

CHAPTER 22

Managing curriculum reform in the transition to competency-based education using entrustable professional activities

Fremen Chihchen Chou, Siobhan Fitzpatrick, David R. Taylor,
Adrian P. Marty, Mabel Yap, Harm Peters

Abstract

Curriculum reform in health professions education is essential to address evolving societal expectations for healthcare. Competency-based education (CBE), advocated by leaders in healthcare such as the Lancet Commission and the World Health Organization, aims to bridge the gap between traditional training in the health professions and modern healthcare needs. This chapter outlines a comprehensive approach to curriculum reform, emphasizing the integration of change management for the human aspects and project management for the technical aspects, to ensure successful implementation. Drawing from different models, five essential themes to manage curriculum reform emerge: communication, iterative design, leadership, teamwork, evaluation and refinement.

The transition to a CBE program based on entrustable professional activities (EPAs) necessitates a major curriculum reform that can be considered a systemic overhaul. This process involves planning, implementing, and monitoring changes while preparing and supporting stakeholders to embrace and sustain these changes. This chapter utilizes Van Melle's core components framework of CBE to set the blueprint for an EPA-based curriculum, guiding the development of EPAs as training outcomes, creat-

How to cite this book chapter:

Chou FC, Fitzpatrick S, Taylor DR, Marty AP, Yap M, Peters H, Managing curriculum reform in the transition to CBE using EPAs. In: ten Cate O, Burch VC, Chen HC, Chou FC, Hennis MP. (Eds). *Entrustable Professional Activities and Entrustment Decision Making in Health Professions Education*, Chapter 22, pp. 261–274. [2024] London: Ubiquity Press. DOI: <https://doi.org/10.5334/bdc.v>

This chapter uses cross-references to other chapters of the same book. For those who read this chapter as a standalone publication: all cross-references can be found at: <https://doi.org/10.5334/bdc>

ing tailored instruction and learning experiences to foster competency acquisition, and establishing programmatic assessment to inform entrustment progression. By leveraging international experiences and ensuring contextualization and localization, this chapter provides a robust framework to navigate the complexities of transitioning to CBE. The chapter concludes by presenting a practical, step-by-step method for managing curriculum reform through the phases of initiation, implementation, and sustainability. The principles and strategies outlined offer valuable insights for educational leaders, program directors, and policymakers aiming to effectively align education with healthcare practice.

Authors

- Fremen Chihchen Chou, MD, PhD. School of Medicine, China Medical University and China Medical University Hospital, Taichung, Taiwan. Correspondence: fremen.chou@gmail.com
- Siobhan Fitzpatrick, BA, MA. World Health Organization, Geneva.
- David R. Taylor, MD, MHPE. Queen's University, Kingston, Ontario, Canada.
- Adrian P. Marty, MD, MME. University Hospital Balgrist, University of Zurich, Zurich, Switzerland.
- Mabel Yap, MBBS, MSc, PhD. Ministry of Health Singapore and National University Health System, Singapore.
- Harm Peters, MD, MHPE. Charité – Universitätsmedizin Berlin, Berlin, Germany.

Contextualizing curriculum reform in modern health professions education

Societal expectations of healthcare have expanded significantly over the past few decades, reflecting the increasingly complex and multifaceted health needs of populations.¹ Traditional curricular models in health professions education (HPE), characterized by rigid, analytical, and process-oriented designs, have not adequately adapted to these heightened expectations.^{2,3} This not only leaves graduates unprepared for the complex realities of modern healthcare practice but also places patients at risk due to the misalignment between HPE and healthcare needs.^{3–5} Consequently, leaders in healthcare globally, including the Lancet Commission and the World Health Organization, are advocating for a shift toward competency-based HPE to address these needs.^{2,6,7}

Entrustable professional activities (EPAs) can bridge the current gap between CBE and healthcare delivery. EPAs, as units of professional practice, are conferred on learners upon demonstrating requisite competence, emphasizing the provision of professional work as the outcome of education. A curricular design incorporating EPAs provides a practice-oriented approach to operationalizing the premise of CBE. EPAs provide a framework for sequenced progression through training focused on practice-based outcomes. They can tailor teaching and learning activities to the development of competencies and assess competence through professional activities and entrustment decisions.^{3,8,9} With EPAs, CBE more effectively integrates education and healthcare as an interdependent system by aligning and optimizing their delivery, thus better addressing existing gaps.^{3,4} EPAs' strength in healthcare education is the translation of competencies into tangible, easy-to-communicate building blocks for curriculum transformation, fostering a gradual increase of professional autonomy, responsibility, and accountability.^{9,10}

Frameworks for curriculum reform

The transition to or implementation of an EPA-based CBE program represents an educational paradigm shift and can be clearly characterized as major curriculum reform.¹⁰ The changes required for curriculum reform of this scope extend beyond learning objectives, curricular content, teaching methods, assessment approaches, and learning resources. They also involve support areas such as governance structures, administration, facilities, teacher training, evaluation, quality assurance, and, importantly, the underpinning philosophy of learning, the curriculum's goals, and the culture of education.^{11–13} The complexity of this type of change brings numerous potential pitfalls and requires that project leaders use a strategic approach.¹⁴ While most of the principles discussed in the following sections apply to managing any major curriculum reform, this chapter contextualizes the reform in the transition to CBE and highlights the roles of using EPAs.

