All stakeholders matter in faculty development

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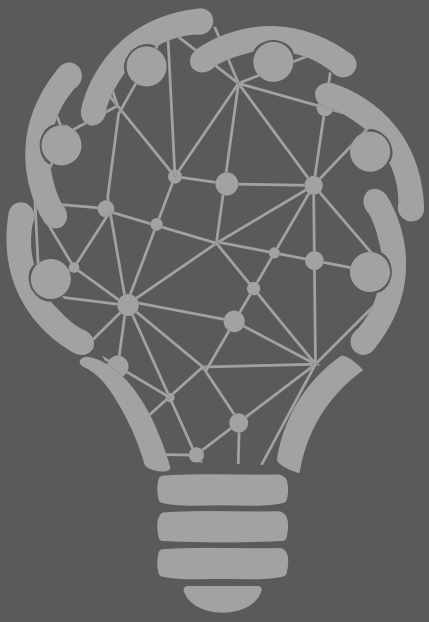
Designing entrustable professional activities for small group facilitation



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CHAPTER 1

General Introduction

Teachers use to struggle in facilitating small group learning activities because, in most countries, they receive little or no training before taking up this academic role (Campbell, Wozniak, Philip, & Damarell, 2019). To empower teachers to pursue their academic tasks competently, many institutes offer a wide range of faculty development activities that vary in format, context, and complexity (Steinert, 2014; Steinert et al., 2016). Yet, the effectiveness of such training has remained controversial, because most teacher training activities are designed and executed around individual or institutional *wish lists,* and little emphasis is placed on structuring the training and evaluating its impact on teaching practices (Al-Eraky & McLean, 2012; Iqbal, Al-Eraky, & AlSheikh, 2018). To improve training effectiveness, a systematic approach is needed that supports a structured professionalization of teachers (Dewey, Jonker, ten Cate, & Turner, 2017; Sherbino, Frank, & Snell, 2014). More recently, entrustable professional activities (EPAs) have been suggested as a novel approach to structure training and evaluate professional competence thereafter (Dewey et al., 2017; Gardner, Gee, & Ahmed, 2018; Iqbal & Al-Eraky, 2019). However, literature remains devoid of an EPA framework for small group facilitation. The main goal of this project is to provide a comprehensive EPA framework to the educational community that is customized for small group facilitation.

In this General Introduction chapter, we first provide a theoretical framework on faculty development and its current challenges, followed by a description of EPAs and their suitability to address the gaps in current faculty development practices. After arguing the need for designing EPAs for small group facilitation, we delineate the research questions followed by a brief preview of the respective studies conducted to answer them.

What is Faculty Development?

Faculty development refers to all activities that are conducted to prepare teachers for their diversified academic responsibilities as facilitators, leaders, managers, assessors, administrators, program developers, and/or researchers (Steinert, 2014). Faculty development can be used to drive change at individual, curricular, and institutional levels. Although faculty development is a multipurpose platform, most training programs primarily focus on improving the teaching skillset of the faculty in educational settings (Fabry & Härtl, 2017). In the context of teaching and learning, faculty development is defined as the coherent sum of activities targeted to improve the teaching competence of participants to positively influence student learning (De Rijdt, Stes, van der Vleuten, & Dochy, 2013).

Faculty development has become an imperative necessity rather than a luxury. Many medical institutes now recognize faculty training as an essential support system for teachers, especially for those who have not undergone any specialized training before staffing (Daouk-öyry, Zaatari, Sahakian, Alameh, & Oyry, 2017; Dewey, Jonker, ten Cate, & Turner, 2017). Some institutes have moved a step further by linking compulsory training with teachers'

promotion and tenure track decisions (Fabry & Härtl, 2017). Faculty development programs vary in duration, settings, and complexity depending upon the institutional resources, faculty commitment, and intended program objectives. A wide range of instructional methods can be used for faculty development, such as, interactive lecturing, group discussions, and hands-on exercises in which teachers actively participate to polish their teaching skills (Steinert, 2014). The commonly used formats for training include workshops, seminars, conferences, short courses, and certification programs.

Contemporary Challenges in Faculty Development

The key features of effective faculty development programs include evidence-based educational design, content relevance, experiential learning, opportunities for practice and feedback, collegiality, and transfer of training to the workplace (Steinert et al., 2006; 2016). Most of these features can be incorporated through longitudinal training that is structured in its design, resulting in more pronounced effectiveness and sustainability (Chandran, Gusic, Lane, & Baldwin, 2017; Steinert et al., 2016). However, often faculty development activities are designed and executed around teachers' perceived needs or institutional wish-lists, and a structured training format is not followed (Al-Eraky & McLean, 2012; Iqbal et al., 2018), which can be seen as a challenge in faculty development. Although multiple factors could be responsible for the unstructured training, a prominent reason is the lack of a framework that can guide the design of systematic teacher training programs (Iqbal & AlSheikh, 2018; Lim & Choy, 2014; Salinitri, Wilhelm, & Crabtree, 2015). A structured faculty development program provides a clear training roadmap to the trainee teachers to pursue their continuous professional development. It also helps teachers to understand the training rationale, to develop a specific teaching skillset, and to build a community of practice (Lim & Choy, 2014; Steinert & McLeod, 2006).

The second challenge in faculty development is that training programs often pay little attention to assessing its effectiveness in bringing the desired change in teaching practices. Without evidence, teacher participation alone may be insufficient to guarantee an improved teaching performance in academia (Sherbino et al., 2014). Ironically speaking, we do not permit medical trainees to practice independently without prior validation from experts. Yet, we often permit medical teachers to plan and conduct educational activities independently after training without ensuring their competence.

It is about time that we start evaluating teachers' performance so that they can be *entrusted* to perform their teaching tasks in an expert fashion. Many scholars have already emphasized on performance evaluation and advocated the inclusion of a structured evaluation system in faculty development (Griewatz, Simon, & Lammerding-Koeppel, 2017; Iqbal & Al-Sheikh, 2018; Lancaster, Stein, MacLean, Van Amburgh, & Persky, 2014; Leslie, Baker, Egan-Lee, Esdaile, & Reeves, 2013; O'sullivan & Irby, 2011; Phuong, Cole, & Zarestky, 2017). Training programs,

however, rarely prioritize evaluating teaching competence and they usually focus on the assessment of participants' satisfaction with the course through oral or written feedback and self-reported change (Kamel, 2016; Singh, De Grave, Ganjiwale, Muijtjens, & van der Vleuten, 2014; Steinert, 2017; Steinert et al., 2016). The gap in teacher evaluation triggers the need for a systematic evaluation system (Iqbal & Al-Eraky, 2018; Sommer et al., 2016). Although other teacher evaluation methods, such as video recordings, pre-tests/post-tests, and faculty reports, have been tried in the past, these approaches might not be enough to generate evidence of teaching competence and teacher readiness to perform daily academic tasks proficiently (Dewey et al., 2017; Iqbal, Könings, Al-Eraky, AlSheikh, & van Merrienboer, 2020; Iqbal & Al-Eraky, 2019). While exploring a potential solution to these challenges, Dewey et al. (2017) and Iqbal and Al-Eraky (2018) proposed the utility of entrustable professional activities (EPAs) to design faculty development programs and to evaluate teaching proficiency.

What are Entrustable Professional Activities (EPAs)?

EPAs were introduced in 2005 to operationalize competency-based medical education and training (ten Cate, 2005). An EPA is defined as "*A unit of professional practice i.e. task or responsibility that can be fully entrusted to a trainee, as soon as s/he has demonstrated the necessary competence to execute this activity independently and proficiently*" (ten Cate et al., 2015, p. 1). An EPA is a core task of a particular professional domain that is essential and important to that profession (ten Cate, 2013).

It is important to mention that not all tasks can be entrustable. For any professional task to be qualified as an EPA, it must have a *clear beginning and an end*. It should be *specific* to a profession or its domain and *focused* with a clear purpose. It must be an *independent* task to achieve a practical outcome and it should not be entangling with other activities for its execution. It should also be *observable* in process and *measurable* in outcome (Post et al., 2016; Taylor et al., 2017; ten Cate, 2018; ten Cate & Pool, 2019). Being observable means that the task can be monitored from beginning to end in all aspects (ten Cate, Scheele, & ten Cate, 2007). And being measurable means that the observer should be able to measure the outcomes of the work once the task performance is complete (ten Cate et al., 2015). Lastly, to successfully perform an EPA, it will always require the integration and application of relevant knowledge, skills and attitudes (Peters, Holzhausen, Boscardin, ten Cate, & Chen, 2017; ten Cate, 2013; ten Cate et al., 2007).

A common misconception in the health professions community is that EPAs are an alternative to competencies, and they can be used interchangeably, which is not the case. EPAs and competencies are two different entities with a different purpose and construct (ten Cate, 2013; ten Cate et al., 2015). An EPA is essentially the professional work expected from a trainee and is person neutral (ten Cate & Pool, 2019). Whereas, a competency is always person-specific as it is a characteristic of an individual, and it relates to the knowledge, skills, and attitudes which

will be required to perform an EPA (Frank et al., 2010; ten Cate et al., 2007). In other words, competencies are descriptors of a person's abilities whereas EPAs are descriptors of a task or work (ten Cate et al., 2015). Upon successful demonstration of the desired competencies while performing the entrustable task, an entrustment decision is made, which certifies that the learner can now perform the task in an expert fashion without any supervision (Englander & Carraccio, 2014). While making an entrustment decision, constructive feedback is also provided to the trainees to guide them further on the areas of improvement (Gingerich et al., 2018; Rekman, Gofton, Dudek, Gofton, & Hamstra, 2016).

The conceptual framework of EPAs advocates its utility in improving the effectiveness of faculty training. The key features of effective faculty development programs that can be well captured in an EPAs-based training are: content relevance, opportunities for practice and feedback, experiential learning, community building, and longitudinal program design. Because of their dynamic characteristics and practical feasibility, EPAs have already been incorporated in numerous training frameworks at both under- and post-graduate levels (Shorey, Lau, Lau, & Ang, 2019) and in various health professional domains (Molgaard et al., 2019; Pittenger et al., 2016). Some studies have also worked on developing EPAs for some teaching domains such as health professional educators (Gruppen et al., 2016), clinical physician teachers (Walsh et al., 2018), program directors (Bing-You, Holmboe, Varaklis, & Linder, 2017), and scholars (Mink, Myers, Turner, & Carraccio, 2018). The efforts to design EPAs for various teaching domains are commendable. However, the existing literature addresses specific teaching roles, and the available frameworks may not be generalizable to other teaching contexts such as small group pedagogy (Iqbal, Al-Eraky, & AlSheikh, 2018).

Why Focus on Small Group Pedagogy?

This project mainly focused on small group pedagogy while designing EPAs, because it is an increasingly popular pre-clinical teaching and learning instructional strategy in health professional schools worldwide. Small group pedagogy is a student-centered approach that promotes active and collaborative learning, and includes problem-based learning (PBL), team-based learning (TBL), simulation-based learning, and learning through skills lab (Edmunds & Brown, 2010; Iqbal et al., 2020). Despite being frequently used as a teaching and learning approach, facilitating small groups sometimes becomes challenging for the teachers, especially for discipline-based program graduates with limited exposure to small group teaching and learning (Assen, Meijers, Otting, & Poell, 2016; Williams & Paltridge, 2016). Moreover, stimulating active learning, critical thinking and facilitating constructive discussions among students is more difficult than it is often perceived (Edmunds & Brown, 2010). The occasional struggle of teachers during small group facilitation causes them to fall back to their conventional and didactic teaching styles (Lim & Choy, 2014). These issues suggest that it is essential to train

and entrust teachers prior to allocating them small group facilitation roles. However, literature remains devoid of a comprehensive EPA framework that can be used to train and entrust small group facilitators, which this PhD project aimed to develop and validate.

Who should Design the EPA Framework?

A common narrative in the literature is that only subject or specialty experts should be responsible for designing EPAs to ensure quality and credibility (Taylor, Park, Smith, ten Cate, & Tekian, 2020). Indeed, subject experts play a key role in educational development, but it is equally important to also involve those stakeholders in the development process who are the beneficiaries or consumers of the designed product (Könings, Bovill, & Woolner, 2017). Similarly, many EPA development studies also resonate with the idea of engaging different stakeholders in the design process to ensure the incorporation of all stakeholders' viewpoints in the resulting framework (Aylward, Nixon, & Gladding, 2014; Carrie Chen, McNamara, Teherani, Cate, & O'Sullivan, 2016; El-Haddad, Damodaran, McNeil, & Hu, 2017). In the context of faculty development, the three relevant stakeholders are students, teachers and expert program developers. Traditionally, educationalists and program developers are usually responsible for designing the training programs as they are considered best qualified for this job, and students and teachers are usually not involved in the design process. Concurring to the notion of actively engaging all stakeholders in the educational development activities (Bovill, Cook-Sather, Felten, Millard, & Moore-Cherry, 2016; Bovill, Cook-Sather, & Felten, 2011; Marquis, Power, & Yin, 2019), there is a need to give equal voice to students and teachers in the faculty development framework designing, which has remained missing so far.

Why Complement EPAs with an Instructional Design?

The EPA framework might be helpful in designing the training program for small group facilitators by outlining the training outcomes, however, it will be challenging to structure and effectively deliver an EPA-based training. Thus, it is essential to explore a task-centered instructional design approach that can steer the training around the defined professional tasks. A well-known task-oriented instructional design model is four-components instructional design (4C/ID) (van Merriënboer, 1997) that has been found useful for designing the training programs to learn and practice complex tasks (van Merriënboer & Kirschner, 2017). Although the model has successfully been used in different educational contexts (Frerejean et al., 2019; Kolcu, Karabilgin, & Kaki, 2019; Maggio, Susilo, van Merriënboer, van Dalen, Claramita, & Scherpbier, 2013; Maggio, ten Cate, Irby, & O'Brien, 2015; van Merriënboer & Tjiam, 2013; Vandewaetere et al., 2015), its viability in EPA-based training programs has not been explored yet.

Research Questions

This project aimed at developing and validating a comprehensive EPA framework for small group facilitation by including all stakeholders and using multiple design approaches. The project also aimed at exploring the possible integration of EPAs and the 4C/ID model to structure training. To achieve this goal, the following five research questions were designed that guided the studies reported in this dissertation:

RQ 1: What are the current practices of utilizing EPAs in teacher training programs and how can EPAs be adopted more meaningfully in faculty development?

RQ 2: What are the EPAs for training and entrusting small group facilitators, according to teachers and students?

RQ 3: How do teachers and students involved in co-creating a faculty development program perceive their involvement and how do they reflect upon their co-creation experiences?

RQ 4: According to expert educationalists, how valid is the earlier co-created EPA framework designed for small group facilitators?

RQ 5: How can the EPAs be complemented with an instructional design model to design and develop a training program?

Dissertation Outline

In this dissertation, we aim to answer the above mentioned five research questions by means of one literature review, three empirical studies, and one perspective paper. Figure 1.1 provides an overview of the dissertation.

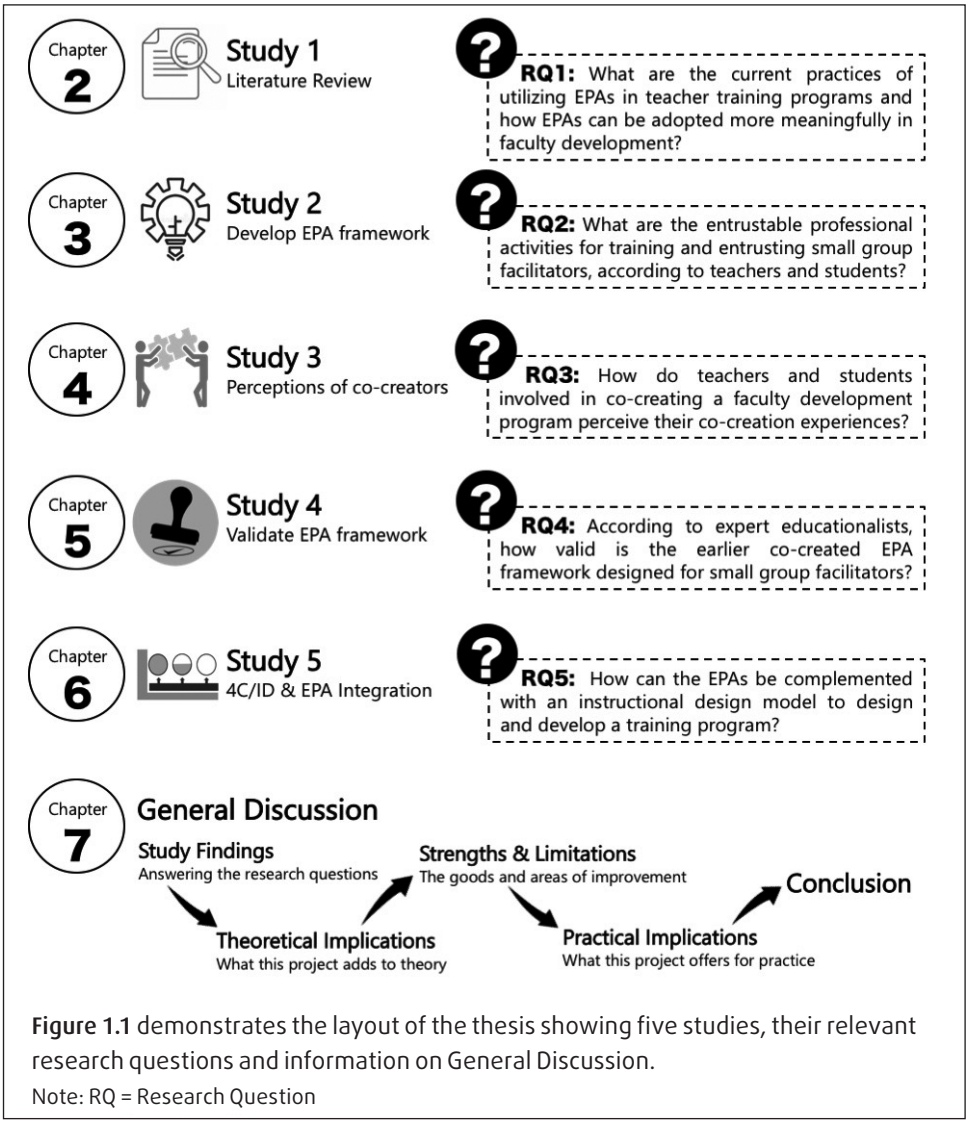

Figure 1.1 demonstrates the layout of the thesis showing five studies, their relevant research questions and information on General Discussion.

