ASMAR-framework that can be adopted by other institutions of higher education to navigate curriculum redesign. The alignment of performance outcomes, design empathy, and strategic change management principles facilitate curriculum innovation, particularly in response to evolving educational standards and student expectations.

Keywords
Action mapping, ASMAR-framework, change-management, curriculum design, design thinking, quality assurance

1. Introduction and Background

In the dynamic landscape of higher education (HE), ongoing quality assurance and continuous renewal are crucial for pedagogical excellence. These practices not only ensure alignment with evolving academic and industry demands but also enhance student success and institutional competitiveness (McCluskey, Samarawickrema, Small-ridge, and Dempsey, 2021). Curriculum redesign, therefore, plays a pivotal role in fostering innovation and meeting the challenges of contemporary teaching and learning environments.

The Certificate of Teaching in Higher Education (hereafter 'Certificate'), designed primarily for PhD students in humanities and social sciences aspiring to academic careers, is one such programme requiring intentional updates to remain relevant and impactful. Offered by the Centre for Teaching and Learning (CTL) at a small private university in Austria, the Certificate originally consisted of a six US credit (12 ECTS) programme. Its structure included a core module, two

electives, and a capstone module. However, our experience co-teaching the core module, *Foundations of Teaching in Higher Education*, in autumn 2021 revealed significant gaps in its content and delivery.

Challenges included addressing the developmental needs of students with little to no teaching experience, integrating foundational pedagogical knowledge with practical skills, and filling critical content gaps, such as assessment, grading, and metacognition. Furthermore, the exclusive reliance on peer-teaching delivery methods raised concerns about content quality and student engagement.

Recognising these shortcomings, we embarked on a curriculum redesign initiative. This process was guided by an integrated triad approach, combining Cathy Moore's action mapping (2017), design thinking (DT) principles (Dam and Siang, 2022; Lubbe, Adam and Cordier, 2023), and strategic change management strategies. Together, these methodologies provided a structured, student-centred framework for aligning the curriculum with institutional goals while addressing the specific needs of students and faculty.

This redesign journey, marked by collaboration, compromise, and reflection, resulted in a reimagined Certificate programme. The new structure is both rigorous and adaptable, bridging identified gaps and fostering a transformative learning experience. Our approach not only improved the educational offering but also contributed to our professional growth as educators. This paper outlines the redesign *process* and offers practical insights for institutions aiming to navigate similar curriculum challenges.

2. Literature Review

Re-curriculation (also referred to as curriculum redesign) in HE is defined as the intentional and strategic process of modifying an academic programme's curriculum by assessing and reshaping its structure, content, delivery, and outcomes. This process aims to enhance alignment with current academic standards, employment market demands, and student learning needs (Oliver and Jorre de St Jorre 2018). It is often driven by feedback from stakeholders, including faculty (like in this study), students, industry experts, and accrediting bodies, ensuring that the programme remains competitive and effective

in fostering student success and meeting societal demands (Bovill and Woolmer, 2019).

The purpose of re-curriculation is multifaceted, including enhancing educational quality, addressing gaps in knowledge, integrating innovative teaching methods, and responding to new trends and changes in the field (Clarence-Fincham and Naidoo, 2013). By undertaking this process, institutions aim to provide a more dynamic and responsive educational experience that effectively prepares students for their future careers and civic life (Oliver and Jorre de St Jorre 2018). Redesigning a curriculum is undeniably a major undertaking, while a crucial initial step of the process is change management and determining if the department/centre or faculty is open and ready for the change (Fowler, Lazo, Turner and Hohenstein 2015).

Despite the advantages of re-curriculation, it is often accompanied by several challenges such as resistance to change, balancing creativity with practicality, and resource constraints (Gouëdard, Pont and Huang, 2020; Weiss, Barth and Von Wehrden, 2021). Therefore, change management during curriculum redesign is critical to ensure a smooth transition and implementation. Change management principles provide a roadmap for curriculum designers and implementers to guide their actions and include aspects such as involving and informing all stakeholders of the purpose and rationale for the redesign, supporting all parties in navigating the different phases, eliciting feedback, and allowing the process to iterate until the result is satisfactory (Haile and Mekonnen, 2024).

Effective change management in curriculum redesign at university level necessitates a multifaceted approach that integrates transformational learning, academic agency, contextual analysis, leadership, and systematic quality management (Yang, 2024). Applying Cathy Moore's action mapping and DT as methodologies can further enhance this process. Action mapping, developed by Cathy Moore (2017), is a streamlined process specifically for training design in the business world. When adapted for HE, it becomes a valuable tool for curriculum design at university level (Lubbe *et al*., 2023). Key steps include identifying performance challenges, defining goals, analysing

tasks, designing activities, developing assessments, and iteration based on feedback.

DT is a user-centric approach to problem-solving that emphasises understanding the user's needs through empathy, brainstorming potential solutions, and then testing and iterating on those ideas. At its core, DT is a creative and iterative process, focused on generating innovative solutions by deeply empathising with participants, generating creative ideas, and refining them through prototyping, testing, and feedback (Stolzoff, 2021).

DT has proven to be particularly effective in educational settings, where understanding the unique needs of students and educators is critical to successful curriculum design. Lubbe *et al*. (2023) have demonstrated the applicability of DT in their work on re-curriculation during the COVID-19 pandemic. This study highlights how DT facilitated the redesign of academic programmes by fostering collaboration, encouraging empathy-driven insights, and enabling iterative refinements to meet evolving educational demands. By combining DT with other methodologies, they created student-centred curricula that balance theoretical rigour with practical relevance.