There is no single established approach or framework to manage major curriculum reform successfully.¹⁰ In practice, it involves a blend of the two closely related concepts of project management and change management (Table 22.1). Project management refers to the more technical aspects of curriculum reform. It involves the planning, implementing, and monitoring of projects to achieve specific goals within a set timeframe.¹⁵ Change management focuses on the human side of the reform. It involves communicating, preparing, supporting, and helping individuals, teams, and organizations to cocreate, embrace, and implement change at macro, meso, and micro levels.¹⁵

Drawing from the different models for project management and change management, five essential themes for managing curriculum reform become apparent^{13,24}:

Communication: Build understanding, consensus, and ownership of the change among trainees, faculty, governance structures, administrators, communities, and other stakeholders.

Iterative design: Introduce change effectively through pilots with an iterative design process, based on continuous feedback, anticipating and addressing potential challenges.

Table 22.1: Key characteristics of project management and change management in curriculum reform.

Area	Project management	Change management
Models and frameworks	<ul style="list-style-type: none"> • PDSA (plan, do, study, act) cycle¹⁶ • Strengths, weaknesses opportunities, threats (SWOT) analysis¹⁷ • Agile management framework¹⁸ • Design thinking (empathize, define, ideate, prototype, test)¹⁹ 	<ul style="list-style-type: none"> • Kotter's eight steps (see example in Table 22.2)²⁰ • Roger's diffusion of innovation theory²¹ • Lewin's three-stage model of freeze–defreeze–freeze²² • ADKAR (awareness, desire, knowledge, ability, reinforcement) model²³
Strategies and tasks	<ul style="list-style-type: none"> • Define the scope and goals • Establish the governance structure • Analyze and allocate resources • Manage time and time as a resource¹³ • Establish and manage communication channels • Pilot and sequence implementation • Monitor performance, including quality control • Identify and manage risks • Close the project 	<ul style="list-style-type: none"> • Make the need for change tangible • Analyze readiness for change • Analyze and engage the stakeholders • Provide opportunities for cocreation, coproduction to support buy-in • Facilitate the local adaptation of the change (glocalization) • Communicate with all involved (upward and downward) • Deal with resistance and threats • Provide training and support (empower) • Evaluate for early and continuous refinement and quality improvement • Sustain the change

Leadership: Navigate the power dynamics and politics essential for change implementation and sustainability.

Teamwork: Leverage the often-limited available time and resources for maximum impact by engaging champions from various stakeholders and forming a functional project management team.

Evaluation and refinement: Continuously assess and adapt curricular elements to sustain change, ensuring constructive alignment both within the elements and with the underpinning philosophy.

It is important to note that these elements of the management of change in HPE, though introduced here in a linear fashion for ease of understanding, do not follow a strict sequence when practiced in the real world. They may unfold in parallel or iteratively following an order that suits the specific situation, illustrating the complexity and nature of change within HPE. Major curriculum reforms regard time as a resource rather than only a goal to be attained, and should be planned over years, not months.^{13,24}

As we move from traditional models to CBE frameworks with EPAs, what begins with minor curriculum changes—such as introducing a new assessment method—reflects incremental steps toward major curriculum reform. These small steps contribute to a shift toward a fundamentally different educational paradigm. Thus, managing change in the transition toward CBE with EPAs requires a well-coordinated approach between incremental change and overarching reform. Each step or adjustment must be carefully orchestrated, understanding that it contributes to a larger transformation. This discussion offers a roadmap for navigating this complex process, ensuring that each change, no matter how small, aligns with the ultimate goal of a reformed, more effective HPE system.