Note: RQ = Research Question

Chapter 2: Exploring Literature to Report the Utility of EPAs in Faculty Development

Before designing a novel EPA framework, we first explored the literature to report the utility of EPAs in teacher training and the lessons learned from their applications. The research question that guided this in-depth literature review was:

> *What are the current practices of utilizing EPAs in teacher training programs and how can EPAs be adopted more meaningfully in faculty development?*

In this review study, the literature since the introduction of EPAs (i.e., 2005) was searched through two electronic databases, Scopus and PubMed. The utilization of EPAs in the domain of faculty training was found as a fairly new concept, which also projected a literature gap and a call to design EPAs for small group facilitation (Iqbal et al., 2018).

Chapter 3: Co-creation of EPA Framework for Small Group Facilitation

In this empirical study, we aimed at developing an EPA framework for small group facilitation. The research question that led to the co-creation of the framework was:

> *What are the entrustable professional activities for training and entrusting small group facilitators, according to teachers and students?*

In this study, we avoided conventional design approaches such as interviews (Sagasser, Fluit, van Weel, van der Vleuten, & Kramer, 2017; Spenkelink-Schut, ten Cate, & Kort, 2008), surveys (Angus et al., 2017; Boyce, Spratt, Davies, & McEvoy, 2011), expert meetings (Chang et al., 2013; Fessler et al., 2014) and Delphi procedures (Mink, Schwartz, et al., 2018; Wijnen-Meijer, van der Schaaf, Nillesen, Harendza, & ten Cate, 2013; Wisman-Zwarter et al., 2016) where experts are fully responsible for developing EPAs and the participation of the recipient stakeholders is often minimal (Shorey et al., 2019). We chose the co-creation method and involved relevant stakeholders – students and teachers – in the design process. Our approach to co-create the framework is in line with literature which suggests active engagement of students and teachers in educational program design (Abbot & Cook-Sather, 2020; Bovill et al., 2016; Dollinger & Lodge, 2019; Könings, Seidel, & van Merriënboer, 2014; Martens, Meeuwissen, Dolmans, Bovill, & Könings, 2019).

Students and teachers belonging to different health sciences backgrounds and seniority levels were recruited in the study through purposive sampling. A co-creation approach (Baumber, Kligyte, van der Bijl-Brouwer, & Pratt, 2019; Martens et al., 2019; Temple Clothier & Matheson, 2019) was used, and three workshops were organized to co-create the EPAs framework. An *orientation workshop* was conducted to train the participating students and teachers on the

content, study design, and their expected roles in the study. Then, a *design workshop* was conducted in which students and teachers were grouped to brainstorm and enlist the tasks and competencies of small group facilitators. Additionally, the *World Café* approach was used to discuss ideas, exchange information, and develop a shared understanding among participants. Lastly, a *consensus workshop* was conducted to seek agreement on the resulting EPAs and competencies, followed by a mapping between the tasks and their relevant competencies.

Chapter 4: Student and Teacher Perceptions on Co-creating the Framework for Faculty Development

Since involving students and teachers in co-creating faculty development was a novel approach, it was unclear how these stakeholders perceived their involvement in this process. The exploration of student and teacher insights was important because their negative perceptions could jeopardize the sustainability and implementation of the co-creation approach as well as the resulting EPA framework. This gap in our understanding led to the formulation of the third research question:

> *How do teachers and students involved in co-creating a faculty development program perceive their involvement and how do they reflect upon their co-creation experiences?*

In this study, we explored the perceptions of students and teachers regarding their co-creation experience and also inquired about how they perceived the contribution of students and teachers as co-creators of the EPA framework. Additionally, we sought suggestions from all interviewees on how to improve student-teacher collaboration so that future co-creation exercises can be more productive. For this exploratory study, one-on-one semi-structured interviews were conducted.

Chapter 5: Validation of the EPA Framework

Although we co-created the EPA framework by using a robust participatory design approach, expert health professions educationalists were not consulted. The deficient expert validation of the framework led us to devise our fourth research question:

> *According to expert educationalists, how valid is the earlier co-created EPA framework designed for small group facilitation?*

In Study 4, we explored the content validity of the framework by using the modified Delphi technique. International health professions educationalists were recruited which had vast expertise in designing faculty development programs. We approached expert health professions educationalists for validation to ensure scrutiny and quality (Meyer, Chen, Uijtdehaage, Durning,

& Maggio, 2019). Another reason to approach expert educationalists was to assess whether or not the proposed EPAs possess the qualifying features (Taylor et al., 2017). Inspired by the EQual rubric (Taylor et al., 2017), a rubric was designed and validated before instigating the Delphi rounds. In total, three online rounds were conducted. In Round 1, the validated rubric was used to assess the quality of EPAs. In Round 2, competencies were mapped against the agreed-upon EPAs and in Round 3, an agreement was sought on the proposed sub-activities. Multiple data analysis approaches were used to develop consensus on EPAs, competencies, and sub-activities.

Chapter 6: Complementing Entrustable Professional Activities with the Four Components Instructional Design Model

Our final EPA framework describes the training content and outcomes that faculty development should aim to achieve. However, it does not provide details on the instructional design of an EPAs based faculty development program. This led to the fifth research question:

> *How can the EPAs be complemented with an instructional design model to design and develop a training program?*

Chapter 6 tries to integrate the 4C/ID model with EPAs to offer a task-based training model. In this chapter, we explore the possibility of task-based training by blending simulated and workplace learning environments. We further propose sequencing the training for an EPA into different learning tasks of variable complexities, followed by task-based training from simple tasks in a low fidelity simulated learning environment to complex tasks in a real workplace learning environment.

Chapter 7: General Discussion

Chapter 7 presents a general discussion of the findings of the previously described studies. After that, theoretical implications, strengths, and limitations of the project are discussed along with the implications for practice. The discussion chapter is followed by a thesis summary in both English and Dutch languages. Then the impact paragraph highlights the project objectives, key findings of the studies, and the scientific and societal impact of the project.

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CHAPTER 2

Designing entrustable professional activities for training health professional educators: A review of current practices

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Abstract

BACKGROUND

Faculty development substantially contributes to improving the proficiency of health professional educators. However, most training programs are designed around institutional or individual *wish lists*, from which the assessment of teaching competence is often missing, resulting in the decreased effectiveness of the entire exercise. With an increased call in the literature to introduce structured assessment to faculty development, few initiatives have been taken in which entrustable professional activities are utilized in the teacher training framework.

OBJECTIVE

The current article aims to review existing teacher training programs that have incorporated EPAs in their frameworks and aims to provide further insights into how to adopt the concept of EPAs in faculty development.

METHODS

The literature was searched through the electronic Scopus and PubMed databases using the terms *faculty development program, faculty training, teacher training* and *entrustable professional activities*. The literature search was performed from 2005 to 2018. The search yielded 243 articles in Scopus and 236 articles in PubMed. Studies were excluded that focused on the usage of entrustable professional activities in undergraduate or postgraduate clinical training programs. Of the 479 results, only nine were found to be relevant to EPAs-based faculty training programs.

RESULTS

Introduction of entrustable professional activities to the domain of faculty training is fairly recent. Only two programs were found in our search that used the concept of EPAs in their training frameworks. One is the master's in health Professions Education program at the University of Michigan (UM-MHPE), and the other is the Fundamental Teaching Activities (FTA) framework designed for Canadian medical teachers.

CONCLUSION

Current practices reveal fascinating insights into the utilization of EPAs for faculty training. Both the UM-MHPE and FTA frameworks effectively address teaching tasks and competencies. However, despite the multipurpose utility of these frameworks, a few limitations may exist. For instance, these frameworks share limited details about EPAs' content and their utility in assessment protocols. Moreover, specific teaching domains—such as a PBL tutor, mentor and/or researcher—have not been addressed in the current examples. A need remains for an EPAs framework design that can cover missing teaching domains.

Keywords: entrustable professional activities; faculty development program; faculty training; teacher training

Introduction

Medical teachers are expected to perform multiple roles in academia. They are not merely information providers; they also serve as facilitators, researchers, managers, administrators, assessors and mentors (Nikendei, Ben-David, Mennin, & Huwendiek, 2016). In an educational setting, teachers are expected to perform these roles competently. However, a significant number of them, especially new recruits, struggle to perform their academic roles and responsibilities (Setterund, H.S., Johansson, M., Edgren, G., Amner, G., Persson, E., Segesten, U., ... & Lidsog, 2015), probably because they receive little or no training to become effective educators upon staffing (Hatem, Lown, & Newman, 2006; Singh et al., 2013). To counter this deficiency, institutes conduct faculty training activities. These training activities are commonly known as *faculty development, teachers' training,* or *staff development programs*. Faculty development programs refer to activities that are commenced to improve the knowledge, skills and attitudes of health professionals so they can become effective teachers (Steinert, 2014).

To plan and conduct faculty development activities, institutes invest variable amounts of resources with respect to teachers' availability, valued time and energy. These training activities are conducted via different training platforms, such as workshops, seminars, short courses and longitudinal programs. Despite frequent commencement of faculty development programs, their effectiveness remains questionable because most training programs do not tangibly measure the effect of training on teachers' performance. These programs do not use structured assessment in their frameworks to evaluate the improvement in teaching. More often, training programs rely upon participants' feedback and/or their self-reported changes in performance after training. Therefore, training alone may not be enough to guarantee a faculty member's proficiency as a skilled educator (Sherbino, Frank, & Snell, 2014). In BEME guide No. 40, Steinert et al. (2016) acknowledged that a systematic assessment approach that can provide evidence of enhanced teaching competence remains missing in faculty training. This gap in the evaluation norms of faculty training programs has led program developers to investigate competency-based medical education for a potential solution. The implication and suitability of competency-based medical education in faculty training can be explained through its conceptual framework.

Competency-based medical education (CBME) is a resurgent paradigm in health professional education (Frank et al., 2010; ten Cate & Billett, 2014). In CBME, the delineation of 'competence' establishes foundations for training curricula for the targeted profession or discipline (Fitzgerald et al., 2016). CBME stresses the achievement and demonstration of desired competencies that are necessary to perform a job instead of assuming that learning has taken place merely because the content has been covered (Gruppen et al., 2016). In CBME, the required competencies of any training program are outlined first, followed by their incorporation in the instructional design and assessment methods. These competencies should be specific, comprehensive (including knowledge,

skills and attitude), durable, trainable, measurable, relevant to professional activities, and interconnected to other competencies (Fitzgerald et al., 2016). CBME is known for four salient features that demarcate it from traditional training approaches: (1) focus on outcomes, (2) emphasis on skills, (3) reduced emphasis on time-constrained training, and (4) empowerment of learner-centered education (Frank et al., 2010). Since CBME focuses on mastering the desired competencies, its assessment section plays a pivotal role in providing evidence of the achievement of desired training outcomes (van der Vleuten et al., 2012).

CBME has now largely been conceded in various health sciences disciplines. The embedding of CBME in the lexicon of health sciences is evident through the CanMEDS competency framework (Frank & Danoff, 2007), the ACGME outcomes project (Frank et al., 2010) and the Scottish Doctor (Simpson et al., 2002). Over time, several undergraduate and postgraduate training programs have embraced the concept of CBME in their educational and training frameworks (Chang et al., 2013; ten Cate, 2013; ten Cate & Billett, 2014). The case is similar with teachers' education, in which an amalgamation of competency-based education can be observed in many competency frameworks posited in the literature for health professional educators (Daouk-Öyry, Zaatari, Sahakian, Rahal Alameh, & Mansour, 2017; Milner, Gusic, & Thorndyke, 2011; Molenaar et al., 2009; Sherbino et al., 2014; Srinivasan et al., 2011).

More recently, the concept of Entrustable Professional Activities (EPAs) has emerged to conceptualize CBME. EPA, introduced in 2005, is defined as, "*A unit of professional practice, i.e., a task or responsibility, that can be fully entrusted to a trainee, as soon as s/he has demonstrated the necessary competence to execute this activity independently and proficiently*" (ten Cate et al., 2015). A widespread misconception in the literature is that EPAs and competencies can be used interchangeably. EPAs differ from competencies in that the former are the means of translating the latter. Further, competencies are descriptors of an individual *person*, whereas EPAs are descriptors of a *task* or *work* (Chang et al., 2013). The EPA conceptual framework is based on relevant competencies and milestones that are deemed compulsory to perform a particular role (ten Cate, Scheele, & ten Cate, 2007).

EPAs encompass a body of activities that are independently executable, observable and measurable as a training outcome (ten Cate et al., 2007). The achievement of desired competencies leads to an entrustment decision, certifying that the learner can now perform the EPA (task) in an expert fashion without supervision (Englander & Carraccio, 2014). These characteristics enable EPAs-based training to be flexible but comprehensive, provided the full range of EPAs is effectively demonstrated. EPAs can be used as a novel tool for curriculum design, learning and assessment within any training domain (Fitzgerald et al., 2016). Due to these characteristics, more recently, EPAs have been utilized in teacher training programs, which we aim to review and report on in this manuscript. We also aim to provide further insights on how to adopt the concept of EPAs in faculty development.

Methods

The authors searched the electronic Scopus and PubMed databases using the terms *faculty development program, faculty training, teacher training* and *entrustable professional activities*. The literature search was constrained to a specific timeframe, i.e., from 2005 to July 2018 because EPAs were introduced to medical education in 2005 (ten Cate, 2005; ten Cate et al., 2015). The literature search showed 243 articles in Scopus and 236 articles in Medline database. Studies were excluded that focused on the usage of entrustable professional activities in undergraduate or postgraduate clinical training programs. Also excluded were editorials, short communications and letters. After carefully reading the titles and abstracts of shortlisted articles, only nine publications (of 479 results) were found relevant to EPAs-based faculty training programs.

Results

Our findings showed that numerous clinical training programs use EPAs in their curricular frameworks. To date, the concept of EPAs has been well recognized and implemented in *Anesthesiology* (Wisman-Zwarter et al., 2016), *Radiology* (Deitte et al., 2016), *Gastroenterology* (Rose, Fix, Shah, Jones, & Szyjkowski, 2014), *Geriatrics Medicine* (Leipzig et al., 2014) and other clinical training programs. Most recently, EPAs have been introduced for health professional educators. In the literature, only two cases have been reported to date in which EPAs have been utilized for teacher training, namely, the EPAs-based curricular framework of the Masters of Health Professional Education at Michigan University (UM-MHPE) and the Fundamental Teaching Activities (FTA) framework of the College of Family Physicians of Canada (CFPC). These two initiatives are in line with the literature's call to incorporate competency-based teacher education in teacher training programs (Dewey, Jonker, ten Cate, & Turner, 2017; Tekian & Harris, 2012).

EPAs in the MHPE Program

Michigan University has recently incorporated EPAs in their Masters in Health Professional Education (MHPE) program (Gruppen et al., 2016). The aim of this exercise was to produce competent health professional educators through structured training (Tekian & Harris, 2012). The program framework encompasses 22 EPAs (The complete list of EPAs for the MHPE program is given on the link: https://medicine.umich.edu/dept/lhs/education-professional-development/graduate-programs/masters-health-professions-education/curriculum/entrustable-professional-activities). The concept of EPAs was used in the Michigan program for three purposes: (1) as a curricular framework, (2) as a learning tool, and, naturally, (3) to guide assessment.

EPAs as curricular framework

The chief concern while instituting any training curriculum is defining the capabilities of the learner as a graduate. EPAs address this concern by specifying the tasks that will be expected from a future graduate. These tasks are then interlinked with required competencies (ten Cate et al., 2015). The UM-MHPE program framework follows similar guidelines while formulating their EPAs and competencies. For example, the first task in the UM-MHPE program is *selecting and demonstrating competency in a range of teaching methods.* To fulfill this task, the graduate is expected to possess the following competencies: 1) compare and contrast potential educational methods, 2) demonstrate an appropriate selection of a teaching method to match the defined outcome, 3) demonstrate proficiency in the selected teaching method and so on 10. The EPAs and their competencies have been explicitly integrated into the program's curricular framework.

EPAs as a learning tool

In the MHPE program, students are enrolled from a wide range of backgrounds and levels of expertise. Unlike a one-size-fits-all approach, they are encouraged to make notes about their individualized learning plans with the support of their personal mentors to achieve proficiency in all EPAs. During the planning phase, EPAs serve as a guide for the learners in understanding the relevant knowledge, skills and attitudes that scaffold a specific EPA. This unique characteristic of an individualized learning plan provides flexibility and autonomy to the learners to set their own learning goals, pace and timeframe. Furthermore, the enrolled health professionals in the program are encouraged to utilize applied settings (relevant workplace), such as classrooms, clinics and/or hospitals where they demonstrate their competence (Fitzgerald et al., 2016).

EPAs as an assessment guide

The EPAs concept was principally introduced to the program as an assessment method. After training, the evaluation of all EPAs is carried out individually through a so-called entrustment decision. The *how, when* and *who* will evaluate a trainee for entrustment must be decided beforehand. These are essential questions in the assessment process of any EPAs-based training and have been well addressed in the UM-MHPE program. Figure 2.1 reflects an outline of the UM-MHPE program assessment that revolves around three steps: 1) EPAs submission, 2) committee review and 3) committee decision. In the submission process, the learner submits all relevant resources and documentary evidence of EPA proficiency to the committee. The resources can be articles, video recordings, abstracts, student feedbacks and/or course materials. The learner can decide the type of evidence he or she wishes to provide. The submitted documentation also includes a thorough evaluation by the trainee's mentor and two experts. In the review process, an independent committee of three assessors reviews each EPA submission and makes the entrustment decision. The decision could be a) competent, b) provisional acceptance, or c) incompetent or lacking evidence. The learner receives both quantitative and qualitative feedback from the committee.

Fundamental Teaching Activities (FTA) Framework

The College of Family Physicians of Canada (CFPC) in 2012 developed a framework of Fundamental Teaching Activities (FTA) for Canada's family medicine teachers (*available at* http://www.cfpc.ca/uploadedFiles/Education/_PDFs/FTA_GUIDE_TM_ENG_Apr15_REV.pdf). To develop the framework, a Working Group on Faculty Development (WGFD) was established consisting of members from eight Canadian universities. The team used an iterative feedback process that involved teachers, program developers, leaders and learners to shape the framework. The principal drive behind developing the FTA framework was to 1) design a generalized learning guide for medical teachers, 2) help refine their teaching activities through reflective practices, 3) support their continuous professional development, and 4) assist program developers in designing faculty development curricula (Walsh et al., 2015, 2018).