In the context of curriculum redesign, the iterative nature of DT aligns seamlessly with the complexities of HE. This approach allows for continuous feedback loops, ensuring that the redesigned curriculum remains responsive to stakeholder needs and adaptable to emerging challenges. For instance, empathy mapping and prototyping – a cornerstone of DT – enable curriculum developers to conceptualise and test solutions that resonate with both faculty and student expectations. The integration of DT in our curriculum redesign provided a structured yet flexible framework for innovation, aligning the programme with institutional goals while addressing learner-centric priorities.

Action mapping is a performance-focused instructional design methodology developed by Cathy Moore (2017). Originally conceived for corporate training, action mapping emphasises aligning learning activities with measurable performance goals. By identifying specific performance challenges and designing activities that directly address these issues, the methodology ensures that learning interventions are purposeful and impactful. In the context of curriculum redesign, action mapping provides a clear structure for aligning educational content with

desired outcomes, ensuring that students are equipped with practical, transferable skills that meet institutional and industry needs.

In HE, the application of action mapping can streamline curriculum design by emphasising task analysis, goal alignment, and activity relevance. For instance, Lubbe *et al*. (2023) highlight how combining action mapping with DT facilitates curriculum redesign by ensuring that learning activities not only address theoretical concepts but also focus on developing the competencies required for a real-world application. This dual emphasis on theory and practice is critical for creating a learner-centric curriculum that prepares students for the demands of contemporary academia and professional environments. Through the systematic identification of gaps in performance and targeted instructional design, action mapping contributes to creating curricula that are both rigorous and adaptable.

While each of these frameworks has demonstrated individual success in isolated educational settings, critics argue that the combination of these methodologies can introduce unnecessary complexity or a duplication of effort. However, as authors we found the combination beneficial to the process. The need for faculty training and administrative buy-in is a significant barrier to effective implementation. Additionally, balancing creativity – DT – with the performance-centric focus of action mapping can be challenging (Gouëdard *et al*., 2020) but results in an improved process.

Table 1
Comparing and contrasting action mapping, design thinking, and change management

Feature	Action Mapping	Design Thinking	Change Management
Primary Focus	*Creating learning experiences* that lead to performance.	*Developing solutions* by understanding user needs.	*Managing the process* of change within organisations.
Core Principles	Aligning activities to business goals.	Empathy, ideation, iteration.	Planning, implementing, and monitoring change.

Feature	Action Mapping	Design Thinking	Change Management
Approach	Performance-focused and goal-oriented.	Creative, human-centred, and iterative.	Structured and strategic.
Tools and Techniques	Job/task analysis, needs assessment, measurement of effectiveness.	Prototyping, brainstorming, user interviews, journey mapping.	Stakeholder analysis, communication plans, risk management.
Outcome	Effective performance improvements.	Innovative and user-centred solutions.	Successful adoption and sustainability of change.
Role in Curriculum Design	Ensures that the curriculum is directly tied to learning outcomes and performance goals.	Ensures that the curriculum is designed from a learner-centred perspective, promoting engagement, and addressing real needs.	Ensures that the curriculum change is accepted and embedded within the institution.
Interlinking with Other Concepts	Integrates with change management to align new curriculum elements with organisational goals and with DT to ensure they are effectively addressing student needs.	Integrates with change management by proposing innovative changes that need effective implementation strategies and with action mapping by ensuring the designed curriculum is not only innovative but also functional.	Provides a framework for introducing and managing new approaches (like action mapping and DT) within the curriculum.

Table 1 provides a comparative summary of the triad of approaches adopted for the curriculum redesign. The integration of action mapping,

DT, and change management, provides a comprehensive framework for curriculum redesign, addressing performance improvement, user-centred design, and effective implementation of changes. When combined, this triad facilitates:

- *Transformational Learning*: Views curricula change as a disorienting dilemma, prompting a perspective shift from traditional disciplinary content to broader institutional goals and active learning strategies.
- *Academic Agency*: Vital in navigating curriculum changes, with different forms playing out based on departmental contexts.
- *Contextual Analysis*: Analysing the context within which curriculum change occurs is crucial. Factors like ownership, resources, identity, and leadership influence the success of change initiatives.
- *Leadership*: Key at departmental level, requiring the navigation of institutional logics and a strategic vision that is inclusive and tailored to departmental needs.
- *Systematic Quality Management*: Employing frameworks like 'total quality management' aids in continuous curriculum evaluation and improvement (Efendi, 2022).