Using the core components framework to set the blueprint for an EPA-based curriculum

To initiate EPA-based curriculum reform, it is crucial to see both ‘the forest’ and ‘the trees.’ A holistic vision is necessary to sustain the momentum of change, utilizing change management strategies that focus on *people* management. At the same time, detailed, actionable steps are necessary for implementation, requiring *project* management. The integration of project management and change management, with alignment of actions, is imperative to facilitate both organizational and cultural change.^{2,11,13}

Visualizing the whole picture of the curricular blueprint for an EPA-based curriculum is crucial to the development of detailed project management plans. Van Melle’s core components framework for the implementation and evaluation of CBE elaborates its operationalization and supporting philosophy.⁸ In this model, the five components include ‘outcome competencies’ framing the designed ‘sequenced progression’ in a local program context, to guide the development of ‘competency-focused instruction,’ ‘tailored learning experiences,’ and ‘programmatic assessment.’⁸ This core components framework delineates the alignment of curricular elements in CBE and can serve as the blueprint when preparing for major curriculum reform.

First, a defined and elaborated set of EPAs as the outcome of training operationalizes the competencies required for practice and allows for backward curricular design (start with the end in mind). The sequence of learning in the curriculum could be established by setting the expected trajectory of supervision level and the application of nested EPAs (see Chapter 10).^{9,25} Second, this work is followed by the development of teaching or instructional methods and designed learning experiences to facilitate the acquisition of competencies required to practice the EPAs. This includes the application and extension of canonical competence and the development of contextual competence, aiming to support increasing autonomy as trainee competence grows (see Chapter 2). Third, the curriculum needs to create a programmatic approach to assessment embedded within the instructional and learning activities. This assessment informs the progression of entrustment as trainees move through their trajectory of legitimate participation in the community of healthcare professionals. These dimensions of curricular design need to be considered and balanced in detailed project management plans. Hall et al. reported a case study in Canada where an imbalance occurred due to an overemphasis on programmatic assessment; the granularity of assessments undermined the curriculum reforms of competency-focused instruction and tailored learning experiences.²⁶

A proven approach to curriculum reform is to strategically leverage international experiences and literature—standing on the shoulders of giants. Borrowing relevant EPA definitions or assessment tools can be beneficial, but this global wisdom *must* undergo a process of contextualization and localization, or ‘glocalization,’ to ensure cultural appropriateness and linguistic consensus, as suggested by Chou et al.²⁷ Comprehensive projects such as Ireland’s internship EPA initiative, which underwent eight stages from establishing a local consensus on EPA templates to stakeholder development and international benchmarking, illustrate the process and value of ‘glocalization.’²⁸ The significance of such an initiative lies not only in developing and implementing a comprehensive set of EPAs but also in its thorough process to foster buy-in, ownership of change, as well as faculty and key stakeholder development.

Managing curriculum reform in three phases

The curriculum reform involving the implementation of EPA-based CBE, like any other major curriculum reform, generally proceeds through three sequential and interrelated phases: initia-

tion, implementation, and sustainability.¹⁰ Maaz et al. provides an example how project and change management strategies were applied through these phases in a large European medical university transitioning its undergraduate education program to CBE using EPAs as the foundation.¹⁰ Each phase has important goals, which should reflect a cohesive change management strategy. Table 22.2 illustrates the potential guiding questions of managing changes in EPA-based curriculum reform with Kotter's eight-step model,²⁰ mapped onto the three phases of curriculum reform, with key features of these three phases from a change management perspective.

Table 22.2: Phases and potential guiding questions of managing changes in EPA-based curriculum reform.

Phases and functions in change management	Kotter's eight steps for leading change as an exemplary model	Guiding questions
Initiation phase: Creating the climate for change	1. Create a sense of urgency	<ul style="list-style-type: none"> • What's the problem with current practice? • What is the burning platform? • Why EPAs and why now? • What are the opportunities? • Where can we reduce friction?
	2. Form a powerful coalition	<ul style="list-style-type: none"> • Who can contribute to the curriculum development process or effect change—faculty, academic leadership, patients, communities, and learners? • Will there be a working group? • Who can champion the agenda?
	3. Develop a strategic vision	<ul style="list-style-type: none"> • Where do we want to go from here? • How do we collaborate to draft what the EPAs might be? • What changes are needed—assessment, learning activities, or physical spaces? • Will this be a curriculum change or curriculum reform?
Implementation phase: Engaging and enabling the organization	4. Communicate the vision	<ul style="list-style-type: none"> • What are the processes or strategies to communicate with various stakeholders?
	5. Enable action	<ul style="list-style-type: none"> • What are the opportunities to get involved? • How can you or someone else lead the change? • To what extent do stakeholders involved have a say in action? • What resources are needed? • How can these resources be leveraged? • What faculty training is needed? • What time will it take to support and enable change?
	6. Produce short-term wins	<ul style="list-style-type: none"> • What will the short-term win look like? • What is its role in overall reform? • How and when should it be celebrated?
Sustainability phase: Refining and sustaining the change	7. Build on the change	<ul style="list-style-type: none"> • What has been achieved? • How can we continuously improve? • What is the next step?
	8. Create a new culture	<ul style="list-style-type: none"> • Are the changes fit for the purpose of the reform? • What are the differences (underpinning philosophy of learning and education outcome) between the reform and original curriculum?