The fundamental teaching activities in the framework were based on the principles of entrustable professional activities. However, the term FTA was used instead of EPA. The scholars argued that these discrete teaching activities do not require entrustment like EPAs do because medical teachers are pre-licensed health professionals, and they are allowed to work as teachers under their licensure (Walsh et al., 2018).

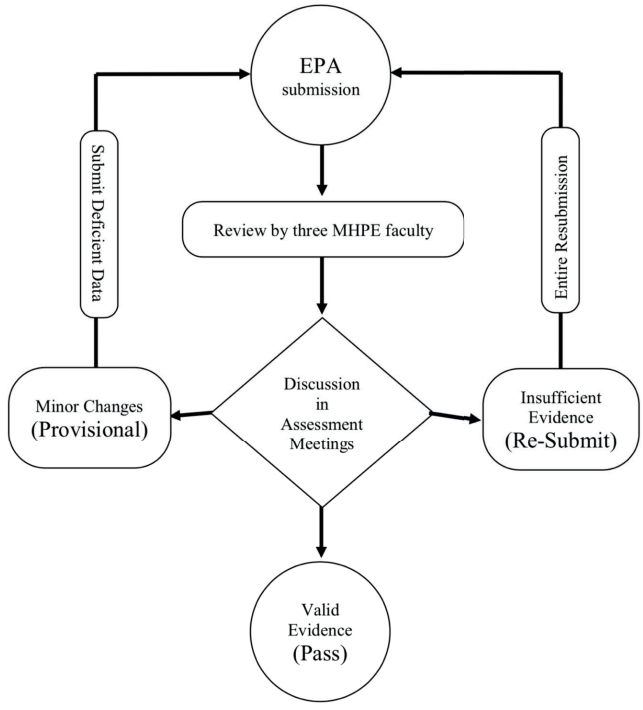

Figure 2.1: EPAs-based assesment model of UM-MHPE program

Discussion

The literature continually suggests the structuring of faculty training programs on the basis of expected academic activities and the competencies required to perform these activities (Antao et al., 2017; Iqbal & M. Al-Eraky, 2019; Sklar, 2016). The previous two examples, i.e., the EPAs framework of UM-MHPE program and the FTA framework, provide rich evidence about how EPAs can be used in faculty training activities. However, these frameworks are significantly different from each other. The fundamental difference between the FTA and UM-MHPE frameworks is their design philosophy. The FTA framework was established as a guide for teachers' development (Walsh et al., 2018), whereas the UM-MHPE program has used EPAs to provide a foundation for the training curriculum. In this program, these EPAs also serve as a vehicle for the trainee in formulating his or her individualized learning plan. Finally, these EPAs steer the assessment protocols (Fitzgerald et al., 2016; Gruppen et al., 2016). A comparative analysis of both frameworks is elaborated below.

Competencies Narrated as EPAs

Educational objectives are intended statements that usually have a narrow scope, and they define the trainer's expectations. Competencies, on the other hand, are broader statements in which the required knowledge, skills and attitudes are clearly described. Competencies are the characteristics of a person acquired through training. Meanwhile EPAs are units of work or activity expected to be performed competently by the learner after training. In AMEE guide 99, Ten Cate et al. suggested that EPA titles and their specifications must not sound like educational objectives or competencies (ten Cate et al., 2015). Unfortunately, sometimes EPAs are inscribed to imitate competencies. For instance, the first EPA of UM-MHPE is, "*Select and demonstrate competency in a range of teaching methods*". This EPA could have been phrased as *"demonstrating proficiency in a range of teaching methods"*. In addition, further elaboration with regard to what is expected to be covered in the 'range' of teaching methods should have been given for more clarity.

Since EPAs and competencies are two different entities, therefore, a clear distinction should exist while writing them. In UM-MHPE program, the first EPA is; *"select and demonstrate competency in a range of teaching methods"*. In the description of this EPA, one of the given three competencies is; *"demonstrate proficiency in selected teaching method"* (Fitzgerald et al., 2016). In this situation, it is difficult to fathom the difference between the two statements. The conceptual meaning of both statements is almost the same whereas former is given as an EPA and the latter as a competency.

Generalizability of Frameworks

The stipulated lists of EPAs and FTAs seem broad and generic. They may successfully fulfil the requirements of a longitudinal training program; however, they may not be specific or concise

enough for training the faculty through short courses or workshops. For instance, the EPAs of UM-MHPE are designed for a master's program, whereas the FTA framework aims to provide a holistic picture of all teaching activities involved in family medicine only (Walsh et al., 2015). Moreover, both frameworks provide an overview but do not describe explicitly the tasks and competencies of individual roles, for example, PBL tutor, academic researcher, e-facilitator and/or mentor.

Description of Competencies

Competencies are defined as a complex set of behaviors built on the components of knowledge, skills and attitudes (Carraccio, Wolfsthal, Englander, Ferentz, & Martin, 2002). Competencies should be specific, comprehensive, measurable and relevant to professional activities. If competencies are not listed discretely then learners may experience ambiguity regarding what and how much is expected from them. The 4th EPA in UM-MHPE is, "design and implement a curricular intervention". To achieve proficiency in this EPA, participants are expected to exhibit the following competencies: *education theory, health education context, educational methods, curriculum development, educational community, evaluation* and *personal leadership skills* (Fitzgerald et al., 2016). These 'competencies' are neither specific nor measurable and may be difficult to assess.

In the FTA framework, competencies are well explained under every task and activity. For instance, to trust the teacher for the task '*design and delivery of teaching sessions outside the clinical setting',* he or she is expected to perform three specific activities: 1) preparing, 2) facilitating, and 3) reflecting upon the teaching session. In the first activity *'preparing the teaching session'*, the following competencies are expected to be mastered by the teacher: collects information about expected audience; comprehends learning objectives and adapts them for the expected audience; reviews teaching materials developed by others; prepares teaching techniques and strategies; and demonstrates awareness of hidden curriculum and considers its impact on student learning (Walsh et al., 2018).

Assessment of Teaching Activities

In UM-MHPE program, a structured assessment protocol exists for individual EPAs, as outlined in Figure 2.1. During evaluation process, the entrustment decision is made with regard to submitted learning artifacts. Whereas ten Cate et al. (2015) suggested that the entrustment decision should be based on the assessor's first-hand experience (direct observation) of the learner's performance.

On the other hand, the assessment domain does not exist in the FTA framework. The FTA framework was not intended to be utilized as an assessment tool to examine teachers. The framework's purpose was to serve as a guide and as a self-reflection tool for medical teachers (Clavet,

Antao, Koppula, & Walsh, 2015; Walsh et al., 2015, 2018). Henceforth, it is devoid of either a qualitative or quantitative assessment component. Walsh et al. (2018) argued that medical teachers are pre-licensed health professionals and should be allowed to work independently under licensure. However, it has been observed that clinicians and health professionals often struggle in performing their academic responsibilities effectively due to a lack of training (Ali et al., 2017; Daouk-Öyry et al., 2017; Dewey et al., 2017).

Limitations

This review covers published literature to analyze only the current practices of EPAs-based faculty development. Therefore, its findings may not be applicable to other EPAs-based clinical training frameworks. The generalizability of this review is limited to only a specific domain, that is, faculty training.

Conclusion and Future Directions

Understandably, these training frameworks are in the preliminary phases of their implementation. To ensure their long-term efficacy, a continuous process of reflection, revision and reporting may be required. In addition to these existing frameworks, comprehensive EPAs-based curricular frameworks must be designed for faculty development that target the specific tasks of a particular teaching domain, such as the practices of a PBL tutor, mentor and/or researcher.

After enlisting EPAs for any training program, the next step is the development of an entrustment tool. Such a tool can guide learners on their competence progression 10,24 and serve as a learning roadmap with directions and milestones (Aylward, Nixon, & Gladding, 2014). However, there is a paucity of research in developing entrustment tools, especially in the context of teachers' evaluation. Therefore, we advocate that more research is required to develop plausible evaluation tools that can support the entrustment process of EPAs-based training programs.

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CHAPTER 3

Development of an entrustable professional activities (EPAs) framework for small group facilitators through a participatory design approach

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Abstract

BACKGROUND

Recent reports suggest that faculty development (FD) programs need a structured framework to design training and assess improvement in teaching performance of participants. Entrustable professional activities (EPAs) can serve as a novel framework to plan and conduct structured FD programs, and to assess the proficiency of small group facilitators after training.

OBJECTIVE

The researchers aimed to develop an EPAs framework for small group facilitators.

DESIGN

In March 2019, three workshops were organized to develop the EPAs framework by using a participatory action design approach. An orientation workshop was conducted to train the participating students and teachers. Then, a design workshop was conducted to develop the EPA framework, where data were collected from three sources: scribe notes, audio recordings, and field charts. Thematic analysis was performed, and consensus was sought from participants on the extracted professional tasks and competencies in the consensus workshop. In the third workshop, the participants also mapped professional tasks with relevant competencies.

RESULTS

A total of 15 teachers and 15 students participated in the co-design process. Through a robust thematic analysis of multisource data, 57 professional tasks and 52 competencies emerged, which were converged into 11 tasks and 17 competencies after removing duplicating and non-qualifying professional tasks and competencies. Finally, a consensus was achieved on nine tasks and 12 competencies.

CONCLUSIONS

The proposed EPAs framework can serve as a road map for longitudinal training and entrustment of small group facilitators. It can also guide small group facilitators in their continuous professional development and in building their teaching portfolios.

Keywords: entrustable professional activities; faculty development; teaching competence; teacher evaluation; small group teaching

Introduction

Due to the upsurge of student-centered and competence-based approaches to education, faculty development has become a necessity rather than a luxury. Many health science institutes recognize faculty training as an essential support system for their teachers, especially for those who had not undergone any rigorous training prior to their staffing (Daouk-Öyry, Zaatari, Sahakian, Alameh, & Mansour, 2017; Dewey, Jonker, ten Cate, & Turner, 2017). Faculty development (FD) is defined as a set of activities designed to prepare the faculty for their various roles as teachers, researchers, and administrators (Steinert et al., 2016). In the context of teaching and learning, FD is defined as the coherent sum of activities targeted to improve the teaching competence of trainee teachers in order to positively influence student learning (De Rijdt, Stes, van der Vleuten, & Dochy, 2013).

In FD, program developers and teachers invest their time, energy, and resources to foster teaching practices. Despite all efforts, the effectiveness of these training programs is still questionable, as most of the programs are based on generic *wish lists* rather than a structured curricular framework (Steinert et al., 2016). This is probably the case because teachers often self-identify their learning gaps without going through any evaluation (O'sullivan & Irby, 2011). Additionally, little emphasis is placed on systematically studying the impact of training on the faculty, as FD programs rarely prioritize teacher evaluation and usually focus on the participants' satisfaction level (Kamel, 2016; Steinert et al., 2016). Without evidence, training alone is insufficient to entrust the teachers to fulfil their day-to-day academic tasks (Sherbino, Frank, & Snell, 2014).

There should be more emphasis on structuring FD programs and measuring their effectiveness in improving teaching competencies, rather than focusing on training alone. That said, many scholars (Griewatz, Simon, & Lammerding-Koeppel, 2017; Iqbal & AlSheikh, 2018; Lancaster, Stein, MacLean, Van Amburgh, & Persky, 2014; Leslie, Baker, Egan-Lee, Esdaile, & Reeves, 2013; O'sullivan & Irby, 2011; Phuong, Cole, & Zarestky, 2018) have supported the inclusion of a structured evaluation system in FD program designs. However, the educational community remains devoid of an evaluation approach that can generate evidence of teaching proficiency, or can help in entrusting teachers to perform their academic tasks (Dewey et al., 2017; Iqbal & Al-Eraky, 2019). More recently, Dewey et al. (2017) and Iqbal et al. (2018) has advocated that entrustable professional activities (EPAs) can serve as valuable instrument in designing a structured curricular framework for teacher training, and for evaluating teaching proficiency within the educational setting.

An EPA is a professional task or responsibility that can be fully entrusted to a trainee as soon as s/he has demonstrated the necessary competence to execute the activity independently and proficiently (ten Cate, 2014). EPAs encompass a mass of activities and their relevant competencies (knowledge, skills, and attitudes) that operationally define a professional domain. EPAs differ from competencies as EPAs are the descriptors of professional tasks, whereas competencies are

descriptors of what a person must possess in order to perform these tasks. The description of EPAs guides the trainers as well as the trainees on the extent, specificity, and context of the training (ten Cate et al., 2015).

For the past decade, much work has been done in developing and implementing EPAs in both undergraduate (Meyer, Chen, Uijtdehaage, Durning, & Maggio, 2019) and postgraduate (O'Dowd, Lydon, O'Connor, Madden, & Byrne, 2019) medical training programs. Some studies have reported the utility of EPAs for simulation leaders (Gardner, Gee, & Ahmed, 2018), program directors (Bing-You, Holmboe, Varaklis, & Linder, 2017), and scholars (Mink, Myers, Turner, & Carraccio, 2018). Most recently, EPAs have been introduced for training health professional educators (Fitzgerald et al., 2016; Gruppen et al., 2016) and family medicine teachers (Walsh et al., 2018). These practices provide rich evidence of how EPAs can be used in faculty training activities. However, there is a paucity of research on designing EPAs for specific teaching domains, such as small group teaching, bedside teaching, mentoring, and others (Iqbal et al., 2018; Shorey, Lau, Lau, & Ang, 2019).

This study aimed to design EPAs for small group pedagogy which includes problem-based learning (PBL), team-based learning (TBL), simulation-based learning, and learning through skills lab (Edmunds & Brown, 2010). Small group learning was selected because it is the most widely used pre-clinical teaching and learning pedagogy in health professional schools (including ours) worldwide. Moreover, the occasional struggle of facilitators while conducting small group sessions has been observed where they may revert back to their conventional teaching style during the session, and use a didactic, teacher-centered approach (Lim & Choy, 2014). Thus, we believe that small group facilitators should be well trained and entrusted before they take up the academic responsibilities of planning and conducting small group sessions. However, to our knowledge, no such framework exists in the literature which can be used for the aforementioned purposes. Therefore, this study aimed to develop a framework of EPAs for small group teaching.

So far, various approaches have been used to design EPAs. Some of the most common methods include expert meetings (Fessler et al., 2014), surveys (Angus et al., 2017), Delphi procedure (Mink, Schwartz, et al., 2018), and interviews (Sagasser, Fluit, Van Weel, Van Der Vleuten, & Kramer, 2017). In most of these studies, content experts of a discipline or profession design and validate the EPAs, whereas the participation of other stakeholders of the targeted profession remains minimal in the development process (Shorey et al., 2019). In health professional education, the two inevitable stakeholders are students and teachers; both are directly affected by the 'change' that occurs through faculty training (Stalmeijer, Dolmans, Wolfhagen, Muijtjens, & Scherpbier, 2008). Therefore, in this study, students and teachers were inducted to co-create the EPAs framework.

Methods

Settings and Participants

This study was conducted at Imam Abdulrahman Bin Faisal University in Saudi Arabia in March 2019. The participants, students and teachers, were recruited from various health sciences colleges at the University that use small group pedagogy as a main teaching and learning strategy. Teachers were recruited who had prior experience facilitating small groups (PBL sessions, tutorials, skills lab, and others) in medical, dental, nursing, pharmacy, or applied medical sciences colleges. A purposive sampling was done for students based on their health sciences college, prior exposure to small group pedagogy, and research experience. Already graduated students and students from non-medical sciences were excluded from the study.

Procedure

The stepwise procedure of this study is shown in Figure 3.1.

STEP 1: PRE-WORKSHOP MEETING

After recruiting the participants, five scribes (three students and two teachers) were identified, and a pre-workshop meeting was conducted where they were informed about their roles during the design workshop. The role of the scribes, in addition to their group participation, was to take notes during group discussions and record the contribution of each group member during the activity.

STEP 2: ORIENTATION WORKSHOP

The objectives of this workshop were: (1) to encourage active participation of students and teachers, (2) to orient the participants about the purpose of our study and brief them about their role in the co-creation process, and (3) to educate participants on the content, that is, EPAs and competencies. The objectives and process of the study were explained to the participants, followed by a short presentation and an interactive discussion. In addition to theoretical knowledge, practical examples of EPAs and competencies from other contexts were presented to the participants to enhance their conceptual understanding. The content of the presentation was based on a review of the literature in three domains: competency-based medical education, entrustable professional activities, and FD programs.

STEP 3: DESIGN WORKSHOP

The second workshop was organized during the same week of the development of the EPAs framework. The objectives of this design workshop were: (1) to identify key academic tasks of a small group facilitator, (2) to identify the competencies which are required to perform these tasks, and (3) to map the tasks and competencies based on their relevance.