3. Methodology

3.1 Qualitative Research Design: The Reflective Case-Study

This initiative (and resulting *practice paper*) to improve our practice was grounded in the Scholarship of Teaching and Learning (SoTL). We employed a qualitative reflective case study approach (cf. Rashid *et al*., 2019; Yin, 2009) to explore the real-world phenomenon of curriculum redesign. This method allowed us to provide a wholistic view of the subject, capturing contextual nuances (Baxter and Jack, 2008) while offering insights and concrete lessons for improving teaching practice (Becker and Renger, 2017). Our case focused on the redesign of the Certificate, aimed at PhD students primarily from social sciences and humanities. Data collection included progress notes, conversations, brainstorming activities, personal reflections, and a document analysis of curriculum and syllabus documents, meeting notes, flow-diagrams, and electronic communication. Although this was an initiative to

improve practice, we grounded it firmly as a SoTL research project. Therefore, the research question we wanted to answer was: *How effectively does the redesigned curriculum align with and support the attainment of key skills and competencies of novice educators?*

3.2 Philosophical Underpinnings

Our approach for the reflective case study (cf. Stake, 1995; Yin, 2003) was based on a constructivist paradigm (Lauckner, Paterson and Krupa, 2012), recognising that each case is unique and influenced by context, stakeholders, and interactions. We incorporated our diverse perspectives and current context while examining the re-curriculation process from various angles. We included multiple sources of evidence, triangulation, and contextual understanding, acknowledging multiple realities and perspectives.

3.3 Ethical Considerations

In this *practice paper*, despite not needing formal institutional ethical approval, we navigated the ethical landscape by emphasising transparency, informed consent (even in the absence of traditional participants), balancing perspectives, mitigating power imbalances, fostering reflective practice, and contextualising our approach. Our ethical conduct was guided by responsible scholarship, recognising that ethical considerations extend beyond formal approvals.

4. The Case: Curriculum Redesign

In September 2021 we co-taught the *Foundations* module with the director of the CTL. The central topics of that 12-week module included:

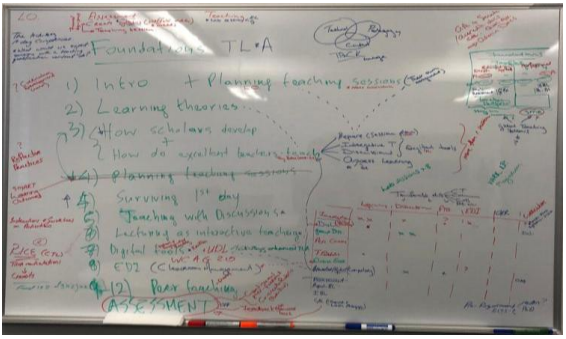
- How do scholars develop as teachers?
- Learning Theories.
- Classroom management.
- The first day in the classroom.
- Developing a lesson plan.

These topics, among others, were facilitated through student-peer teaching.

During the period from January to March 2022, prior to the curriculum redesign process, we facilitated the electives (six-week modules), which included 'Critical thinking,' 'Facilitating discussions in class,' 'Teaching modalities' (face-to-face, blended, hybrid, hyflex, online), and 'Teaching in diverse environments.' It was at this stage that we visually (albeit a bit 'messy') plotted the content of the Certificate (cf. Figure 1). This functioned as our initial springboard. We identified some gaps in the didactic and pedagogical knowledge covered. We believed the teaching philosophy (central to any teaching) should be a golden thread that needs to be addressed in various modules; however, it was only touched upon during the final capstone module. Of equal concern was that the key concept of assessment was dismally absent, as was the concept of metacognition and reflection.

We had concerns over the delivery method. Although peer-teaching (every session) involved the use of a standardised lesson plan format ('recipe') that was conceptualised and compiled under our guidance and support, the quality of the resulting lesson plans varied substantially in terms of quality and the depth of theoretical grounding, since students were not content specialists and lacked the crucial foundational pedagogical knowledge, creativity and imagination coming with experience and exposure.

Figure 1
Initial brainstorming, mapping the original Certificate



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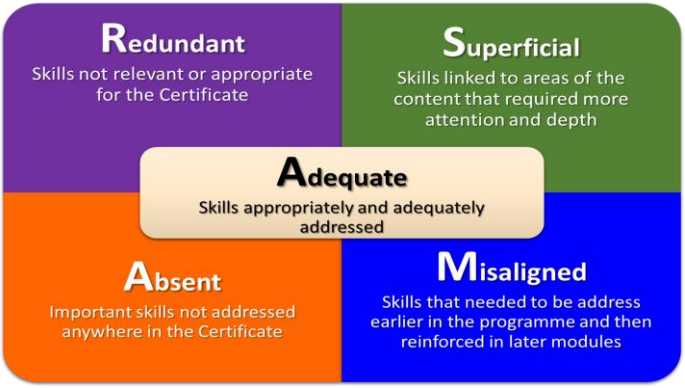
As we engaged in the visualisation process, we reshuffled some of the content of the sessions, collating topics of individual weeks, and condensing other content (cf. Figure 1). This process was informed by benchmarking (ideate phase of DT) against comparable Certificates offered by other Centres for Teaching and Learning around the globe. It was during this phase that we (as a happy coincidence) conceptualised and coined our *ASMAR*-framework (Lubbe and Politis, 2024 – cf. Figure 2). The ASMAR-framework provided a solid initial structure for us to use while analysing the content and competencies of the Certificate, believing that with slight modifications, the Certificate could be improved and continued to be offered in its adapted format.