Elaborating on the Kotter model, and based on the experiences of the authors and the literature, we suggest paying attention to 11 key components in these three phases of curricular change management (Table 22.3), elaborated below.

Initiation phase

Communicating the sense of urgency for curriculum reform. Essential preparation for curriculum reform must include actions that create readiness for change and inspire individuals and groups to engage in the transition toward an EPA-based curriculum.^{12,20} This includes creating a sense of urgency, presenting an appealing vision of the future curriculum, and fostering confidence that these changes can be achieved.²¹ Emphasizing ongoing challenges in patient safety and quality of care can highlight the need to better prepare graduates for a rapidly evolving healthcare landscape.⁶ Additionally, there is a critical need for alignment and integration between healthcare and education systems.^{3,5} EPAs' strengths in providing an outcome of education that is directly tied to the readiness of graduates to perform the work of the profession demonstrates how the proposed change can bring this alignment.

Building the project team and the vision. Two important goals in the initiation phase include reaching an agreement on the blueprint for the new EPA-based curriculum (the vision) and establishing a project management team.^{10,29} The project management team should preferably be recruited from within the organization and include a mix of expertise in education (curriculum development, CBE, and EPAs), clinical practice, and project and change management. In addition, learners should also be included as full team members. This core team relieves the larger faculty from the substantial structural and content-related work that curriculum reform requires, minimizing the impact on patient care, research, and teaching responsibilities.^{10,29} Framing and communicating the strategic vision to stakeholders become central responsibilities for this team. An important early task of the project team is to position the initiative visibly within the faculty, providing transparency around important aspects of the project including governance, decision-making processes and policies, curriculum planning, and planned implementation.

Success in curriculum reform requires open, transparent, and ongoing dialogue—aiming to demonstrate, not just assert, the need for change by 'showing the gaps' in current practices. This process should reveal and clarify curricular challenges, allowing a shared vision and main strategy to emerge through discussion. For instance, Jonker et al. opened a public dialogue on certification decisions in postgraduate training with the question 'Would you trust your loved ones to this

Table 22.3: Eleven components of curricular change management to pay attention to.

Initiation phase	<ul style="list-style-type: none"> • Communicating the sense of urgency for curriculum reform • Building the project team and the vision
Implementation phase	<ul style="list-style-type: none"> • Setting up a standardized planning process • Piloting and implementing sequentially • Communicating and listening • Providing space for discussion and engaging a large body of faculty • Involving trainees at many levels • Creating opportunities for codesign and for empowerment • Anticipating resistance to change • Celebrating successes
Sustainability phase	<ul style="list-style-type: none"> • Program evaluation and continuous quality improvement

trainee?²³⁰ Transparent discussion can facilitate the development of a shared vision for curricular changes by expanding ownership and building a shared mental model about the underlying principles of CBE, thereby reducing barriers and fostering longevity. Addressing the question ‘What’s in it for me with EPAs?’ can create opportunities for engagement in codesign and cocreation with various stakeholders.³¹

Another key is the active and visible support of faculty leaders, either as change leaders²⁰ in managing and directing the change toward EPAs or as sponsors by providing support, resources, and advocacy. It also necessitates support and ownership across multiple levels of the institution, encompassing individuals in senior leadership positions, faculty, and those involved in curriculum delivery.¹³ Crucially, the engagement of trainees and patients who are impacted by the curriculum reform fosters the effectiveness and acceptability of implementation. Ignoring them can lead to negative consequences for curriculum reform and adoption. Through engaging various stakeholders, building a shared mental model for change, and recognizing champions, a powerful coalition emerges.

Implementation phase

The most labor- and resource-intensive part of major curriculum reform is the implementation phase.¹⁰ An estimation for the duration of this phase is to add at least one year to the duration of the curriculum (i.e., a minimum of six years for a five-year curriculum plan, even once the plan and the desired outcomes have been agreed upon). The greater the gap between the existing and the future program, the more resources will be needed. Successful implementation cannot be taken for granted and includes the possibility of failure and reverting to the previous situation.¹² Below are key activities and strategies to manage implementation.