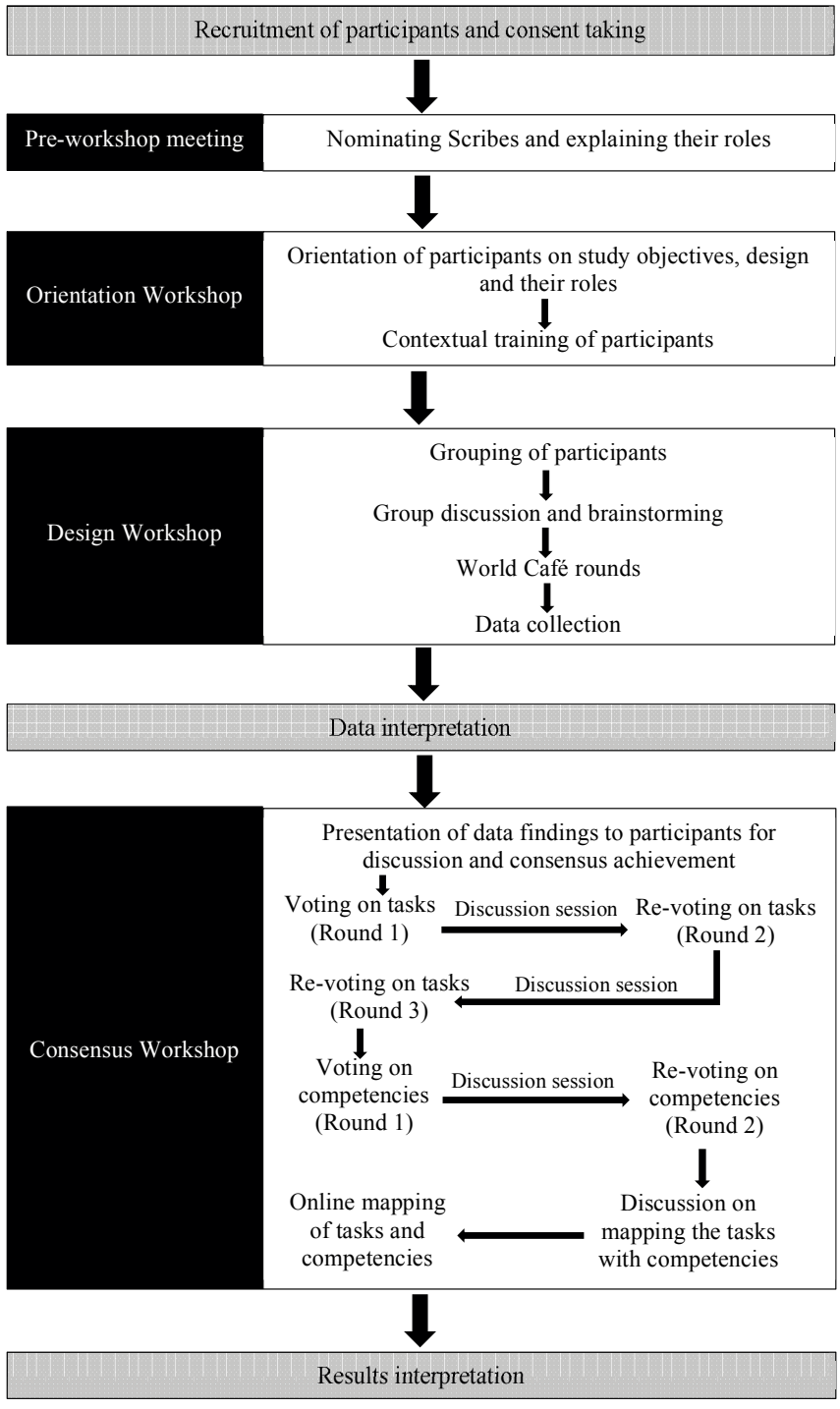

Figure 3.1: Step-by-step procedure for the development of the EPAs framework for small group facilitators through participatory action design.

Activities during workshops
Activities before, between or after workshops

The participants (N=30) were divided into five sub-groups, with equal distribution of students and teachers within the groups. Then, all sub-groups were asked to brainstorm and enlist the academic tasks and competencies of a small group facilitator and map them on the provided charts.

After the brainstorming session, *World Café* rounds (O'Connor & Cotrel-Gibbons, 2017) were conducted. The purpose of these rounds was to stimulate participants' thought processes and let them share ideas with other colleagues. Another objective of the *World Café* in this workshop was to reduce the disparities between individual group findings so that the researchers had minimum input in the final framework. Before starting the rounds, each group nominated one member as an *anchor* whose responsibility was to debrief the visiting guests about their group findings. The participants then started rotating one by one and reflected upon the chart content of other groups. During each round, one member from each group was rotated to a new group. For instance, in round 1, a member from group A visited group B, and a member from group B visited group C, and so on. Each round was time controlled by a 10 minute alarm bell, after which participants were requested to re-rotate, and visit the next group. This exercise was repeated until all participants completed visiting every group, and eventually returned to their original seats. In total, six rounds were conducted to complete the cycle. All group discussions and *World Café* rounds were audio recorded and transcribed.

STEP 4: CONSENSUS WORKSHOP

Lastly, a follow-up workshop was organized in which the data findings were presented to the cohort for member checking. All participants were asked if the data analysis truly reflected their originally designed tasks and competencies. Moreover, the participants were encouraged to express their viewpoint if some empirical task or competency was missing and/or if there was an overlap. The discussion was followed by multiple voting rounds which were conducted via QuestionPro® (Survey Analytics LLC, Beaverton, Oregon, USA). During each voting round, an online survey link was shared with all participants, where they voted anonymously on whether they wanted to keep or discard the given tasks and competencies. Firstly, the voting was conducted to develop a consensus on the professional tasks, which was followed by voting on competencies. Lastly, the participants selected the competencies for each EPA individually from the consensus pool. Figure 3.2 provides an overview of the co-creation process.

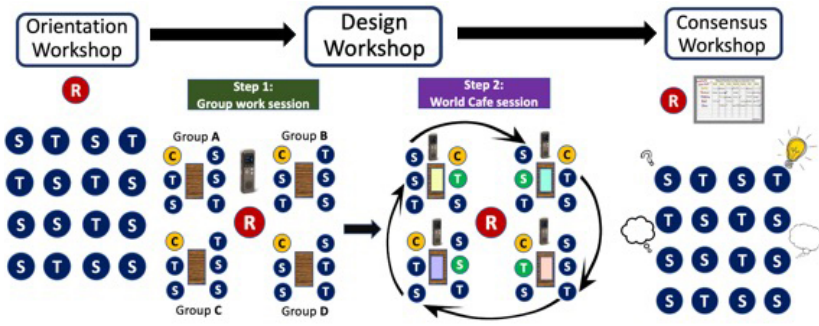

Figure 3.2: Participatory design process among students and teachers in three workshops.

Data Analysis

The collected data in the form of *charts, audio recordings* and *scribe notes* during design workshop were analyzed. First, the charts and scribe notes were analyzed. Then, the audio recordings were transcribed, and a thematic analysis was performed to extract the academic tasks and competencies. Two authors (MZI and MAE) carefully read and inductively coded the transcripts, and then organized the emerging codes into two categories: tasks and competencies. These codes and categories were then refined and validated by the other three authors (MHA, KK and JvM) individually to enhance the rigor of the analysis. For thematic analysis of the data, Atlas.ti qualitative software, version 8.4.0 (Atlas.ti Scientific Software Development GmbH, Berlin, Germany) was used.

Results

A total of 48 small group facilitators from various health professional colleges were invited to contribute to the study, out of which 15 (31.3%) agreed to participate. All of them had more than five years of experience in teaching, FD, and research. Out of these 15 participants, nine (60.0%) had a PhD, one (6.7%) had a fellowship, and five (33.3%) had a master's degree. Out of the recruited 15 students, seven (46.7%) were males and eight (53.3%) were females. All students had two to five years of small group learning exposure in their undergraduate academic training.

The analysis of the data of the design workshop generated a massive pool of professional tasks and competencies. In total, 57 tasks and 52 competencies emerged in our comprehensive and iterative thematic analysis. The group-wise, source-wise, and overall summary of the resulting tasks and competencies can be consulted in Appendix 1 of the digital supplementary material available at https://www.tandfonline.com/doi/full/10.1080/10872981.2019.1694309. The data were then summarized by removing duplications in the professional tasks and competencies (please see Appendix 2 of the digital supplementary material). Moreover, few tasks and competencies were rephrased according to the literature terminologies while ensuring that their contextual meanings were intact. The 11 professional tasks finalized after data analysis were:

(1) Planning a small group learning activity
(2) Facilitating group discussion
(3) Providing clear and accurate contextual training
(4) Keeping students on track to achieve learning outcomes
(5) Triggering critical thinking and problem-solving skills among students
(6) Managing group dynamics
(7) Motivating all students to contribute
(8) Providing constructive feedback
(9) Reflecting upon session
(10) Promoting collaborative (team) learning
(11) Assessing students' learning progress

The 17 competencies that resulted after removing duplications were: *instructional design, content expert, communication skills, educational leadership, teamwork / collaborative skills, professionalism, time management, mentorship, curriculum design and implementation, information technology skills, administrative or managerial skills, interprofessional skills, gap identification, assertiveness, objectiveness, observant,* and *precise.*

These 11 tasks and 17 competencies were shared with the participants to develop consensus. While there is no agreement on an appropriate consensus level in the literature (Hordijk et al., 2019), we used 70% or above voting as a consensus indicator to keep the task or competency and 30% or below to discard the task or competency. The data with voting percentages between 30% and 70% was put for re-voting until consensus was achieved.

During the consensus meeting, after three voting rounds, a consensus was achieved on nine out of the previously mentioned 11 professional tasks. Two academic tasks, *facilitating group discussion* and *motivating all students to contribute* failed to achieve consensus and had an agreement level of 23.3% and 20.0% respectively; therefore, they were removed from the final list. The final list of nine professional tasks of small group facilitators is given in Table 3.1 along with the level of agreement. After finalizing the tasks, the list of 17 competencies extracted from the data was put to voting; after two voting rounds a consensus was reached on 12 competencies as shown in Table 3.2. *Identifying gap, being assertive, objective, observant,* and/or *being precise* failed to achieve consensus.

After reaching consensus on tasks and competencies, an online link was generated in which all 12 competencies were listed in front of each EPA. The link was shared, and participants were asked to individually map the finalized nine academic tasks with the finalized list of 12 competencies through their smart phones or laptops. The number and percentage of selections of each competency against an EPA were calculated and based on the consensus method discussed earlier (70% or above), the final EPAs framework was devised as shown in Table 3.3.

Table 3.1: Final list of professional tasks for small group facilitators with consensus level.

Sr #	Tasks of small group facilitators	Agreement level n(%), n=30
EPA 1	Planning a small group learning activity	21(70.0)
EPA 2	Providing clear and accurate contextual training	29(96.7)
EPA 3	Keeping students on track to achieve learning outcomes	26(86.7)
EPA 4	Triggering critical thinking and problem-solving skills among students	29(96.7)
EPA 5	Managing group dynamics	23(76.7)
EPA 6	Providing constructive feedback	30(100)
EPA 7	Reflecting upon session	27(90.0)
EPA 8	Promoting collaborative (team) learning	24(79.3)
EPA 9	Assessing students' learning progress	29(96.7)

Table 3.2: Final list of competencies for small group facilitators with consensus level.

Sr #	Competencies of small group facilitators	Agreement level n(%), n=30
Competency 1	Communication skills	30(100)
Competency 2	Professional behavior / Professionalism	30(100)
Competency 3	Educational Leadership	29(96.67)
Competency 4	Teamwork / collaborative skills	29(96.67)
Competency 5	Time Management	29(96.67)
Competency 6	Interprofessional skills	28(93.33)
Competency 7	Instructional design	26(86.67)
Competency 8	Mentorship	26(86.67)
Competency 9	Administrative or managerial skills	24(79.31)
Competency 10	Knowledge or content expert	23(76.67)
Competency 11	Curriculum Design & Implementation	23(76.67)
Competency 12	Information Technology Skills	23(76.67)

Table 3.3: EPAs framework for small group facilitators showing mapping of finalized professional tasks and competencies

		Competencies: Interprofessional skills	Administrative or managerial skills	Information Technology Skills	Curriculum Design & Implementation	Mentorship	Time Management	Professionalism	Teamwork	Educational Leadership	Communication skills	Content expert	Instructional design
Before Session - Preparation	EPA 1: Planning a small group learning activity	**✓**	✓	✓	**✓**		**✓**	✓		✓	✓	✓	**✓**
During Session - Facilitation	EPA 2: Providing clear and accurate contextual training			✓	✓		✓	**✓**	✓	✓	**✓**	**✓**	**✓**
	EPA 3: Keeping students on track to achieve learning outcomes				✓		**✓**	✓	**✓**	**✓**	**✓**	✓	✓
	EPA 4: Triggering critical thinking and problem-solving skills among students				✓	✓	✓	**✓**	✓	**✓**	**✓**	✓	✓
	EPA 5: Managing group dynamics		✓			**✓**	**✓**	**✓**	**✓**	**✓**	**✓**		
	EPA 6: Providing constructive feedback			✓		**✓**		**✓**		**✓**	**✓**	✓	
	EPA 7: Reflecting upon session				✓	✓		**✓**		✓	**✓**	✓	✓
	EPA 8: Promoting collaborative (team) learning					**✓**		**✓**	**✓**	**✓**	**✓**		✓
After Session - Evaluation	EPA 9: Assessing student learning progress				✓	✓		**✓**		**✓**	✓	**✓**	

✓ = Competency is definitely needed to perform this EPA (70% or above votes)
✓ = Competency is likely needed to perform this EPA (30% to 70% votes)
Note: Blank cells indicate that the competency is probably not needed to perform this EPA as the agreement was less than 30%.

Discussion

The final product of our study, the EPAs framework, has nine professional activities of small group facilitators which were mapped against 12 competencies (see Table 3.3). The first EPA, *planning a small group learning activity,* is the task of the teacher to organize the learning session. This encompasses the preparation of the educational content (problem synthesis, presentation and/or reading material et cetera), arrangement of the venue, communication with stakeholders, and deliberation with administrative bodies. The second EPA, *providing clear and accurate contextual training,* refers to the task in which the facilitator should be able to integrate basic and clinical knowledge; provide sufficient cognitive information related to the problem, topic, themes, or disease under discussion; clarify any conceptual confusion; and provide hands-on training where necessary (Edmunds & Brown, 2010). This task is particularly related to those small group teaching and learning approaches where facilitators are primarily responsible for providing the educational content, such as skills lab or simulation training.

The third EPA, *keeping students on track to achieve learning outcomes,* is the task in which the facilitator should be able to scaffold student learning and guide them to achieve the desired learning objectives, especially in problem-based learning sessions (Young & Papinczak, 2013). He/she should be able to intervene in the discussion if she found students deviating from the session agenda. The fourth EPA, *triggering critical thinking and problem-solving skills among students*, implies that the role of the teacher in group discussion is more that of a guide than an instructor. She should avoid dictating students, and should ask probing questions to stimulate their prior knowledge and critical thinking to help them solve the problem on their own (Steinert, 2004).

The fifth EPA, *managing group dynamics*, holds more value in small group learning activities where students actively drive the learning process. Diemers et al. (2007) suggested that in student driven sessions, there is always a risk that the talkative individuals may dominate the shy and quiet participants of the group. In addition, the peer pressure and attitude of the facilitator can affect the level of student contribution. Therefore, she should be able to identify and handle the talkers, disruptors, and shy ones within the group. She should also be able to manage the group in case of any conflict or heated discussion between students. At the same time, she should be able to encourage shy and less-confident students to participate actively. The sixth EPA, *providing constructive feedback*, is related to the ability of the teacher to analyze the students' learning progress, and determine if they have achieved the desired objectives (Garcia, James, Bischof, & Baroffio, 2017). Based on her analysis, she should be able to appreciate their achievement and provide further guidance on their learning progress.

The seventh EPA, *reflecting upon the session,* is the ability of the facilitator to critically analyze the overall group performance to determine the strengths and weaknesses of the completed session. Based on this reflective practice, the facilitator can devise an action plan for future group learning sessions (Edmunds & Brown, 2010). The eighth EPA, *promoting collaborative (team)*

learning, is the task which advocates that the facilitator should be able to encourage students towards shared learning. This role is especially important in those tutorial groups which are heterogenous, and include students from diverse linguistic, academic, and cultural backgrounds (Dolmans & Gijbels, 2013). Moreover, as suggested by our study participants, the ability of the facilitator to promote collaborative learning is not limited to the session only. It goes beyond the learning session, where the teacher encourages participants to collaborate and learn from each other off-campus by sharing ideas and educational resources. The ninth and final EPA, *assessing student learning progress,* is the ability of the facilitator to evaluate student learning through both formative and summative assessment methods (Edmunds & Brown, 2010).

The proposed EPA framework may offer multiple potential benefits for program developers, faculty, and institutions at large. To fathom these potential benefits, it is important to mention the three principle phases of any EPAs-based training program, which are: formal training, practice sessions, and entrustment evaluation (ten Cate, 2018). Our designed framework might serve as a curricular guide for designing formal training sessions such as workshops and seminars. The formal training would then be followed by practice sessions at the workplace, which will provide rehearsal opportunities for the trainee teacher to apply the learned competencies to his/her teaching settings, and further polish his/her skillset through student and/or peer feedback.

After workplace-based practice, EPA evaluation would be carried out to make entrustment decisions. By default, these entrustment decisions are conditioned with the ability of the trainee teacher to successfully demonstrate the academic tasks in real teaching environments. The demonstration and assessment of teaching competence could help in identifying the level of training effectiveness, which is the current insufficiency of current FD programs (Gardner et al., 2018; Shorey et al., 2019). Also, different stakeholders, such as educationalists, students, and peer faculty, can be involved in the entrustment process. However, this is still subject to implementation and analysis, to determine how valid and reliable entrustment evaluation can be organized with multiple stakeholders. Moreover, to convene this evaluation process, a rubric-based entrustment tool with multiple performance levels (from novice to expert) will be required, which is still missing in the literature.

Another potential benefit of this framework is that it can serve as a guide for recruitment and promotion of facilitators (Bing-You et al., 2017). For this purpose, one proposed method is granting a "statement of awarded responsibility" (STAR) to the teacher demonstrating sufficient proficiency in an EPA (Dewey et al., 2017). This STAR will represent that the awarded teacher is now *entrusted* to perform a particular teaching task in an expert fashion. This concept of conferring awards to teachers is in line with the already established concept of granting entrusted privileges to clinicians in clinical practice. Institutes can embed this STAR model in their recruitment and promotion regulations and can allocate reasonable points to the achieved STARs so that the teacher can receive some benefits of being an *entrusted facilitator*. In addition, the teachers can use it as a learning guide for their continuing professional development and for building their teaching portfolio (Walsh et al., 2018). Using this framework, the teachers can be empowered to identify their learning gaps and gradually build on the competencies required to perform their facilitation tasks.

In this study, a participatory design approach was used to co-create the EPAs framework. To our knowledge, this is the first study in which teachers (direct stakeholders) and students (indirect stakeholders) have collaborated to co-design EPAs framework for the faculty. Indeed, we recognize different methods for developing EPAs, but participatory design has its own unique value. It advocates active participation of stakeholders in the design process who are the beneficiaries or consumers of the end product (Könings, Bovill, & Woolner, 2017). This approach also ensures that the needs and viewpoints of all stakeholders are sufficiently accommodated in the design. It is also anticipated that the active inclusion of students and faculty in the co-creation process may help in generating a higher level of acceptance, understanding, and utility of the framework by its users.

Furthermore, the use of *World Café* in the design process made this study more multi-layered and rigorous. The *World Café* enabled the participants to share their ideas and experiences, discuss and reflect upon their group findings, and develop mutual understanding. It also helped in building consensus of the cohort, and in overcoming the expected discordance between sub-groups' viewpoints during the design process. Although we observed positive effects of *World Café* on the pre and post-rounds field notes, we did not meticulously analyze the change in data as it was beyond the scope of this study.