Figure 2
The ASMAR framework for curriculum redesign



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The ASMAR-framework consists of five categories:

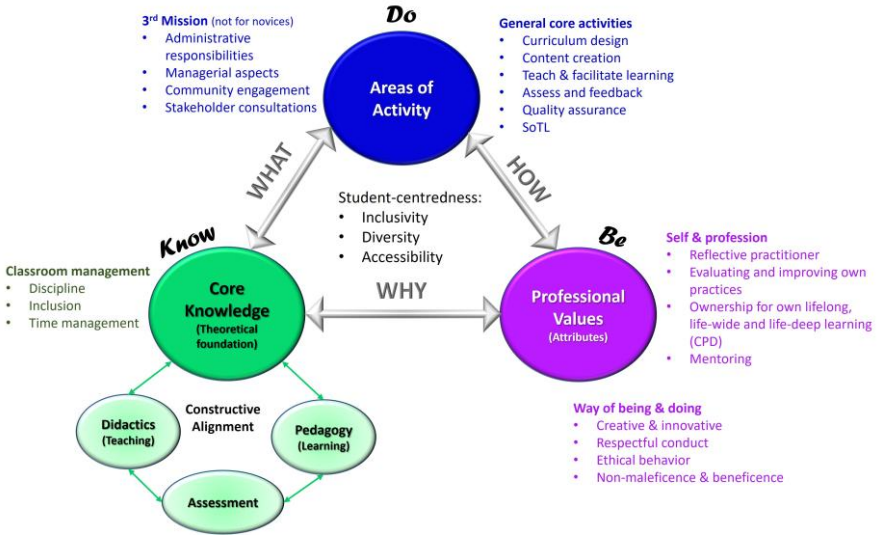
1. *Adequate*: Skills that were appropriately and adequately addressed in the current Certificate (e.g., creating a lesson plan and delivering a session).
2. *Superficial*: Skills linked to areas of the content that required more attention and depth (e.g., designing a teaching session).
3. *Misaligned*/Placement: Skills that needed to be addressed earlier in the Certificate programme and therefore could be reinforced in later modules (e.g., creating a teaching

philosophy. This was only mentioned in the Teaching Portfolio but was not originally included in the *Foundations* module).

4. *Absent*/Missing: New skills not previously addressed anywhere in the Certificate (e.g., Becoming a reflective practitioner. This was an omission since students were expected to reflect throughout the programme).
5. *Redundant*: Information not relevant or appropriate anymore (e.g., ineffective approaches and dated resources).

Applying the newly developed ASMAR-framework for curriculum redesign served us well to prioritise and evaluate the current content for the Certificate – identifying redundant as well as missing components. After months agonising over the content of the Certificate it became clear that the existing layout was constraining our vision for what the Certificate should offer. As we could not simply 'panel beat' the content to fit the Certificate, we decided to take a more radical approach: We abandoned the old six US credit Certificate and chose to reimagine the Certificate as a whole, starting with a clean slate. After considering several curriculum design frameworks, we determined that action mapping with DT was the best fit for our approach and the change we envisioned. We further applied the backward design principles (cf. Wiggins and McTighe, 2005) by identifying the first day competencies and skills expected of a novice educator entering the classroom for the first time. We created a list of those competencies and transferable skills and integrated Advance Higher Education's newly developed 'Professional Standards Framework for Teaching and Supporting Learning in Higher Education 2023' (AdvanceHE 2023 – cf. Figure 3). These first day competencies were converted into the programme level outcomes (PLOs).

Figure 3
Plotting the Advance Higher Education Standards



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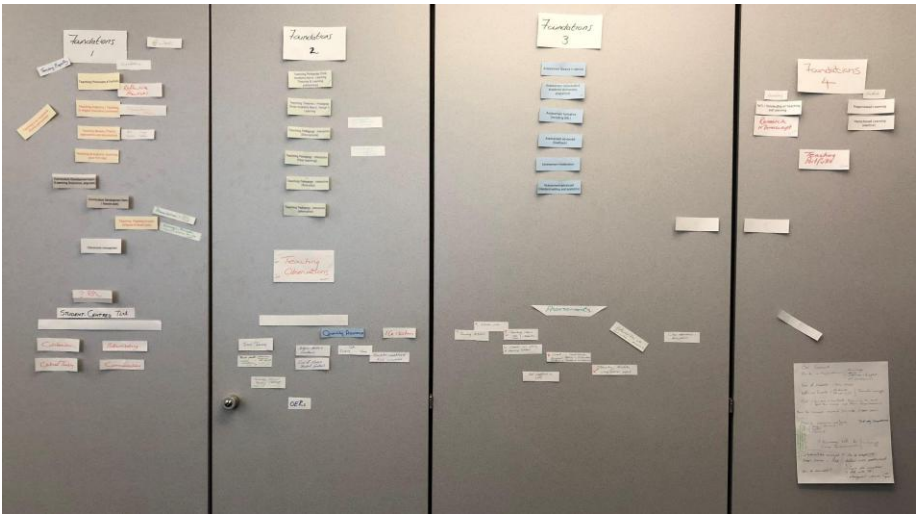
Completing the first day competencies was a great start, which led to the categorisation of the competencies into clusters (cf. Figure 4), namely didactics (Foundations 1), pedagogy (Foundations 2), assessment (Foundations 3), and SoTL (Foundations 4). Interestingly enough, most of the content identified using the ASMAR-framework did make it into the clusters – but just in another grouping or category – confirming that using the ASMAR-framework was a good departure (but not final) point for the initial revision and reconceptualising process.