Setting up a standardized planning process. This helps to work out the details of the curriculum blueprint for each part of the new curriculum.¹⁰ This process should outline who participates in the planning process, their roles, and who chairs the planning group, including the procedure for their election. Policies around decision making and conflicts of interest are important to prevent problems that can easily emerge in these groups. Simplicity helps. For example, holding meetings on the same day, time, and location can enable better attendance. Start with a bottom-up perspective (what do people in the planning group want to contribute?), match this with the curriculum blueprint for the respective time block, and finalize the process using a discursive top-down process. Achieving consensus should be the main decision-making principle. Formal, written procedures should be put in place in advance to manage conflicts and define what constitutes consensus (majority, absence of ‘no’ votes, quorum, etc.). In addition to addressing the ‘who’ and the ‘how,’ it is crucial to consider ‘what’ needs to be done at different stages (‘when’) of developing and implementing an EPA-based curriculum. The literature provides numerous examples detailing the tasks required at various stages.^{10,28} For instance, Chapter 9 offers comprehensive approaches to identifying and elaborating EPAs in the early stages to prepare for curriculum reform. As previously mentioned, time should be regarded as a resource rather than merely a goal to be attained in major curriculum reforms.¹³ Planning should span years, not months.¹³ Figure 22.1 illustrates an example of a planning scheme across multiple years, created early in the process and used to monitor the project’s progress and ensure it remains on track.

Piloting and implementing sequentially. Both approaches allow the identification of potential problems or challenges on a smaller scale before reforms are rolled out across the entire curriculum, enabling iterative adjustments based on feedback from the real-world context.¹⁰ It can also build confidence in the organization that the intended changes can be managed. Piloting with a smaller group of trainees, with a single module, and/or implementing sequentially will make it more likely that the reforms will be successful in the long term through the accumulation of granular short-term wins that make the intended goals seem achievable.

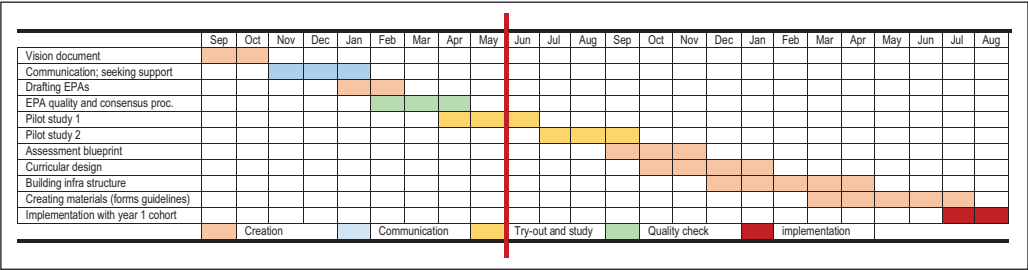


Figure 22.1: Example of a project planning scheme for curriculum development.

Supporting information technology is considered a key factor for the success of CBE.¹³ Continuous piloting is necessary for the alignment of information systems and adjustments during the practical implementation of CBE. Through iterative improvements, these efforts can eventually lead to a seamless experience in the workplace learning environment. For example, conducting assessments, providing feedback, and generating learning records should not overly disrupt the workflow or create excessive additional burdens.³² Only through such repeated refinements can the reform become integrated into daily practice.

Communicating and listening. A key task of the project team is to communicate actively and effectively about the progress of the change process through multiple channels, ensuring listening, reflection, and adaptation to insights gained.^{10,24} Establishing communication channels for dialogue, listening, and information dissemination is essential to ensure stakeholder buy-in, support, and engagement. In addition to these project-specific communication initiatives, conventional communication channels such as email, blogs, and faculty or departmental announcements should also be leveraged.

Providing space for discussion and engaging a large body of faculty. Open planning sessions (or ‘townhall’ sessions) increase transparency in the organization and provide space for discussion.^{10,12} This facilitates the development of shared views about the reform process, the diffusion of the curriculum reform concept within the host organization, and the future expectations of faculty members involved in delivering the program. In addition, all stakeholders should have the opportunity to weigh the need for reform against the effort required, considering the consequences both for patient care and for their own practice. The implementation of EPAs should translate educational reform directly into improved patient care. Developing this understanding, relaying expectations, and responding to concerns facilitate the ongoing implementation work. The participation of faculty members in these open planning sessions is an important, natural, and efficient faculty development process. Formal faculty development planning is also a key task in the implementation stage.¹³ Faculty development should further expand to stakeholder development, encompassing leaders, trainees, and administrators. (For details on faculty and stakeholder development, see Chapter 23.)