We acknowledge certain limitations in our study. One limitation of this study is that the individual perspectives of some students and/or teachers may not be completely incorporated into the group data. Although we tried to cater to this issue by obtaining input from multiple sources, it remains an intriguing question how successful our participatory design was in accommodating everyone's opinion. Moreover, this study focuses specifically on small group pedagogy, which could be a limiting factor in generalizing our findings to other teaching contexts. Additionally, we did not include expert educationists in the design process because we wanted to solicit a wider scope from the most relevant stakeholders first, namely: students and teachers. Lastly, this framework only highlights the professional tasks and competencies required for the entrustment of small group facilitators; it does not provide methodical details of the entrustment process. For instance, who should be the assessors? How should the level of proficiency be determined? These are questions for future research which can be answered by developing a rubric-based entrustment tool, and by defining various proficiency levels in it.

This study concludes an EPAs framework for small group facilitators by carefully following the literature guidelines for EPAs development and by involving the most important stakeholders, being teachers and students. It is anticipated that this framework will help in overcoming current gaps in faculty development programs. Furthermore, some additional benefits of this framework have also been proposed. The program developers can use this framework as a curricular guide for designing training programs and assessing teaching proficiency. On the other hand, teachers could use it as a guide for their continuing professional development and for building their teaching portfolio. Lastly, institutes and administrative bodies could use it for the purpose of recruitment and promotion of facilitators.

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CHAPTER 4

‘It’s about time to involve all stakeholders in co-creating faculty development programs’ – Exploring the perceptions of students and teachers

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‘It’s about time to involve all stakeholders in co-creating faculty development programs’ – Exploring the perceptions of students and teachers.

Abstract

Co-creation is typically used to design educational content for students. Co-creation of faculty development courses or activities through student-teacher collaboration is a recent advancement. This study aimed to explore the perceptions of students and teachers regarding their experience as co-creators of a faculty development program for teaching staff, because negative perceptions might jeopardize the sustainability and implementation of co-creation as well as its outcomes. The perceived value of contributions and ways to improve student-teacher collaboration in future co-creation activities were also explored. Students (n = 11) and teachers (n = 11) who had previously participated in co-creating a faculty development program were interviewed individually. A thematic analysis was performed, and emerging themes were categorized into three main sections: (1) perceived co-creation experience, (2) perceived value of the different contributors, and (3) possible improvements to future co-creation activities. The participants mostly shared positive thoughts about their co-creation experience, although some negative and demotivating factors were also reported. The inclusion of both students and teachers in co-creating faculty development programs was perceived essential, because it conveys multiple benefits for stakeholders, the created faculty development programs, and the design process itself. However, purposeful recruitment of participants and their pre-training are crucial to ensure a successful and productive co-creation activity.

Keywords: co-creation; faculty development; student-teacher collaboration; student-teacher partnership

Introduction

Faculty development is a set of activities targeted towards improving the knowledge, skills, and attitudes of teaching staff in order to positively influence student learning (Steinert, 2014). The faculty development programs are traditionally designed by educationalists and program developers as they are considered best qualified for this job, and students and teachers are usually not involved in the design process. However, the recent scholarship on student-teacher collaboration in higher education suggests that it is important to actively engage all stakeholders – i.e. students as well as teachers — in devising the content of educational programs (Abbot & Cook-Sather, 2020; Könings, Mordang, Smeenk, Stassen, Ramani, 2020; Marquis, Power, & Yin, 2019). The contention is that these stakeholders offer diversified spectrum of perspectives during program designing and their contribution helps to foster academic teaching and learning practices. Thus, a new facet of co-creation has emerged, that is, co-creating faculty development through the active collaboration of students and teachers (Iqbal, Könings, Al-Eraky, AlSheikh, & van Merrienboer, 2020).

As the participation of students and teachers in designing faculty development programs is a novel concept, literature on this subject is underdeveloped, and it is, therefore, unclear how these stakeholders perceive their involvement in such co-creation exercises. It is important to explore their thoughts, because the negative perceptions of teachers and/or students could jeopardize the sustainability and implementation of the participatory design approaches as well as their outcomes. More insights into their co-creation experience may also help to identify ways in which these stakeholders can be more actively and productively engaged in future co-creation initiatives.

Co-creation itself is well-versed in higher education where critical pedagogy continuously challenges educational theory and practice, and encourages teachers and students to collaboratively create new and improved forms of knowledge (Bovill & Woolmer, 2018; Matthews et al., 2019). Co-creation is defined as a process whereby students and teachers work in partnership and share the responsibility of developing educational content (Bovill, Cook-Sather, Felten, Millard, & Moore-Cherry, 2016; Könings et al., 2020; Martens, Meeuwissen, Dolmans, Bovill, & Könings, 2019). In principle, the co-creation approach goes beyond merely listening to the opinions of stakeholders and prompts their active participation in the design process (Könings, Bovill, & Woolner, 2017; Könings, Brand-Gruwel, & van Merriënboer, 2010). The main goal of co-creation is to improve students' engagement in educational development by welcoming their perspectives and to develop educational content that better meets their needs and interests. It encourages students to actively collaborate with their teachers by decentralizing the authority and providing participatory opportunities (Bovill et al., 2016; Martens et al., 2019). Thus, co-creation offers a new educational dimension of creativity, innovation, and student-centeredness.

Overall, the co-creation approach has shown promising results in designing learning resources, courses, and other educational content. The unique student-teacher collaboration in co-creation exercises brings diversity to the group, as different contributors have different roles, academic statuses, and types of expertise (Verwoord, 2016). These collaborative activities also help to broaden

the scope of the student-teacher partnership in order to positively influence the educational environment (Bovill et al., 2016; Cook-Sather, 2014). Additionally, some other known benefits of co-creation for students and teachers include enhanced student-teacher bonding, exchange of experiences, and a better understanding of each other's expectations (Bovill et al., 2016; Marquis, Black, & Healey, 2017; Ruskin & Bilous, 2019). However, it is still unclear whether co-creation is as productive in the context of faculty development as it is in regular educational co-design activities.

Next to expected benefits, certain challenges have also been attributed to the traditional co-creation process, which may also apply to co-creation in the field of faculty development. For instance, during co-creation activities, there is always a risk that talkative participants may dominate the shy and quiet ones within the group (De Leng, Dolmans, van de Wiel, Muijtjens, & van der Vleuten, 2007). Moreover, the formal student-teacher dialogue is known to be ineffective in generating a meaningful discussion because the students may feel overwhelmed in their teachers' presence and, therefore, they may not express their ideas as openly as desired (De Leng et al., 2007; Estacio & Karic, 2016). These potential challenges can hamper group functioning and the desired outcomes of a co-creation exercise, even more so when the focus is on developing initiatives directed to the professionalization of teachers. Therefore, it is important to explore if co-creation in the domain of faculty development can prove to be an effective approach in creating a productive, democratic and conducive working environment for the participants.

Another potential challenge to co-creation, particularly in the context of faculty development, can be the repositioning of students› and teachers› roles (Higgins, Dennis, Stoddard, Maier, & Howitt, 2019; Schieble, Vetter, & Meacham, 2015). Unlike conventional co-creation exercises, here the students develop the training content *for* the teachers and not for themselves. Similarly, the teachers develop the training content for themselves and not for their students. In these repositioned roles, the students and teachers acquire a more democratic and radical position which may provide an even more transformative platform for co-creation (Cook-Sather & Felten, 2017). However, this unique repositioning of roles has not been studied before. Therefore, it is imperative to understand how the involvement of both contributors in co-creating faculty development programs is perceived by teachers and students. This inquiry is of particular value in relation to students, because their role as co-creators has continuously been questioned by the critics of the co-creation approach (Bovill et al. 2016; Könings et al. 2020), who have argued that students are neither teaching nor program design experts; therefore, their contribution may not be as productive and meaningful as desired (Deaker, Stein, & Spiller, 2016).

These gaps in understanding have prompted the formulation of three research questions:

(1) How do teachers and students involved in co-creating a faculty development program perceive their co-creation experience?
(2) How do teachers and students perceive the involvement of both stakeholder groups as co-creators in faculty development?
(3) What are the suggestions of the contributors for improving student-teacher collaboration in future co-creation activities?

Methods

Setting

A series of three workshops was organized to co-create a faculty development program. An *orientation workshop* was held to brief the participating teachers and students about their roles and to introduce the topic (i.e., small group teaching). A *design workshop* held to develop the faculty development program consisted of two phases. In the first phase, students and teachers were divided into heterogenous groups and were instructed to brainstorm and enlist the tasks and relevant teacher competencies for small group teaching on a chart. In the second phase, the World Café approach (O'Connor & Cotrel-Gibbons, 2017) was introduced in which participants rotated from one mixed group (i.e. teachers and students) to another to further discuss and reflect upon the other group's findings. The purpose of using this approach was to create an informal and comfortable discussion atmosphere to prompt an open exchange of ideas. It was also used to help develop a shared understanding and consensus between participants by eliminating discordance between the group viewpoints. In the *consensus workshop*, open-ended discussions were conducted, followed by online voting rounds to develop consensus. The co-creation exercise is described in detail somewhere else (Iqbal et al., 2020).

Participants

All participants of the co-creation project (n = 30) were invited to share their insights and experiences during individual interviews. Of the 30 participants, 11 (73.3%) students and 11 (73.3%) teachers accepted the invitation. The participants were from various health sciences disciplines and all of them had prior teaching and learning experience of small group pedagogy (PBL sessions, tutorials, skills labs, etc.) in medical, dental, nursing, pharmacy, or applied medical sciences colleges.

Materials

In the semi-structured interviews, a pre-determined interview scheme was used which resonated with the three research questions of this study. In total, 16 questions were asked from each student and teacher individually. The questions inventory is given in Appendix 1.

Procedure

The study was conducted at Imam Abdulrahman Bin Faisal University, Saudi Arabia from June 2019 to September 2019. On completion of participant recruitment, an interview appointment was requested via an email, in which all participants were informed about the objectives of the study and the nature of the interview. Written informed consent was obtained before beginning

the interviews, and all the interviews were audio-recorded with the permission of the participants. Interviews were conducted either face-to-face (n = 16) or on the telephone (n = 6). The duration of the interviews ranged from thirty to forty-five minutes.

Data Analysis

The audio recordings were transcribed verbatim, after which the interview transcripts were sent to the participants for member checking to ensure the trustworthiness and correctness of the data interpretation (Varpio, Ajjawi, Monrouxe, O'Brien, & Rees, 2017). Thematic analysis was carried out via Atlas.ti® using the template approach, in which the research question and sub-questions served as a guide for coding and theme identification (Brooks, McCluskey, Turley, & King, 2015). In addition to the priori coding, the data were also inductively analyzed to ensure theoretical sufficiency (Varpio et al., 2017). Following this analysis, sub-themes with salient illustrations were identified to clarify and further explain the main themes and concepts.

Results

We grouped the emergent themes into three sections as per our research questions for a better understanding of the findings. The first section reflects upon the experiences of students and teachers as co-creators of the faculty development program. The second section explains the perceived advantages and disadvantages of involving both stakeholders in co-creation of faculty development programs. Finally, the third section projects the suggestions of both parties to make student-teacher collaboration more productive in future co-creation exercises.

Perceived Co-creation Experience

Students frequently reported that they felt comfortable during the co-creation exercise because of the supportive attitude of the teachers. They stated that most teachers in their groups were friendly, non-confrontational, and motivating. Similarly, the teachers shared that they were comfortable with the students' presence because most students demonstrated respectful and co-operative attitudes during the activity. The overall positive behavior of both stakeholders created a conducive working atmosphere that motivated many participants to contribute actively. In particular, most students did not observe any resistance from the teachers' side. For example, one student said:

> *There were no judgments in the group. Even when we gave a negative comment, the teachers did not take it personally. This was a very motivating factor. (S06)*

Some negative attributes were also highlighted which participants found discouraging. For instance, a few students reported dominating behavior of some teachers during the group discussion. One student said:

> *There was a teacher in our group. She was very dominating. We tried to convince her about the idea, but she didn't listen. So, we eventually gave up. It felt useless to argue with her. (S08)*

Also, a couple of teachers noted that one or two students within their group were relatively shy and reluctant to contribute, especially at the beginning of the design workshop. Some participants also experienced friction between the group members which led to minor disagreements and conflicts. The disagreements were mostly between students and teachers and rarely between teachers. Upon asking, the students expressed that it felt different to disagree with teachers as compared to their peers. This difference in feeling was attributed to the respect associated with the seniority of the teachers and/or to teachers being more experienced and knowledgeable. For example, one student said:

> *Naturally it feels different from an age and experience point of view. We don't generally disagree with our teachers out loud and just say 'O no... you are wrong, and I am right'. We have to give them respect. In some cases, we have to keep quiet even though we can feel that they are wrong. (S03)*

Both students and teachers expressed that they solved the disagreements through discussion, clarification, and/or group voting. The participants stated that in cases of disagreement the viewpoints of both parties were acknowledged; both opinions were kept on the chart and the World Café rounds were used to develop group consensus.

WORLD CAFÉ

Participants shared that the World Café helped them in multiple ways. The most frequently informed benefit of World Café approach was sharing ideas and experiences. Most participants also found World Café rounds helpful in clarifying confusions and resolving conflicts between group members. One interviewee expressed:

> *Yes! It was extremely effective because there was some conflict in our group. During the rounds, we visited other groups and we had a debate over there. So, we... kind of... understood the concept more clearly with the help of the others' opinions. (S08)*

Additionally, several participants agreed that the World Café rounds helped them develop a shared understanding and achieve consensus on the group tasks and competencies. One interviewee said:

I loved the World Café. It challenged everything that we had on our chart. Technically, the biggest advantage was… I don't know whether it was your objective or not… it helped in unifying the content of all tables. Eventually, all the ideas were converged. (T01)

Perceived Advantages and Disadvantages of Involving Different Stakeholders as Co-Creators

Almost all students and teachers stated that involving students in co-creating faculty development programs is extremely important as they are the key stakeholders of the education system.

ADVANTAGES OF STUDENT INVOLVEMENT

The interviewees highlighted various benefits of involving students as co-creators of faculty development activities. According to the participants, this inclusion is valuable because students are the primary recipients of teaching and are therefore best able to highlight the issues in daily teaching practices. One teacher said,

I think students are the main stakeholders of this education system and I think it's very important to add students in co-creation. Even if students do not give much input, only their presence will be helpful in developing a positive attitude among students. They will feel more valued. (T10)

The students in particular viewed their co-creation role as important, arguing that it can provide means to directly embed their input in the program design. For example, one student explained:

There is a big difference between student feedbacks and students as co-creators. Feedbacks are used when you are trying to fix something which is already designed. Feedbacks are important. But I definitely feel that designing something from scratch with students' direct involvement has more value than feedbacks. (S02)

Some students even perceived the co-creation exercise as an opportunity to represent students and voice their opinion. One of them said:

I think, it was a great chance to speak on behalf of the other students. I felt like an ambassador of the students. I felt like the faculty is never going to find out what we really want if we do not speak up. (S10)

DISADVANTAGES OF STUDENT INVOLVEMENT

Most interviewees did not identify any potential issues regarding the inclusion of students as co-creators. However, a few argued that students' lack of teaching experience and knowledge

of faculty development could be problematic, and therefore their productive input in co-creating faculty development programs is questionable. For example, according to one teacher:

> *In my opinion, it's better not to have students because they usually do not have the knowledge or experience to contribute. So, they will detract the group and the whole exercise will not be as productive as it should be. (T06)*

Additionally, one teacher expressed concerns over students being too vocal and critical, saying:

> *Sometimes the students become too vocal, especially when they feel that they have the free leverage to criticize. Look, I understand the students should be the priority and we should give importance to students' opinions but sometimes they misuse this power. (T03)*

ADVANTAGES OF TEACHER INVOLVEMENT

All students and teachers agreed that it is not only justified but crucial to involve teachers in co-designing faculty development. Many interviewees highlighted that only teachers understand the problems and difficulties they face during teaching, thus including them in the development process ensures that their experiences are incorporated into the program design. For example, one student stated:

> *...based on their experience, they (teachers) can share valuable points. This also happened in our group. They mentioned some points from their own experience which were completely forgotten by us (students). (S07)*

And one teacher said:

> *I think teachers are the ones who are dealing with the students throughout the year. They know what issues they are facing in their teaching and what kind of faculty development activity can help them in overcoming these issues. (T09)*

A couple of students said that teacher inclusion facilitates the design of a more realistic and practical training program; for example:

> *It is important to add the teachers because sometimes students think in a very ideal way and they do not consider the limitations of the system. But teachers know these things better. So, I think it is essential to add teachers. (S03)*

DISADVANTAGES OF TEACHER INVOLVEMENT

Almost all students and teachers expressed that including teachers in co-creating faculty development programs does not pose any challenges, although some students argued that the inclusion of authoritative and stubborn teachers may create problems. For example, one student said:

> *I think a potential problem will be that some teachers don't want to change. They think that what they have been doing for the last 20 years is great. They are not very good at receiving criticism too. So, I think, their input will not be valuable. (S09)*

SUGGESTIONS FOR IMPROVING STUDENT-TEACHER COLLABORATION

The analysis of participant suggestions revealed three main themes related to improving student-teacher collaboration in future co-creation activities.

PARTICIPANT RECRUITMENT

Most of the interviewees expressed at some point during their interview that selection of students and teachers is a crucial step in ensuring the productive outcomes of a co-creation exercise, and therefore contributors should not be selected at random. One student proposed the following selection criteria for students:

> *First of all, the students should volunteer. Then from these volunteers, students should be nominated by group leaders and faculty based upon some rubric or criteria or maybe the objectives of the study. Also, the selection should not be knowledge or grade based. (S01)*

Few teachers argued that only experienced and motivated teachers should be recruited as co-creators. A couple of teachers also added that the inclusion of inflexible and stubborn teachers should be avoided as they may resist change to their teaching styles. For example, one teacher stated:

> *I think all teachers cannot be co-creators. Some teachers are very stiff in their opinion and they are stuck with their traditional teaching styles. So maybe these old-school teachers should not be included. (T03)*

PARTICIPANT TRAINING

Almost all interviewees stressed upon the value of training participants before the co-creation exercise. They explained that the purpose of the training should be: (1) to prepare the contributors for their roles and responsibilities; (2) to motivate students to actively participate; and (3) to urge teachers to treat students as equals and respect their opinions. For example, one student said:

> *...training is very important. We can train the students to be confident. Also, teachers should be trained on how to receive criticism and how they should support students in expressing their point of view. (S11)*

And one teacher said:

> *I think, you just have to sensitize one party and they are the teachers. Students are always willing to contribute with their ideas. You just have to sensitize the teachers to accommodate students' opinions. (T01)*

ANONYMOUS PARTICIPANTS

Many students and teachers also positioned anonymity or unfamiliarity among participants as a crucial factor of productive student-teacher collaborations. However, some gave contradictory remarks and claimed that familiarity between participants is essential for rapport building and open discussion. One interviewee who supported the anonymous contribution of participants said:

> *... it's very important to break the titles barrier. Look, I do not want to be identified as student XYZ. Similarly, for the teachers like Doctor XYZ or Professor XYZ. There is no need for me to feel that 'Oh... I am inferior, and the teachers are superior.' We are both equal in this co-design so let's act as such. I think making it title free as much as possible will help a lot. (S03)*

Whereas, one of the interviewees who stated that familiarity among participants is a productive element said:

> *I have another suggestion. I think if we have one informal session before the formal meeting, with food and drinks, where we could mix up and know each other then I think it will break the ice and will have a more productive discussion later on. (S03)*

Discussion

This study explored the perceptions of students and teachers regarding their recent co-creation experience and the perceived value of both stakeholder groups in co-creating a faculty development program. Furthermore, suggestions were taken to promote student-teacher collaboration in future co-creation projects.