Figure 4
Sticky-note brainstorming exercise (to illustrate the 'moveable' pieces)



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The lack of personalisation of the curriculum through elective modules became a source of concern because of its significant deviation from the old Certificate. Therefore, we favoured an eight US credit Certificate comprising of the

- (new) two-credit *Foundations* module that contained most of the topics of the old *Foundations* along with a few additions such as curriculum design, reflective practices, and the teaching philosophy;
- (new) one-credit *Foundations* practica including a
  - mini-lecture (mock teaching session) with peer feedback;
  - full teaching session (either simulated or during their tutorials as teaching assistants) with peer and educator observation and feedback; and
  - reflective component;
- (new) two-credit Learning by Design module containing a couple of topics from the old *Foundations*, namely learning theories and

facilitating discussions, and some new topics such as syllabus design, assessment, feedback, grading, active learning approaches, scholarship of teaching and learning;

- one-credit electives. Students had to select two from the following list:
    - Inquiry-based learning.
    - Game-based learning.
    - Democratic classrooms.
    - Supervision of undergraduate research.
    - Teaching on the learning management system (LMS).
- one-credit Teaching Portfolio, containing the student's CV, teaching philosophy, and artifacts created during the Certificate course.

The next step (cf. Figure 7 for an overview) in this re-curriculation process was to carry out a formal curriculum mapping of the new proposed Certificate (cf. Dyjur, Grant and Kalu, 2019; Schweitzer, 2019; Palomba and Banta, 1999). Based on the newly formulated PLOs, we started by listing learning outcomes (LOs) that need to be addressed at both module and session level. This was followed by the listing of all main topics and subtopics covered in the modules along with the transferable skills. We engaged in the I, R, M process, where content and competencies are introduced (I) for the first time, where (if anywhere) they are reinforced (R), and to decide whether we believe any would be mastered (M) on completing the programme (Herrmann and Leggett, 2019). See Figure 6 for a snapshot of the mapping template.

Figure 5
Extraction from curriculum map

Professional Competencies / Transferable skills	Program Outcomes (to be added)	Themes	General Topics (not weekly topics)		Foundations	UbD	LMS	GBL	IBL	Democratic Classroom	Supervision	Teaching Portfolio
		Professionals (becoming)	Teaching philosophy	Insert "I," "R," or "A,"	Introduce	Reinforce & Expand	x	Reinforce	Reinforce	x	Reinforce & Expand	Acquired
				Insert instructional activities								
				Insert potential assessments								
				Technology used	Google slides (collab)							WIX
			Networking (associations)	Insert "I," "R," or "A,"	-	-	-	-	-	-	-	-
				Insert instructional activities								
				Insert potential assessments								
				Technology used								
			Reflective practitioner	Insert "I," "R," or "A,"	-	-	-	-	-	-	-	-
				Insert instructional activities								
				Insert potential assessments								
				Technology used								

(Personal archive)

The final step prior to implementation/piloting of the redesigned Certificate was to revisit the PLOs (first day competencies) to confirm alignment throughout the Certificate. Following the completion of the Certificate, the novice educator (current PhD-student) should be able to utilise evidence based (SoTL) methods, approaches, and strategies to support student learning by

- designing and creating context-appropriate content to support teaching, learning, and assessment;
- facilitating student learning using appropriate methods, approaches, and techniques;
- creating an effective learning environment that is inclusive, respectful, and allows for diversity;
- creating appropriate avenues for assessment and feedback to support student learning; and
- taking responsibility for their own development as a reflective practitioner.

This new Certificate concept was approved by June 2022. The content for the new *Foundations* was developed mainly in July 2022, the content for the Learning by Design mainly in December 2022, the Teaching Portfolio remained mostly unaffected, and the electives were developed at different intervals throughout the academic year, depending on the dates of their delivery.

5. Praxis: Results and Discussion

As we embarked on the curriculum redesign, the integration of action mapping, DT, and change management guided our planning and process. Although the three approaches happened intertwined, it might be valuable to unpack each approach's components separately.

Action mapping (for HE) is a valuable tool for curriculum design at university level (Lubbe *et al*., 2023) and consists of the following steps:

- *Identify the Performance Challenges*: We started by identifying the specific performance challenges or learning gaps that the curriculum aims to address (such as the gradual development of teaching as a skill).
- *Define Business Goals*: We clearly defined the outcomes that the curriculum is expected to achieve. We framed this in terms of graduate competencies and academic objectives.
- *Analyse Tasks*: We scaffolded the skills or tasks that students need to perform to meet these goals. These involved a detailed analysis of the real-world tasks of a novice educator that the curriculum should prepare the students for (AdvanceHE 2023).
- *Design Activities*: We purposefully created activities (such as micro-teaching sessions and artifact creation) that simulated these tasks. The focus was on practical application rather than theoretical knowledge.
- *Develop Assessments*: We designed assessments that measured the students' ability to perform the tasks (e.g., lesson plan, syllabus design, teaching session, providing feedback). We ensured that it was as closely aligned to real-world performance as possible.
- *Iteration Based on Feedback*: We used the formal (module evaluations) and informal feedback (exit tickets) from students and faculty to refine the activities and assessments. This ensured that the curriculum remained relevant and effective.
- *Map the Curriculum*: We conducted a curriculum mapping to ensure that the programme outcomes align with the course outcomes and that there is a logical progression of learning (Bens, Dzaman, Garg and James, n.d.; Dyjur *et al*., 2019).