Involving trainees at many levels. Trainees are experts in their own learning experience and how the current and new curricula are experienced in action.¹⁰ Their insights can help identify gaps and redundancies. They often bring fresh ideas for tackling problems and improving the new curriculum, including alignment of intended, taught, learned, and assessed content. Involving trainees at multiple levels of curriculum reform, including in the development of the curriculum blueprint, in the project team, and in block planning groups, which, for example, organize the curriculum into thematic modules, promotes ownership of both their own learning and the new curriculum. By involving trainees, we ensure that their rights and responsibilities are appropriately balanced in the workplace.¹³ This not only fosters trainee buy-in but also ensures the

feasibility of the EPA-based curriculum. It prevents overly idealistic designs from leading to unexpected, nonideal strategies on the part of the trainees.³³

Creating opportunities for codesign and for empowerment. Engaging teaching faculty and trainees in decision making about processes and outcomes should build on opportunities to codesign the change.¹⁰ This allows insights from their experiences, which can actively shape the proposed change. It promotes their buy-in and helps to manage resistance. Coownership can be facilitated by giving many of them active roles and responsibilities as formal members or chairs of the block planning groups or for individual teaching courses.¹⁰ Planning meetings should include regular faculty development activities related to the change process and the teaching of the new curriculum to empower those involved in this process.

Anticipating resistance to change. Resistance to change is normal and should be expected.^{10,21} It need not be feared and must not be ignored. Many of the strategies mentioned above will help mitigate resistance from faculty members, especially when their concerns are heard and addressed in subsequent discussions and decisions. Identifying the source of resistance is crucial, as solutions for issues related to cost and effort differ from those stemming from a lack of ownership of the change.

One major resistance to CBE and EPA-based curricula is the challenge around assessments, observation, and feedback in the workplace, including competing clinical demands, workflow, supervisor-trainee interaction, and 'assessment burnout.'^{32,33} Chapter 20 addresses practical and conceptual challenges in workplace-based assessment.

Celebrating successes. Major curriculum reform is a long-term endeavor with uncertain outcomes for many involved. Openly recognizing and celebrating early and ongoing achievements fosters confidence that change can be managed and maintains commitment and motivation throughout the process.²⁰ It will also maintain the commitment and motivation of those involved in the ongoing process of changing the entire curriculum.

Sustainability phase

Program evaluation and continuous quality improvement. Key factors contributing to the sustainability of the change process include: (a) departments maintaining their valued role in teaching and (b) demonstrating that the intended new outcomes are achieved by trainees and, where that is not evident, that programs are positioned to respond and adapt.¹⁰ These factors facilitate the new curriculum structures, establishing themselves as the new standard operating procedures. This in turn allows for continuous adaptation and improvement through regular program evaluation and continuous quality improvement measures⁵ (see Chapter 24 for details about program evaluation and continuous quality improvement). While the role of the project team gradually fades, they will have laid the foundation for this phase during the implementation phase, namely the tasks and strategies related to the buy-in, cocreation, and empowerment of the teaching faculty and learners involved in the EPA-based curriculum and its delivery.

It is important to view CBE as a dynamically evolving, iteratively improving concept.³ Thus, the new curriculum will never be 'finished,' and curriculum change should be seen as a constant state, requiring a curriculum development group or department. The philosophies, concepts, and practices associated with the new curriculum will lead to a change in organizational culture.³⁴ This takes time as it involves collective learning and unlearning old habits and beliefs. The literature includes examples of curriculum reform for EPA-based programs.^{10,35,36} Box 22.1 presents one example of curriculum reform in postgraduate education in Asia, demonstrating the application of change management and project management strategies and principles discussed in this chapter, and offering valuable reflections for future directions.

Box 22.1: Case study: 12-year journey of transitioning to competency-based emergency medicine residency training in Taiwan.

Overview

In 2011, a medical professor's newspaper editorial questioning the value of emergency medicine specialty training prompted action. Clinician educators in the Taiwan Society of Emergency Medicine (TSEM) formed a coalition to reform training with a CBE approach. In 2012, the TSEM Education Committee proposed a five-year curriculum reform plan, using milestones and EPAs to operationalize competence outcomes. Milestones guided canonical competencies and provided supervisor feedback, while end-of-training EPAs structured contextualized competencies.

By 2013, a CBE taskforce, including leaders from 80% of Taiwan's emergency medicine training programs, was established. Bimonthly meetings using consensus methods resulted in shared mental models and iteratively developed EPAs and milestones. The principle of 'glocalization' increased clinical teacher involvement and fostered local ownership,²⁷ with national surveys generating candidate professional activities for EPAs. This led to seven EPAs as a framework, and the development of curricula and assessment tools for underdeveloped competencies, such as delivering bad news.

The initial five-year plan was extended to eight years for preliminary completion. The TSEM continued to evaluate and plan for subsequent phases, including an attempt to link specialty licensure with competency-based training, implementing national mid-term residency assessments, developing a national competency-based assessment and learning system, and promoting clinical competency committees. Periodic consensus forums led by international scholars fostered sustainable reform and cultural change.