Regarding the student and teacher perceptions of co-creation, the majority of the interviewees shared positive, productive, and enriching experiences. During the activity, most participants

demonstrated friendly, understanding, and respectful attitudes towards each other, which also frequently emerged as the main motivating factor for their active contribution. Although most teachers showed encouraging and non-confrontational behavior during the exercise, a slightly dominating attitude was also reported for a few teachers, which may have negatively influenced the students and discouraged their active input. The dominating behavior of some teachers may also have prompted students' reported shyness and reluctance in some cases.

A disagreement between participants is naturally expected in any productive discussion. Indeed, mild to moderate cases of conflict or disagreement between students and teachers were observed in this study. While exploring means of resolving conflicts, most groups depended upon the World Café rounds for further discussion, clarity, and mutual understanding. Their viewpoints on World Café validate the reported utilities of this approach in co-creation context (Estacio & Karic, 2016; Filies, Yassin, & Frantz, 2016).

One negative aspect of the reported conflict situations was that the students did not assert their viewpoint as strongly as they wanted to because they felt somewhat intimidated by the seniority and/or experience of the teachers. This feeling of subordination may pose challenges to the co-creation process as it may restrict the openness of students, detach them from the process, and negatively affect their overall contribution (Verwoord, 2016). Future research could investigate how student participation can be brought at par with that of the teachers, and which techniques can be used to overcome the elements of resistance such as reluctance and subordination.

In this study, almost all participants appreciated the novelty of involving students and teachers in co-creating faculty development programs and justified the contribution of both parties. Student participation was considered vital because they are the principal stakeholders of the education system and are direct recipients of the modified or improved teaching methods conceived from faculty development. For this reason, they are probably in the best position to identify the issues and deficiencies in teaching that require special attention. Furthermore, they can also suggest their preferred teaching and learning approaches which can help teachers to adapt their instructional designs accordingly (Cook-Sather & Agu, 2013; Matthews et al., 2019). This argument is in line with previous studies which suggest that student-teacher interactions beyond their traditional roles help the teachers become more flexible, dynamic, and understanding towards student needs, leading to better teaching and improved student outcomes (Kim & Sax, 2009; Marquis et al., 2019). Moreover, the direct student involvement in co-creating faculty development gives a much-needed opportunity to students to voice their opinion and embed their input in the program design (Catherine Bovill, Cook-Sather, & Felten, 2011).

According to Cook-Sather et al. (2014), when students share responsibility for co-designing education, they shift from being passive consumers or recipients to being active change agents only if they take the opportunity seriously. Thus, Bovill and Woolmer (2018) argued that students should not only be consulted but must be included as full participants in the design of

teaching and learning resources. However, despite reported value of students as co-creators, a few teachers shared some reservations toward meaningful contribution of students due to their inadequate topic knowledge and teaching experience. Although this concern was shared by only a couple of participants, it remains an element of resistance by the teachers which is in line with the known key challenges to co-creation (Bovill et al. 2016). One example is the work of Deaker et al. (2016) where students' input in teaching evaluation was considered unreliable and impractical for faculty development. On the other hand, many scholars have rebutted this idea and have promoted students as resources of knowledge and experience rather than a hindrance to co-creating pedagogical projects (Baumber, Kligyte, van der Bijl-Brouwer, & Pratt, 2019; Bovill et al., 2011; Bovill et al., 2016; Cook-Sather & Agu, 2013; Könings et al., 2020; Mercer-Mapstone et al., 2017). Future research could address this controversy by exploring ways in which teachers' attitudes could be made more inclusive towards students as co-creators.

In the current study, both students and teachers valued the practical (teaching) experience of the teachers and advocated their participation in the co-creation process. Their inclusion in the design process was perceived important because it may help the teachers internalize the utility of faculty development, leading to increased acceptability, active participation in training and transfer of the newly learned skillset to teaching practices (Singh, De Grave, Ganjiwale, Muijtjens, & van der Vleuten, 2014). On the other hand, a lack of teacher involvement in the design process might alienate them from the training, leading to reduced motivation and commitment towards training (Cooper & Miness, 2014). Thus, the active inclusion of both stakeholder groups in co-creating training program is not only justified but imperative to achieving the desired training goals (Könings, Seidel, & van Merriënboer, 2014). Further research is required to explore the potential impact of teacher inclusion in co-creating faculty development on the resulting practical and attitudinal changes in their teaching practices.

Regarding suggestions for improving the quality of future co-creation activities, the prominent recommendations were: careful recruitment, adequate training and anonymity of contributors to the co-creation exercise. Indeed, recruitment of potential co-creators is a crucial step in the case of both parties. Choosing inappropriate students can lead to little or no real contribution from their side, resulting in reduced productivity (Bovill et al., 2016). On the other hand, some teachers are resistant to change; their inclusion not only negatively influences the outcomes but also disrupts the co-creation exercise with their pessimism (Könings, Brand-Gruwel, & van Merriënboer, 2007). Therefore, it is vital to recruit motivated, internally driven, and active participants in co-creation studies to ensure their meaningful contribution.

As far as the training of the participants is concerned, it was considered essential to preparing participants for their expected roles and encouraging their active contribution. Teachers may also need attitudinal training to accept students in their new role and support their input in the co-creation exercise. Similarly, training is needed for students to help them overcome their shyness and reluctance and make them realize the value of their contribution to education as co-creators. It was also suggested to ensure anonymity of the participating students and teachers.

However, contradictory views were observed on this point, thereby highlighting a gap for future researchers to explore whether anonymous participation has practical implications and value for a more productive co-creation experience.

The present study has some limitations that need to be reported. Although careful measures were taken not to over-generalize the results, the findings were drawn from the perceptions of a relatively small group of participants, all of which belonged to the same university. There is also the risk of selection bias as participants were recruited on a voluntary basis. Although the reported findings were the genuine perceptions of students and teachers participating in the co-creation project, the other non-interviewed participants may have had different experiences. The present study focused on the perceptions of students and teachers only and not on those of the program developers (teacher trainers), which future researchers can explore to further understanding in this domain. Furthermore, the participants in this study were directly involved in co-creating a faculty development program. They might have assumed a sense of ownership of the project and its outcomes, resulting in inflated perceptions regarding the value of co-creation in faculty development. Another limitation is that the participants may have responded to the interview questions in a socially desirable manner, which could have resulted in a relatively positive nuance to the findings. However, the positive responses of the participants are in line with the educational reports of previous studies that have utilized co-creation as a main architectural tool. Finally, cultural influence on the participants cannot be ignored. As disclosed by some students, it is against cultural norms for students in the Middle Eastern region to argue with teachers or be more vocal during discussions, which may be another limiting factor of the current study. This limitation also implies that co-creation approach might be more effective where the cultural norms are more relaxed and democratic (as in Western countries).

Nevertheless, this study demonstrated that active and meaningful student-teacher collaboration in co-creation activities can be achieved by ensuring a friendly, conducive, and non-threatening working environment. Also, the participation of both students and teachers can be made more productive through meticulous recruitment and appropriate training of the participating co-creators. Both factors, recruitment and training, are vital to ensuring a successful co-creation activity because certain negative characteristics of students and teachers, if present, can jeopardize the co-creation process. In case of teachers, a dominating or stubborn attitude can pose challenges to the co-creation activity. Whereas a shy, reluctant, underconfident, or non-serious attitude in students can be equally threatening to the co-creation process. Keeping all expected challenges in mind, it is possible to conclude that co-creation can be an effective approach to designing faculty development programs. It holds multiple benefits for the stakeholders, training programs, and the co-creation process itself. The critical insights of students and valuable teaching experience of teachers can help to co-create a practical and comprehensive training program. Thus, the active inclusion of both stakeholders in co-designing the training program is not only justified but essential.

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Appendix 1: Interview questions inventory

1. When thinking about the design workshop, what did you feel in the presence of teachers during group discussions? (*from students only*)
   When thinking about the design workshop, what did you feel in the presence of students during group discussions? (*from teachers only)*
2. How was the behavior of teachers in your group? (*from students only*)
   How was the behavior of students in your group? (*from teachers only*)
3. Did you have enough opportunities to express your opinion in the group?
4. What motivated or restricted you to express your ideas within the group?
5. Did you encounter any conflict or strong disagreement within the group during the discussion? (if YES then;
   5.1. Was this argument between teachers or between student-teacher?
   5.2. How did you tackle disagreement within the group?
   5.3. Whether it felt different to disagree with teachers than with students? (*from students only*)
6. What is your opinion about the world café?
7. How relevant or valuable do you see your own role as a co-creator of faculty training framework?
8. Was it justified to add *students* in co-creating faculty training programs?
9. What benefits do you see of including *students* in co-creating faculty development programs?
10. What are the potential issues of including *students* in co-creating faculty development programs?
11. Was it justified to add *teachers* in co-creating faculty training programs?
12. What benefits do you see of including *teachers* in co-creating faculty development programs?
13. What are the potential issues of including *teachers* in co-creating faculty development programs?
14. What are your suggestions for improving student-teacher collaboration in similar kind of future co-creation activities?
15. How was your overall experience of the co-creation process?
16. Is there something that you would like to add further?

CHAPTER 5

Expert validation of entrustable professional activities framework for small group facilitators by using modified delphi technique

Submitted as:
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Expert validation of entrustable professional activities framework for small group facilitators by using modified delphi technique.

Abstract

CONSTRUCT

Entrustable professional activities (EPAs) provide a novel approach to support the structured professionalization of the teachers and assess improvement in the teaching competence thereafter. Despite their novelty, it is important to assess the construct of the EPAs to ensure that they accurately reflect the work of the targeted profession.

BACKGROUND

The co-creation of an EPA framework for training and entrustment of small group facilitators has been discussed in the literature. Although a rigorous design process was used to develop the framework, its content validity has not been established yet. This study aimed to identify the content validity of an EPA framework designed for small group facilitators.

APPROACH

A modified Delphi technique was used to validate the EPA framework. Three survey rounds were conducted from December 2019 to April 2020. Expert health professions educationalists were recruited using purposive sampling and snowball techniques. In Round 1, a rubric consisting of seven items was used to assess the quality of nine pre-designed EPAs. In Round 2, competencies required to perform the agreed-upon EPAs were selected from 12 given competencies. In Round 3, agreement consensus was sought on sub-activities recommended for agreed-upon EPAs. Both quantitative and qualitative analyses were conducted.

FINDINGS

Three of the nine proposed EPAs achieved statistical consensus for retention. These EPAs were: (1) preparing an activity, (2) facilitating a small group session, and (3) reflecting upon self and the session. Then, nine of the 12 pre-determined competencies were mapped against each agreed-upon EPA based on relevance. Finally, five, six, and four sub-activities achieved consensus for EPA 1, EPA 2, and EPA 3, respectively.

CONCLUSIONS

The validated framework delineates three EPAs and their associated sub-activities on small group facilitation. A full description of each EPA has also been provided that includes the title, context, task specification, required competencies, and entrustment resources. Program developers, administrative bodies, and teaching staff may find the validated framework useful to structure faculty, to entrust teachers, and to support personal development, respectively.

Keywords: entrustable professional activities; faculty development; teaching competence; teacher evaluation; small group teaching

Introduction

Health professional teachers sometimes struggle to perform their academic tasks as they receive little or no training before assuming their academic roles (Campbell, Wozniak, Philip, & Damarell, 2019). For teachers, institutes offer support in the form of faculty development, which varies in format, context, and complexity. Faculty development (FD) encompasses sets of activities that teachers pursue to enable themselves to perform their academic tasks competently (Garcia, James, Bischof, & Baroffio, 2017; Steinert et al., 2016, 2006). Despite investing time, effort, and resources in establishing FD programs, their effectiveness is debatable. This is primarily because most training programs are designed and executed around individual or institutional *wish lists,* and little emphasis is placed on structuring the training and evaluating its impact on teaching practices (Al-Eraky & McLean, 2012; Iqbal, Al-Eraky, & AlSheikh, 2018). To improve training effectiveness, a systematic approach that supports the structured professionalization of teachers and assesses improvement in their teaching competence thereafter is needed (Dewey, Jonker, ten Cate, & Turner, 2017; Sherbino, Frank, & Snell, 2014). Recently, entrustable professional activities (EPAs) have been proposed as a novel approach to organizing training and entrusting teachers (Dewey et al., 2017; Gardner, Gee, & Ahmed, 2018; Iqbal et al., 2018; Iqbal, Könings, Al-Eraky, AlSheikh, & van Merrienboer, 2020).

EPAs are core tasks of professional practice that can be fully entrusted to a trainee once he or she demonstrates the competence required to execute the task independently and proficiently (ten Cate et al., 2015). For any professional task to qualify as an EPA, it must possess certain features. For instance, an EPA should have a clear beginning and an end. It should be a specific, focused, and independent task that is observable in process and measurable in outcome. Lastly, an entrustable task always requires the integration and application of relevant competencies for its execution (Peters, Holzhausen, Boscardin, ten Cate, & Chen, 2017; ten Cate, Scheele, & ten Cate, 2007). EPAs and competencies are two different entities (ten Cate, 2013; ten Cate et al., 2015; ten Cate & Pool, 2019). An EPA refers to a unit of expected professional work that is person-neutral. In contrast, a competency is person-specific, and it relates to the personal knowledge, skills, and attitudes required to perform the desired task (ten Cate & Pool, 2019). In addition, to facilitate the training and entrustment process, the EPA framework should incorporate an explicit description of the context, task specification, required competencies, and entrustment protocols for each EPA (Carrie Chen, McNamara, Teherani, Cate, & O'Sullivan, 2016; Englander et al., 2016; ten Cate et al., 2015).

So far, EPAs have been used in various health professional domains to operationalize competency-based education and training (Shorey, Lau, Lau, & Ang, 2019). A latest development in the literature is the co-creation of an EPA framework which has been introduced to support the professionalization and entrustment of small group facilitators (Iqbal et al., 2020). Unlike conventional methods, students and teachers co-created the EPA framework on the facilitation, and the expert health professions educationalists were not consulted. Nevertheless, to ensure

scrutiny and quality, all stakeholders should be involved in the development and validation process (Meyer, Chen, Uijtdehaage, Durning, & Maggio, 2019; Taylor et al., 2020). Moreover, it is not known yet if the proposed EPAs possess the qualifying features, which further signifies the need to validate the framework by expert educationalists. This gap in literature led to the formulation of our main research question: How valid is the earlier co-created EPA framework designed for small group facilitators? The research question was further divided into two sub-questions: (1) What is the content validity of each EPA provided in the framework? (2) From the pre-determined list, which competencies are required to perform the agreed-upon EPAs?

Methods

Study Design and Participants

In a content validation study conducted from December 2019 to April 2020, we used a modified Delphi technique through an iterative process to develop consensus among experts. Experts are those health professions educationalists who are actively involved in designing FD programs and also possess a scholarly and practical portfolio in health professions education. Both purposive sampling and snowball techniques were used to recruit international participants possessing a major qualification in education and a minimum of five-year experience in designing FD programs.

Initially, 40 international health professions educationalists were identified and invited to participate in the validation process. They were also requested to recommend experts for potential recruitment, which led to 38 additional educationalists being included in the invitation list. Of the 78 invitees, 31 agreed to contribute to the study. Among those who participated, 7 (22.6%) had 5 to 10 years and 24 (77.4%) had more than 10 years of academic experience in faculty development. Regarding their academic positions, 9 (29.0%) were assistant professors, 5 (16.1%) were associate professors, and 11 (35.5%) were full professors. The remaining 6 (19.3%) were either directors or chairpersons. Geographically, the participants lived in Australia, Canada, Egypt, India, Malaysia, Netherlands, Pakistan, Saudi Arabia, Singapore, the United States of America, and Vietnam.

Materials

In this project, a recently developed and published EPA framework on small group facilitation was used as source material, which has nine EPAs and 12 associated competencies. The complete framework can be consulted elsewhere (Iqbal et al., 2020).

RUBRIC DEVELOPMENT AND VALIDATION

Inspired by the EQual rubric (Taylor et al., 2017), we developed and validated its shorter version to assess the quality of the nine EPAs. Although the EQual rubric comprehensively covers all

quality indicators, we modified it because it was originally designed to assess clinical EPAs. In our modified version, we revised the items by explicitly using the context of small group teaching. When developing the rubric, we ensured that it covered all the essential features of EPAs given in the literature (ten Cate, 2005; ten Cate et al., 2015; ten Cate & Pool, 2019). All co-authors individually analyzed the rubric items to ensure their ease of understanding and clarity. The rubric was then pilot tested on three health professions educationalists to identify any potential issues or confusing terminologies. The feedback from this pilot was used to modify the items slightly. These three experts were not included in the main Delphi rounds. The final seven items that we used in our study are as follows:

1. This EPA has a clear beginning and end
2. This EPA is observable in process
3. This EPA is measurable in outcome
4. This EPA describes a specific task essential for small group teaching
5. This EPA addresses a teaching task that is suitable for entrustment
6. The EPA title describes an independent teaching task, not qualities or competencies of a teacher
7. This EPA requires the application and integration of multiple competencies

Procedure

An online survey was created via QuestionPro® using the published EPA framework and the validated rubric. The survey link was distributed electronically to all participants, along with preliminary orientation on the objectives and theoretical background of the study.

ROUND 1

In Round 1, we asked the participants to provide their level of agreement on all seven rubric items for each EPA. The agreement levels were recorded using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The experts were also requested to justify their *strongly agree* or *strongly disagree* responses in the comment section of each item. Two open-ended questions were added at the end of the questionnaire. In the first question, the participants were encouraged to suggest modification or deletion of any existing EPAs. In the second question, the participants were requested to suggest additional tasks that they believed were missing in the list but qualified as an EPA.