- *Engage Stakeholders*: We involved faculty and students in the design process to ensure that the curriculum meets the needs of all stakeholders (Pappas, 2024).
- *Review and Revise*: We reviewed the curriculum as we implemented it against the set goals and made necessary revisions (such as move syllabus design to learning by design (LbD) to keep it up-to-date and aligned with industry standards (Schweitzer, 2019) and student capabilities.

DT, with its user-centric and iterative principles (Dam, 2022), played a critical role in reimagining the Certificate programme. This methodology was instrumental in ensuring that the redesigned curriculum was not only innovative but also deeply aligned with the needs of novice educators, faculty, and institutional goals. By emphasising empathy, ideation, prototyping, and iterative refinement, DT allowed us to tackle the multifaceted challenges of curriculum design with creativity and precision:

- *Empathy and Ideation*: The process began with the empathy stage, which involved understanding the perspectives and experiences of key stakeholders, including PhD students, faculty members, and institutional administrators. Empathy mapping sessions captured the challenges faced by novice educators, such as their limited exposure to pedagogical principles and lack of confidence in applying these to real-world teaching scenarios. Faculty consultations further highlighted gaps in the original curriculum, such as an inadequate focus on reflective practices and assessment strategies.
- Building on these insights, the *ideation stage* facilitated the generation of innovative solutions to address identified gaps. Brainstorming sessions, supported by techniques like journey mapping, discussions, and brainstorming uncovered creative ways to integrate practical teaching scenarios, reflective exercises, and robust assessment methods into the curriculum. The inclusion of the Learning by Design module emerged from this stage, focusing on pedagogical principles and authentic learning tasks.

- *Prototyping and Testing*: DT's emphasis on prototyping enabled us to translate ideas into tangible solutions. Initial prototypes of the redesigned modules, such as sample syllabi and lesson plans were developed and shared with stakeholders for feedback. For example, a prototype of the Foundations Practica module was piloted with a small group of students, allowing us to observe their engagement with activities like mock teaching sessions and reflective journaling. Feedback gathered during this phase led to iterative improvements, ensuring the final design was both engaging and effective.
- *Iterative Refinement and Alignment*: The iterative nature of DT proved invaluable in maintaining alignment between the curriculum's structure and its intended outcomes. Each prototype iteration incorporated stakeholder feedback, ensuring that the final curriculum was dynamic and responsive to the needs of its users. For instance, the addition of elective modules such as Game-based Learning was a direct response to students' interest in exploring innovative teaching methods. The process also revealed opportunities for embedding transferable skills, such as critical thinking and metacognition, as golden threads throughout the programme. By iterating on these components, we ensured that the redesigned curriculum supported the development of reflective practitioners capable of navigating diverse teaching contexts.

5.1 Impact and Outcomes

The application of DT culminated in a curriculum that was not only learner-centred but also adaptable to evolving educational demands. Key outcomes included the following:

- Enhanced student engagement through active learning strategies and real-world applications.
- Improved alignment of PLOs with course content and assessments.
- A framework for ongoing curriculum innovation, supported by iterative feedback loops and stakeholder collaboration.

By leveraging DT alongside action mapping and change management, we successfully redefined the Certificate programme as a model of innovation and responsiveness in HE.

From a DT – empathy stage – as well as a *change management perspective* (cf. Figure 6), the engagement of *stakeholders* was pivotal for the alignment of the redesigned curriculum with the diverse needs of faculty, students, and administrators. Faculty from various modules within our department was involved to provide diverse perspectives, ensuring that the curriculum catered to a wide array of academic disciplines represented in the Certificate programme. Student inputs in the curriculum included multiple feedback mechanisms (e.g., weekly exit-tickets and end of module feedback), allowing the curriculum designers to understand and incorporate students' preferences and requirements (Hale and Adhia, 2022). Additionally, our director (as administrator) played a crucial role in aligning the curriculum with institutional goals, with regular bi-directional updates ensuring continuous alignment and adaptation.

The *communication* strategy employed in the redesign process was centred around clearly articulating the rationale for change, which included addressing emerging industry demands and technological advancements. This was regularly discussed in monthly meetings, ensuring that all stakeholders understood and supported the direction of the changes. Furthermore, *training and support structures* were enhanced by workshops and access to new teaching technologies, empowering faculty to adopt and integrate new methodologies confidently. The iterative nature of the redesign was supported by robust *feedback mechanisms*, including pilot programmes that tested new components of the curriculum. This allowed for continuous refinement based on real-world application and feedback. *Celebrating successes*, such as presenting innovative teaching practices at symposia, helped in fostering a culture of recognition and ongoing improvement among all involved.

Figure 6
Change management principles – operationalised

(Personal archive)

In conducting the *benchmarking* exercise as a component of our curriculum redesign, we were guided by the principles of action mapping, DT, and change management. This integrated approach and framework steered our examination of various global curricula, including those offered by other CTLs that provide formal courses in teaching and assessment for faculty and PhD students. By implementing a structured benchmarking process across institutions in both high and low resource settings, we systematically evaluated the applicability of different teaching methodologies and content structures. This thorough methodology not only allowed us to classify educational offerings into distinct thematic pillars but also enabled us to uncover detailed insights into the essential elements of effective international teaching and assessment practices. Our analysis primarily focused on the subjects presented within the formal training programmes.