Analysis

This 12-year journey encompassed strategies from the initiation, implementation, and sustainability phases discussed in this chapter, achieving initial success and positioning TSEM as a leader in the CBE transition in Taiwan. However, challenges remain, such as insufficient trainee and patient involvement and maintaining momentum after the initial success. Assessment has often overshadowed the development of tailored curricula and learning experiences. Robust information systems are crucial for effective CBE implementation, yet national systems have faced limitations in meeting local training program needs. The initial success of this journey demonstrates effective change management strategies, but ongoing challenges must be addressed to ensure sustained progress with continuous quality improvement.

Acknowledgments

This chapter draws substantially from a paper published in *Medical Teacher*.¹⁰ ChatGPT 4o aided in sentence editing.

Competing interests

The authors declare that they have no competing interests.

References

1. Farrell TW, Greer AG, Bennie S, Hageman H, Pfeifle A. Academic health centers and the quintuple aim of health care. *Acad Med*. 2023;98(5):563–568. DOI: <https://doi.org/10.1097/ACM.0000000000005031>
2. Frenk J, Chen L, Bhutta ZA, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet*. 2010;376(9756):1923–1958. DOI: [https://doi.org/10.1016/S0140-6736\(10\)61854-5](https://doi.org/10.1016/S0140-6736(10)61854-5)
3. Holmboe ES. Competency-based medical education and the ghost of Kuhn: reflections on the messy and meaningful work of transformation. *Acad Med*. 2018;93(3):350–353. DOI: <https://doi.org/10.1097/ACM.0000000000001866>
4. O'Brien BC, Reed DA. Exploring the intersections of education and healthcare delivery using a clinical learning environment framework. *J Gen Intern Med*. 2019;34(5):654–656. DOI: <https://doi.org/10.1007/s11606-019-04929-4>
5. Holmboe ES, Kogan JR. Will any road get you there? Examining warranted and unwarranted variation in medical education. *Acad Med*. 2022;97(8):1128–1136. DOI: <https://doi.org/10.1097/ACM.0000000000004667>
6. Irby D. Educating physicians for the future: Carnegie's calls for reform. *Med Teach*. 2011;33(7):547–550. DOI: <https://doi.org/10.3109/0142159X.2011.578173>
7. World Health Organization. *Global Competency and Outcomes Framework for Universal Health Coverage*. World Health Organization; 2022. Accessed March 4, 2024. <https://www.who.int/publications/i/item/9789240034662>
8. Van Melle E, Frank JR, Holmboe ES, et al. A core components framework for evaluating implementation of competency-based medical education programs. *Acad Med*. 2019;94(7):1002–1009. DOI: <https://doi.org/10.1097/ACM.0000000000002743>
9. ten Cate O, Chen HC, Hoff RG, Peters H, Bok H, van der Schaaf M. Curriculum development for the workplace using entrustable professional activities (EPAs): AMEE guide no. 99. *Med Teach*. 2015;37(11):983–1002. DOI: <https://doi.org/10.3109/0142159X.2015.1060308>
10. Maaz A, Hitzblech T, Arends P, et al. Moving a mountain: practical insights into mastering a major curriculum reform at a large European medical university. *Med Teach*. 2018;40(5):453–460. DOI: <https://doi.org/10.1080/0142159X.2018.1440077>
11. Reis S. Curriculum reform: Why? What? How? And how will we know it works? *Isr J Health Policy Res*. 2018;7(1):30. DOI: <https://doi.org/10.1186/s13584-018-0221-4>
12. Bank L, Jippes M, Scherpbier AJJA, FeddeScheele. Change management support in post-graduate medical education: a change for the better. In: Tsoulfas G, ed. *Medical and Surgical Education—Past, Present and Future*. InTech eBooks; 2018. DOI: <https://doi.org/10.5772/intechopen.72113>
13. Nousiainen MT, Caverzagie KJ, Ferguson PC, Frank JR, ICBME Collaborators. Implementing competency-based medical education: what changes in curricular structure and processes are needed? *Med Teach*. 2017;39(6):594–598. DOI: <https://doi.org/10.1080/0142159X.2017.1315077>
14. Dagnone JD, Taylor D, Acker A, et al. Seven ways to get a grip on implementing competency-based medical education at the program level. *Can Med Educ J*. 2020;11(5):e92–e96. DOI: <https://doi.org/10.36834/cmej.68221>
15. Creasey T. Change management and project management: a side by side comparison. Prosci, Inc. 2021. Accessed February 28, 2024. <https://www.prosci.com/blog/change-management-and-project-management-comparison>
16. Christoff P. Running PDSA cycles. *Curr Probl Pediatr Adolesc Health Care*. 2018;48(8):198–201. DOI: <https://doi.org/10.1016/j.cppeds.2018.08.006>