ROUND 2

Round 2 of the survey consisted of three sections. In the first section, EPAs failing to secure consensus were redistributed for voting along with a summary of qualitative feedback and an explanation for minor or major revisions (if any). This time, rubric items were not used; instead, an overall agreement was sought on whether the given EPAs were independent and entrustable

tasks to avoid data duplication. In the second section, the participants were asked to select the competencies required to perform each agreed-upon EPA. The selections were made from the list of 12 competencies given in the published framework (Iqbal et al., 2020), and responses were recorded using a 3-point scale: 1 = competency is needed, 2 = not sure if competency is needed, and 3 = competency is not needed. Furthermore, the experts were requested to justify their responses (needed/not needed) in the comment section of each selected competency. An open-ended question in which participants were encouraged to suggest new competencies was also added. In the third section, the participants were requested to suggest sub-activities for the agreed-upon EPAs. A sub-activity was explained to the participants as an essential component of the EPA, which is not individually entrustable. This section was incorporated in Round 2 based on the expert comments received in Round 1 (explained later in the paper).

ROUND 3

In Round 3, the participants were asked to provide their level of agreement on the presented sub-activities. The agreement level was recorded using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Figure 5.1 shows the three Delphi rounds conducted in this study.

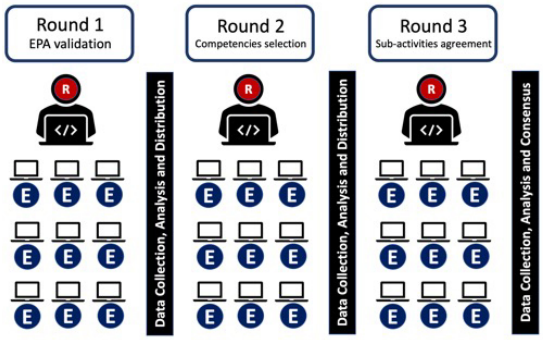

Figure 5.1: Validation process of the EPA framework

Data Analysis

We conducted multiple analyses on the data collected after each round to validate the framework. The data analysis procedure of each round is as follows.

ROUND 1

To determine the content validity of each EPA, we calculated the content validity index by item (I-CVI) and the content validity index by EPA (S-CVI/Ave). The I-CVI was calculated by estimating the proportion of respondents rating a rubric item with a score of 4 or 5 on the agreement scale. The S-CVI/Ave was then calculated by adding all the I-CVI scores and dividing the aggregate

by the total number of items (Yusoff, 2019). To calculate the I-CVI, the values of the upper two (*strongly agree* and *agree*) and lower two (*strongly disagree* and *disagree*) scales were merged for each item. The criterion established for EPA retention was that it must score .80 or above on all seven I-CVIs as well as the S-CVI/Ave. An S-CVI/Ave value ≤ .20 was used as the criterion for the deletion of an EPA (Taylor et al., 2018; Waggoner, Carline, & Durning, 2016). An EPA with an S-CVI/Ave value between .20 and .80 or an I-CVI value ≤ .80 was considered for re-voting in the subsequent round. Moreover, if a new EPA was suggested for addition by more than two experts and it had the essential features of EPAs, it was included in the subsequent round for voting.

In addition to establishing the content validity index, the asymmetric confidence interval (ACI) was also calculated for each EPA. ACI values provide a more conservative estimation that protects from the artificial narrowing of the confidence interval in skewed data. It was desired that the lower end of the ACI value for each EPA securing an S-CVI/Ave score of .80 or above must not drop below 4.0. We also calculated the mean and standard deviation (SD) to report the central tendency and variability of the results.

ROUND 2

The consensus on retention or deletion of the redistributed EPAs was measured using the same criterion used in Round 1. As for the competencies, we calculated the selection responses for each competency required to perform an EPA. We labeled a competency *essential* if 70% or more of the experts agreed on its requirement to perform the EPA. Similarly, a competency securing votes from 30%-70% of the experts was considered *relatively important,* and those securing less than 30% agreement votes were considered *not needed* to perform the EPA (Iqbal et al., 2020). The suggested new competencies were analyzed, and if more than two experts suggested a competency, it was included in the subsequent round for voting. Regarding sub-activities, the suggestions were analyzed and shared with experts in Round 3 to support their decision-making.

ROUND 3

The level of agreement was calculated for each sub-activity, and only those that achieved a CVI value ≥ .80 were retained.

The expert feedback was thematically analyzed using Atlas.ti qualitative software, version 8.4.4 (Atlas.ti Scientific Software Development GmbH, Berlin, Germany). The statistical calculations were conducted using Excel 2019 (Microsoft Corp., Redmond, Washington).

Results

ROUND 1

In Round 1, 31 participants completed the survey. Of the nine enlisted EPAs, only three met the retention criteria by achieving .80 or above I-CVI as well as S-CVI/Ave values (see Table 5.1).

Moreover, the lower ends of their ACI values were also ≥ 4.0. These three EPAs were:

Planning a small group learning activity
Managing group dynamics (rephrased as facilitating small group session)
Reflecting upon self and the session

Based on expert comments, the EPA *managing group dynamics* was rephrased to *facilitating small group session*s to make the task more comprehensive. One participant suggested,

"Managing group dynamics and enhancing the application of knowledge are interrelated tasks. Perhaps rephrasing a couple of words will give clarity to this EPA.» (P09)

Similarly, another expert said,

"Well, you can only manage group dynamics while you are facilitating a group, which looks more comprehensive task. Otherwise, I think it is quite difficult to point out when ‹managing group dynamics› starts and stops." (P16)

Despite achieving an S-CVI/Ave value ≥ .80, two tasks failed to obtain agreement on being *clear, independent,* and *measurable* tasks with a lack of *suitability for entrustment*. Their ACI value was also lower than 4.0. These two EPAs, which were included for re-voting in Round 2, were:

Triggering critical thinking and problem-solving skills among students
Providing constructive feedback

As shown in Table 5.1, the remaining four tasks failed to achieve overall content validation. These tasks were:

Providing clear and accurate contextual training
Keeping students on track to achieve learning outcomes
Promoting collaborative (team) learning
Assessing students' learning progress

The analysis of the qualitative data suggested that these tasks are interconnected; they have no definite beginning and end, and are not independently executable. Most of these tasks were perceived as part of the broader EPA *facilitating a small group session*. Guided by statistical results and expert opinion, these four tasks were excluded from the EPA list and included as sub-activities of the EPA *facilitating small group sessions*. Some new tasks were also suggested, but none of them qualified as an EPA as per our pre-determined criteria.

ROUND 2

In Round 2, 29 of the 31 experts participated in the survey. In the first section, a re-voting was conducted for two tasks to decide their inclusion or exclusion: *triggering critical thinking and problem-solving skills among students* and *providing constructive feedback*. The results showed that both tasks met the exclusion criteria (CVI ≤ .20). The majority of the participants suggested that both tasks are not independent; they are components of group facilitation. Therefore, these two tasks were also excluded from the EPA list and included as sub-activities of the EPA *facilitating small group sessions*.

In the second section, participants selected multiple competencies for each agreed-upon EPA separately. Table 5.2 represents the final framework, which contains three EPAs and their mapping with the competencies based on their selection frequencies. Three competencies, *educational leadership, mentorship,* and *interprofessional skills*, achieved less than 30% votes in all EPAs; hence, they were excluded from the final list. Some additional competencies were also suggested by the participants and were carefully reviewed by all co-authors. However, none of them was included because they either were a part of the existing competencies or did not qualify as a competency. For instance, *listening skills* and *dealing with loud/quiet members* are part of communication skills. Similarly, *preparation for the session, maintaining session discipline,* and *knowledge of small group discussion* could not qualify as competencies because these suggestions were either an EPA or its sub-activity.

In the third section, 11 sub-activities for EPA 1 (preparing a small group activity) and seven sub-activities for EPA 3 (reflecting upon self and the session) were suggested. The suggested sub-activities were reduced to five and four sub-activities respectively after removing duplications and non-qualifying sub-activities. Two authors (MZI and MAE) revised the sub-activities to improve clarity and two other authors (KK and JvM) validated the revisions. The revised list of sub-activities was used in Round 3 to seek expert agreement on them.

ROUND 3

Since all suggested sub-activities achieved a CVI value ≥ .80, therefore, all of them were retained.

Table 5.1: Item wise and EPA wise content validity index of all EPAs calculated from Round 1 voting (N=31)

EPAs	Clear beginning and end I-CVI	Observable I-CVI	Measurable I-CVI	Specific and essential to SGT I-CVI	Suitable for entrustment I-CVI	Independent task, not qualities or competencies I-CVI	Requires multiple competencies I-CVI	S-CVI/Ave	95% Asymmetric Confidence Interval for Mean (Lower-Upper)	Mean (SD)	Decision
Planning a small group learning activity	0.81	0.84	0.81	0.81	0.84	0.81	0.84	0.82	4.0-4.2	4.1 (0.4)	Retained
Providing clear and accurate contextual training	0.65	0.77	0.68	0.68	0.68	0.45	0.81	0.67	3.3-3.7	3.5 (0.6)	Nested as sub-activity
Keeping students on track to achieve learning outcomes	0.59	0.81	0.68	0.68	0.65	0.58	0.87	0.69	3.4-3.8	3.6 (0.7)	Nested as sub-activity
Triggering critical thinking and problem-solving skills among students	0.71	0.87	0.71	0.94	0.77	0.74	0.94	0.81	3.8-4.1	3.9 (0.5)	Re-voting in Round 2
Managing group dynamics	0.81	0.94	0.81	0.87	0.87	0.81	0.97	0.87	4.2-4.5	4.3 (0.4)	Retained
Providing constructive feedback	0.71	0.97	0.90	0.90	0.74	0.71	0.87	0.83	3.9-4.1	4.0 (0.3)	Nested as sub-activity
Reflecting upon session	0.81	0.81	0.81	0.87	0.81	0.84	0.90	0.84	4.1-4.4	4.2 (0.3)	Retained
Promoting collaborative (team) learning	0.48	0.71	0.52	0.77	0.68	0.65	0.77	0.65	3.4-3.6	3.5 (0.4)	Nested as sub-activity
Assessing students' learning progress	0.74	0.71	0.74	0.65	0.65	0.65	0.61	0.68	3.4-3.7	3.6 (0.5)	Nested as sub-activity

I-CVI= Item wise content validity index
S-CVI/Ave= Scale wise content validity index average
Shaded boxes represent I-CVI or S-CVI/Ave values ≥ 0.80

Table 5.2: EPAs framework on small group facilitation showing the mapping of finalized professional tasks and competencies

EPAs	Sub-activities	Competencies								
		Instructional design	Content expert	Communication skills	Teamwork	Professionalism	Time Management	Curriculum Design & Implementation	Information Technology Skills	Administrative or managerial skills
EPA 1: Planning a small group learning activity	**Sub-activity 1.1:** Arranging logistics for the session **Sub-activity 1.2:** Preparing intended learning outcomes for the session **Sub-activity 1.3:** Preparing teaching material **Sub-activity 1.4:** Preparing learning resources and reading material **Sub-activity 1.5:** Preparing formative assessment to assess student learning	✓	✓	✓	✓	✓	✓	✓	✓	✓
EPA 2: Facilitating a small group session	**Sub-activity 2.1:** Providing clear and authentic contextual training **Sub-activity 2.2:** Keeping students on track to achieve learning outcomes **Sub-activity 2.3:** Triggering critical thinking and problem-solving skills among students **Sub-activity 2.4:** Providing constructive feedback **Sub-activity 2.5:** Promoting collaborative (team) learning **Sub-activity 2.6:** Assessing students' learning progress	✓	✓	✓	✓	✓	✓		✓	
EPA 3: Reflecting upon self and the session	**Sub-activity 3.1:** Appraising own performance **Sub-activity 3.2:** Seeking feedback from students and peers **Sub-activity 3.3:** Developing a personal development plan to improve teaching **Sub-activity 3.4:** Evaluating whether session learning outcomes have been achieved or not			✓		✓	✓	✓		

✓= Competency is essential to perform this EPA (70% or above votes)
✓ = Competency is relatively important to perform this EPA (30% to 70% votes)
Note: Blank cells indicate that the competency is not needed to perform this EPA (less than 30% votes).

Discussion

The validated framework provides three entrustable activities of a small group facilitator: *planning a small group learning activity, facilitating a small group session,* and *reflecting upon self and the session.* Guided by expert feedback, the other six proposed EPAs were nested as sub-activities under *facilitating a small group session,* as they were not independently observable, measurable, and entrustable in practice. This nesting resulted in the development and validation of sub-activities for the other two EPAs as well. The nesting of EPAs is in line with the literature in which practice activities have been advocated as essential components of the main EPA (Taylor et al., 2020; Warm et al., 2016, 2014). Teherani and Chen (2014) argue that although EPAs provide an excellent approach to operationalize competencies, they are usually broader in design and provide less detailed guidance on the expected work to the learner. Therefore, designing sub-activities for each EPA is a practical approach to support learning and assessment.

Seeking support from expert comments and literature guidelines (ten Cate et al., 2015), a detailed description of each EPA has been provided in Table 5.3. This description is meant to provide explicit details to the program developers, trainers, and teacher trainees on the context, task specification, relevant competencies, the resources and an entrustment scale to facilitate entrustment decisions.

Entrustment Scale

Next to structuring training, the ultimate purpose of EPAs is to generate evidence if the trainee is ready to perform the task competently and independently (Mink, Myers, Turner, & Carraccio, 2018; ten Cate, 2020). Using entrustment principles, a three-level entrustment scale has been proposed in Table 5.3 for each EPA. Once a trainee teacher displays readiness, the evaluator can either directly observe him or her performing the task or use indirect resources (peer evaluation, student feedback, or session recordings) to provide an entrustment decision. Based on the trainee teacher's performance, the proposed scale can be used to decide the level of task autonomy that can be awarded to him or her (Tekian, ten Cate, Holmboe, Roberts, & Norcini, 2020). We understand that most educational institutes consider health professionals who assume teaching roles 'eligible' to teach and thus do not necessitate assessing their teachers. However, scholars advocate that entrusting the teachers might help in developing mutual trust between faculty members and in internalizing the value of other EPA-based training programs (Favreau et al., 2017; Shorey et al., 2019).

Table 5.3: Full description of all Entrustable Professional Activities along with their components

Features	EPA 1: Planning a small group learning activity	EPA 2: Facilitating a small group session	EPA 3: Reflecting upon self and the session
Specifications	*Context:* Planning and preparing for a learning session of PBL, TBL, tutorial, skills lab, or simulation-based training. *Expected work:* The trainee teacher must be capable of arranging logistics for the session (tutorial or demonstration room with multimedia, simulators or mannequins, etc). Then, he/she must prepare the intended learning outcomes (ILOs) of the session aligned with the course/curriculum. Based on the ILOs, he/she should be able to prepare teaching material (PowerPoint presentation, clinical scenarios, or problems) and learning material (slides, literature, or electronic resources). Finally, he/she should be able to prepare quizzes, flashcards, etc to formatively assessing learning progress during the session.	*Context:* Facilitating a session of PBL, tutorial, skills lab, or simulation-based training. *Expected work:* The trainee teacher must be able to provide new cognitive information and hands-on training, or clarify any existing confusion related to the problem or disease under discussion. During the session, a teacher must be able to facilitate student learning and help them achieve session outcomes. Moreover, the teacher should be able to stimulate critical thinking and problem-solving skills by asking probing questions. Additionally, the teacher should be able to analyze the students' learning progress, appreciate their achievement, and provide further guidance on how to improve their learning.	*Context:* Reflecting upon personal performance as well as the learning activity after completing the session of a PBL, TBL, tutorial, skills lab, or simulation-based training. *Expected work:* The trainee teacher should be able to evaluate his/her own performance and the session outcomes. In addition to self-reflection, he/she must be able to seek feedback from students and peers. Based on self-reflection and feedback, he/she should be able to devise a personal development plan to improve his/her facilitation skillset.
Required competencies	**Instructional design***, Content expert, Communication skills, Teamwork, **Professionalism**, **Time Management**, Curriculum Design & Implementation, IT Skills, Managerial skills	Instructional design, Content expert, **Communication skills, Teamwork, Professionalism, Time Management**, IT Skills,	**Communication skills**, **Professionalism**, Time Management, Curriculum Design & Implementation
Required resources for entrustment	Expert evaluation, peer evaluation, student feedback, documentation	Expert evaluation, peer evaluation, student feedback, session recordings	Expert evaluation, peer evaluation, reflection recordings
Levels of entrustment	Level 1: allowed to observe others preparing sessions Level 2: allowed to prepare session under supervision Level 3: allowed to prepare session independently	Level 1: allowed to observe others facilitating sessions Level 2: allowed to facilitate sessions under supervision Level 3: allowed to facilitate sessions independently	Level 1: allowed to observe others reflecting upon sessions Level 2: allowed to perform reflection under supervision Level 3: allowed to perform reflection independently

*bold competencies are essentially required to perform the task

Implications

With increasing educational complexities and financial constraints, FD programs are under more scrutiny for effective professionalization of teachers (Srinivasan et al., 2011; van Bruggen, ten Cate, & Chen, 2020). The EPA framework might help program developers to develop structured training so that the faculty time and institutional resources can be consumed more productively. Nonetheless, to warrant its practical feasibility, we urge educationalists and program developers to field test this framework and report their experiences so that valuable lessons can be learned. The framework also provides a means of assessing the teaching proficiency and generating evidence of teachers' readiness to conduct small group teaching (Dewey et al., 2017; Gardner et al., 2018; Iqbal et al., 2020). Before delegating the responsibility of teaching in small groups, the administrative authorities could conduct a baseline assessment of the teachers by using the proposed entrustment tool and could grant teaching autonomy accordingly. After demonstrating sufficient proficiency, the teacher could be credentialed to perform the allocated work independently. We understand that most educational institutes consider health professionals, taking up the teaching roles, 'eligible' to teach and they do not necessitate teachers' assessment. However, scholars presume the idea of entrusting teachers vital for developing mutual trust between faculty hierarchy and for helping the teachers internalize the value of other EPA-based training programs (Favreau et al., 2017; Shorey et al., 2019). Since lesser is known about faculty perceptions, more research is needed to develop our understanding of how teachers and administrative bodies perceive teaching entrustment, especially where health professionals can teach, by default. Lastly, the EPA framework could also serve as a guide for the teachers to cultivate their personal development plan and build their teaching portfolio (Walsh et al., 2015).