The international benchmarking exercise revealed three main pillars under which the content was categorised, namely:

- *Didactics* (with the focus on teaching) which became the new *Foundations* course. This course is meant to help the PhD students to contemplate who they want to be as an educator, guide them through the main theoretical background on curriculum design and delivery, and allow them to reflect on best practices as well as their own teaching practice.
- *Pedagogy* (with a focus on facilitating learning) which became a new core module called LbD. In LbD the focus changed, and it was placed on the other side of the teaching and learning process – the students. The module provides a background on learning principles and theories, describes the practical application of active learning facilitation approaches, and offers the students the opportunity to explore alternative/authentic forms of assessment, along with best practice in marking and feedback.
- *Teaching Portfolio* as a capstone project. The Teaching Portfolio serves as a comprehensive and personalised repository of evidence, showcasing each student's skills, capabilities, and development as an educator. It includes artifacts created throughout the Certificate programme, such as teaching materials, assessment tools, syllabi, and lesson plans, all of which demonstrate their ability to design and deliver effective educational experiences. Students are required to narrate and reflect on these artifacts, critically examining their own learning process, pedagogical approaches, and areas for growth. A key feature of the portfolio is the inclusion of the student's teaching philosophy – a succinct yet meaningful articulation of their beliefs, values, and approaches to teaching, learning, assessment, and curriculum design.

  Additionally, the portfolio houses a professional bio statement, providing context about their academic and professional journey. Students are encouraged to personalise the portfolio by adding any other content they feel that represent their unique skills and aspirations, fostering a sense of ownership and individuality. Beyond its role as an assessment tool within the Certificate programme, the Teaching Portfolio is designed as a practical and professional asset. Students can present it when

> applying for teaching positions, using it to illustrate their qualifications and readiness to contribute effectively to academic environments. By emphasising reflection, self-assessment, and evidence-based practice, the Teaching Portfolio not only demonstrates competence but also encourages lifelong professional growth.

We moreover came to the realisation that most of the electives offered, covered core competencies and skills, which was a concern as not all students were introduced to these concepts. We retired certain electives and incorporated these portable/transferable skills (cf. Nägele and Stalder, 2017) into the core modules as a golden thread and expose the entire cohort of students to these skills or competencies.

Action mapping, DT, and change management together formed the cornerstone of the curriculum redesign process, with each approach playing a distinct and complementary role. *Action mapping* was instrumental in ensuring that learning activities align with real-world performance outcomes. By emphasising task analysis and targeted instructional design (cf. curriculum map), this method ensured that the redesigned curriculum was both theoretically sound and practically applicable, equipping students with essential, transferable skills for teaching.

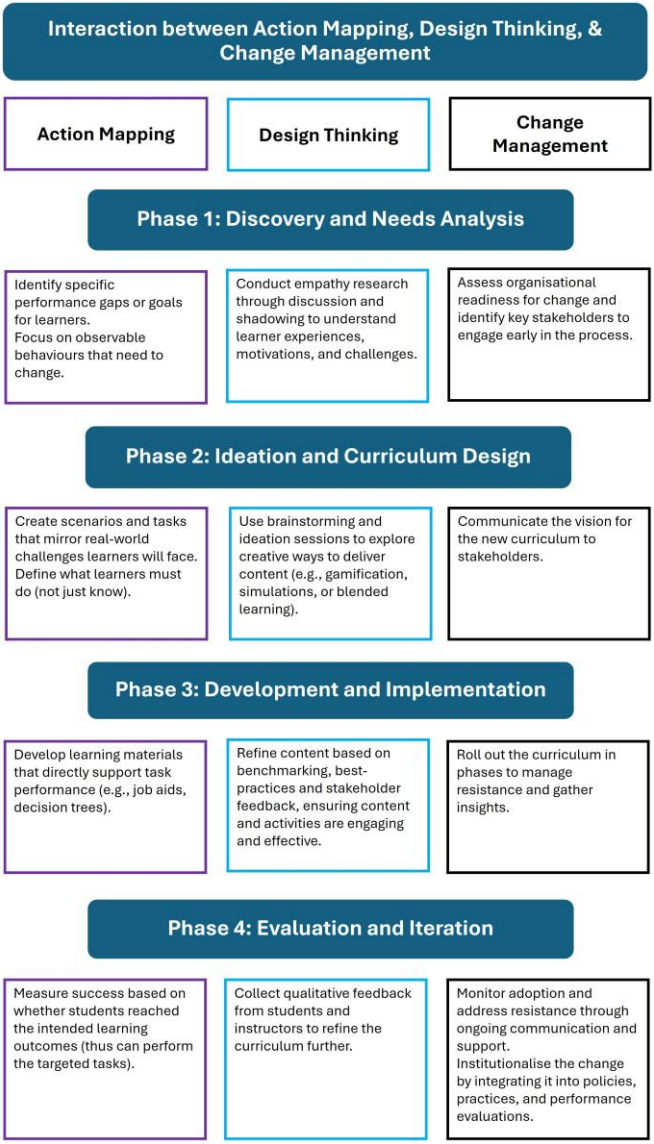
DT provided the creative and iterative framework for addressing broader curriculum design challenges. This user-centric methodology emphasised deep empathy with both students and faculty, allowing the redesign to align with their actual needs and expectations. Through iterative prototyping and testing, innovative solutions – such as the Learning by Design module and student-created syllabi – were developed, enhancing student engagement and pedagogical effectiveness.