17. Teoli D, Sanvictores T, An J. SWOT analysis. In: *StatPearls*. StatPearls Publishing; 2023.
18. Desai M, Tardif-Douglin M, Miller I, et al. Implementation of agile in healthcare: methodology for a multisite home hospital accelerator. *BMJ Open Qual*. 2024;13(2):e002764. Published 2024 May 27. DOI: <https://doi.org/10.1136/bmjoq-2024-002764>
19. Deitte LA, Omary RA. The power of design thinking in medical education. *Acad Radiol*. 2019;26(10):1417–1420. DOI: <https://doi.org/10.1016/j.acra.2019.02.012>
20. Kotter J, Rathgeber H. Our iceberg is melting: changing and succeeding under any conditions. Penguin Random House LLC; 2005.
21. Sanson-Fisher RW. Diffusion of innovation theory for clinical change. *Med J Aust*. 2004;180(S6):S55–S56. DOI: <https://doi.org/10.5694/j.1326-5377.2004.tb05947.x>
22. Burnes B. Kurt Lewin and the planned approach to change: a re-appraisal. *J. Manag. Stud*. 2004;41(6):977–1002.
23. Shepherd ML, Harris ML, Chung H, Himes EM. Using the awareness, desire, knowledge, ability, reinforcement model to build a shared governance culture. *JNEP*. 2014;4(6):90.
24. Gale R, Grant J. AMEE medical education guide no. 10: managing change in a medical context: guidelines for action. *Med Teach*. 1997;19(4):239–249. DOI: <https://doi.org/10.3109/01421599709034200>
25. ten Cate O, Taylor DR. The recommended description of an entrustable professional activity: AMEE guide no. 140. *Med Teach*. 2021;43(10):1106–1114. DOI: <https://doi.org/10.1080/0142159X.2020.1838465>
26. Hall AK, Rich J, Dagnone JD, et al. It's a marathon, not a sprint: rapid evaluation of competency-based medical education program implementation. *Acad Med*. 2020;95(5):786–793. DOI: <https://doi.org/10.1097/ACM.0000000000003040>
27. Chou FC, Hsiao CT, Yang CW, Frank JR. 'Glocalization' in medical education: a framework underlying implementing CBME in a local context. *J Formos Med Assoc*. 2022;121(8):1523–1531. DOI: <https://doi.org/10.1016/j.jfma.2021.10.024>
28. O'Dowd E, Lydon S, O'Connor P, Boland J, Offiah G, Byrne D. The development of a framework of entrustable professional activities for the intern year in Ireland. *BMC Med Educ*. 2020;20(1):273. DOI: <https://doi.org/10.1186/s12909-020-02156-8>
29. de Graaf J, Bolk M, Dijkstra A, van der Horst M, Hoff RG, ten Cate O. The implementation of entrustable professional activities in postgraduate medical education in the Netherlands: rationale, process, and current status. *Acad Med*. 2021;96(7S):S29–S35. DOI: <https://doi.org/10.1097/ACM.0000000000004110>
30. Jonker G, Ochtman A, Marty AP, Kalkman CJ, ten Cate O, Hoff RG. Would you trust your loved ones to this trainee? Certification decisions in postgraduate anaesthesia training. *Br J Anaesth*. 2020;125(5):e408–e410. DOI: <https://doi.org/10.1016/j.bja.2020.07.009>
31. Luke K. Twelve tips for managing change in medical education. *MedEdPublish*. 2021;10(1). DOI: <https://doi.org/10.15694/mep.2021.000053.1>
32. Bentley H, Darras KE, Forster BB, Sedlic A, Hague CJ. Review of challenges to the implementation of competence by design in post-graduate medical education: what can diagnostic radiology learn from the experience of other specialty disciplines? *Acad Radiol*. 2022;29(12):1887–1896. DOI: <https://doi.org/10.1016/j.acra.2021.11.025>
33. Gauthier S, Braund H, Dalgarno N, Taylor D. Assessment-seeking strategies: navigating the decision to initiate workplace-based assessment. *Teach Learn Med*. Published online June 29, 2023. DOI: <https://doi.org/10.1080/10401334.2023.2229803>
34. Franz A, Peters H. Diving beneath the surface of major curriculum reform using Bourdieu's field theory. *Med Educ*. Published online December 4, 2023. DOI: <https://doi.org/10.1111/medu.15288>

35. Mejicano GC, Bumsted TN. Describing the journey and lessons learned implementing a competency-based, time-variable undergraduate medical education curriculum. *Acad Med.* 2018;93(3S):S42-S48. DOI: <https://doi.org/10.1097/ACM.0000000000002068>
36. ten Cate O, Graafmans L, Posthumus I, Welink L, van Dijk M. The EPA-based Utrecht undergraduate clinical curriculum: development and implementation. *Med Teach.* 2018;40(5):506–513. DOI: <https://doi.org/10.1080/0142159X.2018.1435856>