Change management facilitated the smooth adoption and sustainability of the new curriculum. Engaging stakeholders at all levels and incorporating their feedback were critical strategies for managing resistance and fostering buy-in. Clear communication, robust training, and continuous feedback loops ensured alignment with institutional goals and supported the successful implementation of the redesigned programme.

The triangulated approach enabled the creation of a curriculum that is dynamic, user-centred, and performance-oriented. The formal evaluation revealed significant improvements in student engagement and learning outcomes, confirming the effectiveness of our triadic framework. Each approach contributed uniquely to the process: Action mapping ensured goal alignment and practicality, DT fostered innovation and empathy, while change management supported seamless execution and long-term sustainability.

Figure 7 showcases the four successive phases of the redesign process, namely, Discovery and Needs Analysis (Phase 1), Ideation and Curriculum Design (Phase 2), Development and Implementation (Phase 3), and Evaluation and Iteration (Phase 4). The figure describes how we applied each one of the three frameworks (action mapping, DT, change management), detailing the actions that we took at each phase.

Figure 7
Interaction between action mapping, DT, and change management



(Personal archive)

The redesigned curriculum addresses the main research question by more effectively aligning with and supporting the attainment of key skills and competencies for novice lecturers. The revised PLOs and course LOs now more adequately address the identified key skills and competencies. The vertical and horizontal alignments of modules ensure a more coherent educational trajectory, and the new assessment strategies (teaching observation process, micro-teaching, content and artifact creation, peer-feedback, and narrated reflections) provide better evidence of student achievement.

However, the process was not without challenges. The initial attempt to fit all desired content into the existing six US credit structure proved frustrating and constraining. This led to the decision to expand the programme, which required additional resources (such as time and new syllabi with content to create) and institutional approval processes. This was a time-consuming process that we had to fit into an already full schedule.

5.2 Limitations and Trustworthiness

While this practice paper as reflective case study may offer valuable guidance for future curriculum changes, its context-specific nature may limit generalisability. The dynamics of curriculum redesign in small private institutions may differ from larger or more traditional institutions. Future research should examine how scalable this approach is across diverse institutional types and disciplines. However, it remains a valuable approach to document and explain the curriculation (re)design process, reinforcing basic principles of curriculum design. By being transparent about our involvement and perspectives throughout this endeavour, we aimed to enhance the trustworthiness of this praxis (product plus process). Future research could explore the long-term impact of this redesigned curriculum on teaching effectiveness and student learning outcomes.

While qualitative feedback from both faculty and students suggests improved engagement and satisfaction with the redesigned curriculum, future evaluations should include more robust data collection methods. This could include pre- and post-assessment results, student performance metrics, and longitudinal studies tracking the effectiveness of teaching practices over time.

6. Conclusion

The redesign of the Certificate using a triad approach of action mapping, DT, and change management demonstrates the potential for innovative curriculum design in HE. This approach resulted in a more coherent, practical, and learner-centred programme that better prepares novice lecturers for the challenges of teaching in HE.

The redesign process resulted in significant changes to the Certificate programme:

- *Revamped Certificate Structure*: The overall Certificate was redesigned to ensure a vertical and horizontal alignment between modules, creating a more coherent learning experience.
- *Enhanced Student Ownership*: Students were given more opportunities to create and implement constructively aligned syllabi on self-selected topics, promoting greater engagement and practical application of learning.
- *Integration of Reflection*: Metacognition and reflection were incorporated throughout the programme, addressing a significant gap in the original curriculum.
- *Improved Assessment Strategies*: New assessment methods were introduced to align better with the learning outcomes and provide more meaningful evidence of student performance and achievement against learning outcomes.
- *Incorporation of Technology*: The redesign process included a greater emphasis on integrating educational technology, preparing students for diverse teaching environments.

This reflective case study highlights the importance of systematic, evidence-based approaches to curriculum design in HE. By combining action mapping, DT, and change management, educators can create more effective, engaging, and relevant learning experiences that better prepare students for their future roles as educators.

7. Additional: Take Home Message

The process of redesigning the Certificate has yielded several insights that can be beneficial to others embarking on similar educational reform

initiatives. Some specific recommendations based on our experiences and findings are:

- *Employ a Triadic Approach*: Integrating action mapping, DT, and change management can address multiple facets of curriculum design – from alignment with learning outcomes to user engagement and effective implementation.
- *Stakeholder Engagement*: Continuous involvement of all stakeholders throughout the redesign process is crucial. Their input can provide critical insights and help in fine-tuning the curriculum to better meet the needs of users.
- *Iterative Prototyping*: Use DT to prototype various aspects of the curriculum. This allows for iterative sprints (short design cycles) permitting for continuous testing and refining ideas based on real user feedback which can significantly enhance the curriculum's relevance and effectiveness.
- *Manage Change Strategically*: Apply change management principles to prepare and support individuals, teams, and organisations in making organisational change. This is essential for the successful adoption and sustainability of new curricular innovations.
- *Evaluate and Adapt*: Continuous evaluation of the curriculum is vital. Use feedback to make informed adjustments, ensuring the curriculum remains relevant and effective in meeting educational goals.

The broader implications of this triadic approach extend to institutional policy. Educational leaders seeking to foster adaptive, future-focused curricula can use this model to guide large-scale reforms, particularly in response to shifting academic landscapes and technological advancements. Institutions with limited resources may find the structured approach helpful in aligning goals with practical, performance-based outcomes, ensuring that both faculty and students benefit from the process.

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