Limitations

We acknowledge certain limitations to our study. Since the experts needed to justify their strong responses (strongly agree/strongly disagree), it might have pushed some participants to choose options (agree/disagree) that did not obligate them to comment, resulting in lower than anticipated mean values. Another limitation is that since our study focused only on small group pedagogy, it would be difficult to generalize our findings to other teaching settings involving larger groups and didactic teaching. Future researchers can explore the feasibility of this framework in other teaching contexts. Another limitation of this study is that two of our experts could not participate in the last two rounds, which is understandable considering the current COVID-19 global pandemic.

Conclusions

This study concludes with an EPA framework on small group facilitation previously developed by students and teachers and now validated by expert health professions educationalists. The provided framework also contains an explicit description of all EPAs, including sub-activities and the competencies required to perform them. Furthermore, an entrustment scale has been proposed to support the entrustment decision-making process. The EPA framework, originally designed to streamline the professionalization of teachers, offers multiple utilities for program developers, administrative bodies, and teaching staff.

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CHAPTER 6

Complementing entrustable professional activities with four-component instructional design to support trust building

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Iqbal, M. Z., Könings, K. D., Al-Eraky, M., ten Cate, O., Frerejean, J., Garcia, J., & van Merriënboer, J. J. G. Complementing entrustable professional activities with four-component instructional design to support trust building.

Abstract

Supervisors entrust their trainees with clinical responsibilities, based on the trust gained by the trainees through their performance over a sufficient period of time. Establishing trust between a supervisor and trainee is essential to enable a decrease in supervision and an increase in autonomous practice. Although workplace-based training provides realistic and hands-on learning affordances, it also has limitations, in that it may offer insufficient planned practice opportunities and limited trainee-supervisor interaction, which can jeopardize the trust-building process. In those contexts, there is a need for a training format that can help develop grounded trust of the supervisors in their trainees. To facilitate the trust-building process, the authors explored a possible application of the Four Component Instructional Design (4C/ID) model in Entrustable Professional Activities (EPAs) guided training programs. 4C/ID is an instructional design model known for its effectiveness in training complex skills by sequencing learning tasks, providing supportive and procedural information to support learning, and offering part-task practice to achieve automation in the desired skills. The authors propose sequencing the training for an EPA into different learning tasks of varying complexities, followed by task-based training from simple tasks in a low-fidelity simulated learning environment to complex tasks in workplace learning environment. The authors then advocate the utility of providing extended supervisory scaffolding in both simulated and workplace learning environments. Scaffolding support and guidance across the training continuum might assist supervisors and trainees to work together for a longer period of time and gain sufficient opportunities to develop mutual trust. Moreover, this prolonged exposure might also enable the supervisors to form a more reliable judgment of trainees' capabilities and readiness for entrustment. To support this argument, the authors describe their proposed training model through a worked example and suggest that their model might help with streamlining the trust-building process.

Introduction

Entrustable Professional Activities (EPAs) are becoming popular in operationalizing competency-based medical education. A key concept in EPA guided training is making decisions about entrusting trainees with the essential work of a profession (Peters, Holzhausen, Boscardin, ten Cate, 2016; ten Cate et al., 2016; ten Cate, & Chen, 2017). Entrustment is confiding an enactment of a professional task to a person who is capable of integrating and applying the required knowledge, skills, and attitudes during task performance (Tekian, ten Cate, Holmboe, Roberts, & Norcini, 2020; ten Cate et al., 2016). Entrusting a trainee is believing that s/he is a reliable health professional possessing the ability to provide effective health services whilst ensuring patient safety (Kilminster, Cottrell, Grant, & Jolly, 2007; ten Cate et al., 2016). During conventional clinical training, trainees usually start performing their professional responsibilities under maximum supervision. As trainees gain their supervisors› trust through repeated proficient task performance in the workplace, the supervision is gradually withdrawn and the trainees become autonomous practitioners (Chen, O'Sullivan, et al., 2015; Gingerich et al., 2018; ten Cate et al., 2015; ten Cate, Schwartz, & Chen, 2020).

When trainees move from being novice observers to competent practitioners, trusting them becomes inevitable to allow their independent and meaningful participation in clinical activities (Hauer et al., 2014; Mink, Myers, Turner, & Carraccio, 2018). However, the literature on entrustment suggests that trust-building is a complex process (Hauer et al., 2014; Peters et al., 2017; Tekian et al., 2020; ten Cate et al., 2016), and certain workplace associated limitations can jeopardize it. The first practical challenge relates to a frequent lack of sufficient trainee-supervisor interaction over a prolonged period, which is essential to build grounded trust in the trainee (Patel & Baker, 2018; Sheu, Kogan, & Hauer, 2017; Sklar, 2016; ten Cate et al., 2016). Scholars have suggested that the more extensive the trainee-supervisor interaction, the more the supervisor will be able to monitor the growth in a trainee's competence (Hirsh, Holmboe, & ten Cate, 2014; Peters et al., 2017). However, supervising trainees in parallel with managing clinical workload during clinical rotations of limited duration can be overwhelming, resulting in insufficient or superficial trainee–supervisor encounters and potential misjudgment of trainees' readiness for entrustment (Hauer et al., 2014; ten Cate, 2018; Yoon et al., 2020). The second challenge is that workplace-based training may offer limited and often unpredictable opportunities for trainees to practice, to err, and to obtain corrective feedback, due to patient safety concerns, financial constraints, cultural norms, risk of lawsuits and increased societal accountability (Motola, Devine, Chung, Sullivan, & Issenberg, 2013; Tjiam et al., 2012). Practicing professional tasks systematically under supervision is not only needed to improve performance but also to develop a meaningful trainee–supervisor relationship, which is conditional for trust-building (Abruzzo, Sklar, & McMahon, 2019; Patel & Baker, 2018; Yoon et al., 2020; Young & Elnicki, 2019).

Given these limitations, a training format is needed that can help overcome workplace-related challenges and contribute towards trust-building process. We propose that incorporating

a task-based instructional design into the training framework that uses both simulated and workplace-based learning environments may offer a tangible solution. The resulting training continuum may provide ample practice opportunities for the trainees and, at the same time, may also offer the supervisor a lens to observe trainees' developmental trajectory in depth to make well-informed entrustment decisions. Among the available instructional design models, the Four-Component Instructional Design (4C/ID) is a whole-task-based model that can blend a safe and simulated learning environment with workplace (clinical) learning environment (van Merriënboer & Kirschner, 2017; Vandewaetere et al., 2015).

4C/ID is an evidence-based model that has been found useful for planning and designing educational interventions to learn and practice complex tasks (van Merriënboer & Kirschner, 2017). The model has been used successfully in higher education, including health professions education (Daniel et al., 2018; Frerejean et al., 2019; Kolcu, Karabilgin, & Kaki, 2019; Maggio, ten Cate, Irby, & O'Brien, 2015; Susilo, van Merriënboer, van Dalen, Claramita, & Scherpbier, 2013; van Merriënboer & Tjiam, 2013; Vandewaetere et al., 2015). Educational programs designed with 4C/ID consist of four components: learning tasks, supportive information, procedural information, and part-task practice (Vandewaetere et al., 2015). In a conventional 4C/ID-based training, different learning tasks of varying complexities are designed and practiced in both simulated and workplace-based learning environments. For simulation-based learning, various formats can be used, including problem- or case-based, computer-simulated, simulated patients-based, virtual reality-based, high-fidelity simulation-based learning, and in-situ simulation (Lin, Cheng, Hecker, Grant, & Currie, 2018; McGaghie, Issenberg, Petrusa, & Scalese, 2016; Motola et al., 2013; Patterson, Geis, Falcone, LeMaster, & Wears, 2013). For workplace-based learning, the commonly used formats are outpatient clinics, inpatient wards, emergency and operating rooms et cetera. The training usually starts with performing simple learning tasks in a low-fidelity simulated learning environment, and with increasing task performance, trainees proceed to performing complex learning tasks in a complex workplace.

An intrinsic feature of the 4C/ID model that is relevant to the presented problems is its advocacy for scaffolding supervisory support and guidance, as the trainee acquires proficiency in a learning task (van Merriënboer & Kirschner, 2017; Vandewaetere et al., 2015). We argue that scaffolding support and guidance across the training continuum might help supervisors and trainees to work together for a longer time period and gain sufficient opportunities to develop mutual trust. Moreover, prolonged exposure might also enable supervisors to form a more reliable judgment of trainees' competence and readiness for entrustment. To support our argument, we explain in this paper the feasibility of using EPAs as a basis for designing learning tasks and the role of scaffolding support and guidance in the trust-building process. A worked example is then provided to demonstrate how the 4C/ID model and its components can guide the instructional design of the proposed training model. The paper concludes by setting out the practical implications of the proposed training model and proposing venues for future research.

EPAs as Basis for Designing Learning Tasks

Hauer et al. (2014) suggested that the degree to which a learning environment offers practice opportunities in authentic activities significantly affects trainees' performance and supervisor's ease of assessing that performance for entrustment. 4C/ID-based training offers legitimate practice and supervision opportunities through learning tasks. These learning tasks are derived from authentic, whole professional tasks that can be performed in both simulated and actual workplace environments in an integrated fashion. Learning tasks possessing a similar level of complexity and requiring similar knowledge are grouped into a task class. The 4C/ID-based training is designed and executed in such a way that the learning tasks and the settings in which they are performed are initially simple; as trainees show progress in task performance, the complexities of both the learning task and the learning environment increase over time. Figure 6.1 shows a graphical representation of the sequencing of learning tasks in increasingly complex learning environments.

The learning tasks are considered the backbone of the program, around which training is designed and executed. It is possible to use EPAs as the basis for designing learning tasks for training for two reasons. First, both entrustable and learning tasks are authentic and represent the real-life work undertaken in a professional domain. Second, both entrustable and learning tasks require a description that outlines task specifications, limitations, and the required knowledge, skills, and attitudes for performance. The task description is essential to inform the trainees on what exactly they are expected to master and eventually perform without supervision (van Merriënboer & Sweller, 2010; ten Cate et al., 2015). Therefore, an EPA can be used to design and sequence different learning tasks of variable complexities.

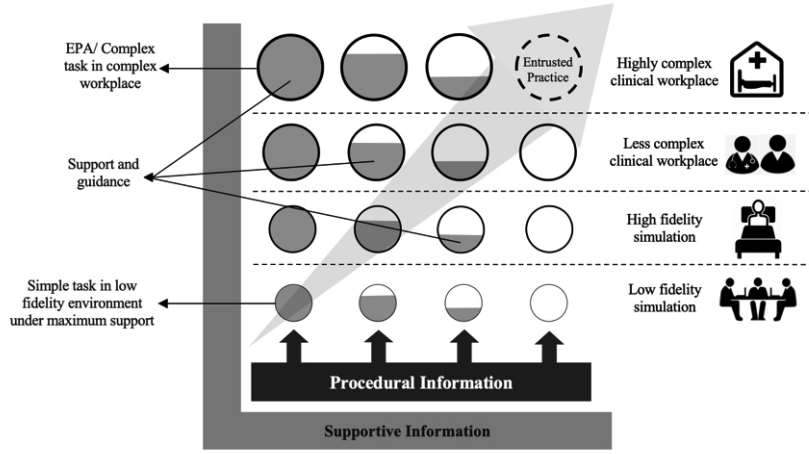

Figure 6.1: An overview of EPA and 4C/ID complemented training model

Notes: The left column of circles represents the sequencing of an EPA into four learning tasks ranging from simple (bottom) to complex (top) levels. The right side of the figure represents an increase in the complexity of the learning environment from bottom to top. The arrow pointing from bottom left to top right represents the training trajectory from simple learning task in low fidelity to complex learning task in complex workplace learning environments while the supervisor provides longitudinal supervision across the training continuum until the trainee becomes an entrusted practitioner. The dotted horizontal lines between different tasks represent that although the model proposes increasing the learning task and context complexities, it is not mandatory to follow this sequence and the training trajectory may vary depending upon learner and training levels.

Scaffolding Support and Guidance

In the 4C/ID model, in parallel to task sequencing, another intrinsic feature is the provision of support and guidance to facilitate learning. Theoretically speaking, support is providing part of an acceptable solution to the given problem (for example, a supervisor taking over a difficult part of a task from the trainee) while guidance is everything that facilitates the process to reach that solution (for example, a supervisor looking over the shoulder of the trainee and explaining how to approach the task). As proposed earlier, scaffolding support and guidance may serve as the optimal solution to gradually build trust, increase autonomy and decrease supervision.

A scaffold can be defined as a temporary framework that supports workers during the construction of a building, and as the building approaches near completion, the scaffolds are gradually taken away. Scaffolding is a proven and frequently used metaphorical educational technique where supervisors support trainees' constructive knowledge building (De Grave, Dolmans, & van der Vleuten, 1999). The scaffolding of supervisory support and guidance can bridge the cognitive gap between what trainees can do on their own and with the assistance of their supervisor (Fernández, Wegerif, Mercer, & Rojas-Drummond, 2015). In this way, supervisory support and guidance enable trainees to build cognitive schemas and perform learning tasks with greater confidence. As the trainee shows competence in performing the required learning task, the supervisor may interpret it as an indication that the given support and guidance are no longer needed and can be gradually removed while the trainee moves on to the next learning task.

Here, it is important to distinguish between scaffolding support and guidance proposed by the 4C/ID model and supervisory scaffolding offered by the EPA framework. Both scaffolding approaches aim at improving the learning experiences, ensuring gradual autonomy, and keeping trainees in the zone of their proximal development. Yet, there are some significant differences between the two scaffolding variants. On one hand, 4C/ID primarily offers scaffolding for learning through modeling examples, imitation tasks, tutoring, process worksheets, and performance constraints, and can be used in both simulated as well as workplace learning environments (van Merriënboer & Kirschner, 2017; Vandewaetere et al., 2015). On the other hand, the EPA framework suggests five supervisory scaffolding levels (observe only, perform under direct supervision, perform under indirect supervision, perform without supervision, supervise others) that are mostly applicable in workplace-based learning (Chen, Van Den Broek, & ten Cate, 2015; Mink, Schwartz, et al., 2018; Peters et al., 2017; ten Cate et al., 2015, 2020). Each level of this entrustment scale corresponds to the inverse relationship between autonomy and supervision.

We propose complementing the EPA guided training with the 4C/ID model, and extending supervisory scaffolding across the training continuum. Following the guidelines of the 4C/ID model, the assigned supervisor would be responsible for providing longitudinal support and guidance to his/her trainees while they move from simple learning tasks in a low-fidelity simulated learning environment to complex learning tasks in a complex workplace learning

environment. The gradual scaffolding through each series of learning tasks (i.e. task class) could provide sufficient opportunities for the supervisor to observe trainees' performance over time and develop trust accordingly. Once a trainee masters all learning tasks derived from the targeted EPA, s/he can show readiness for entrustment.

Worked Example of EPA and 4C/ID Complemented Training

To explain the layout of the proposed training, we consider an EPA, *obtaining informed consent for tests and/or procedures*, as a worked example. This is the eleventh EPA in the Association for American Medical Colleges (AAMC) list of Core EPAs for entering residency (Lomis et al., 2017). To perform this entrustable task, an integration of multiple competencies will be required, including *patient care, knowledge for practice, communication skills, professionalism,* and *personal and professional development* (Englander et al., 2016). For the given EPA, a series of learning tasks can be created, ranging from simple tasks in a low-fidelity learning environment to highly complex tasks in a real-life working environment, as follows:

Task Class I (Simple tasks in low-fidelity simulated environment): Discussing consent taking in a problem-based learning or case-based discussion or role plays with peers

Task Class II (Simple tasks in high-fidelity simulated environment): Obtaining consent for a test from stable simulated patients or virtual patients

Task Class III (Complex tasks in a clinical environment): Obtaining consent for minor, low risk procedures from real, stable and cooperative patients in the clinic

Task Class IV (Highly complex task in a clinical environment): Obtaining consent for major, high risk procedures from anxious parents or patients in an emergency room.

Task Class V [including EPA] (Includes all levels of task and context complexities): Obtaining informed consent for organ donation from an uncooperative, hysterical spouse of a deceased patient at workplace.

At the beginning of the training, the responsibility for providing longitudinal supervision throughout the training continuum will be assigned to the supervisor for a specific group of trainees. Prior to the task practice session, the supervisor may first demonstrate the actual professional task while the trainees simply observe. The trainees will then be allowed to perform one or more tasks in Task Class I in a low-fidelity learning environment under maximum support and guidance. As trainees' task performance gradually increases, the support and guidance will be gradually withdrawn. Once trainees start performing the learning task proficiently without seeking further support and guidance, they will be directed to move on to the next task class in a high-fidelity learning environment. It is important to highlight here that it might not always be essential or possible to follow the task class sequence. The balance between the complexity of the task and the learning environment can be determined based on trainee expertise, training level and available training resources. For instance, whilst trainees with high expertise may learn in the workplace, additional practice in a high-fidelity simulation center might sometimes be

required, whereas trainees with low expertise would mainly learn in simulated task environments (including very low-fidelity environments, such as PBL), but sometimes may require internships in clinics to observe and understand how tasks are performed in the actual workplace. Similarly, a junior learner at undergraduate level can be trained through simple tasks in a low-fidelity learning environment, whereas a senior resident at the postgraduate level can be trained through highly complex tasks in a complex clinical workplace.

To support trainees' learning during task performance, 4C/ID suggests using supportive and procedural information related to the learning tasks, and repetitive practice to improve whole-task performance (Maggio & Capdarest-Arest, 2017). Supportive information provides bridging between what trainees already know and the further knowledge they require for task completion. It is generally presented before the trainee undertakes one or more learning tasks (Vandewaetere et al., 2015). In Contrast, procedural information is 'just-in-time' information and is provided only when needed during task performance. Part-task practice is useful when a high level of automaticity is desired for a particular task. As it involves repetitive practice in a high-fidelity simulated environment, it is quite helpful in strengthening cognitive schemas without risking patient safety or causing student distress (Hawkins & Tredgett, 2016; van Merriënboer & Kirschner, 2017).

In our worked example, the supportive information on *obtaining informed consent in clinical practice* can be provided in the form of reference books, relevant literature, and an AAMC practice manual. Trainees can also participate in advanced workshops and conferences to obtain knowledge that could help them perform the consent-requesting task. The procedural information could be provided in the form of tips and guidelines on consent- taking and its associated ethical issues. The trainees may also consult checklists and step-by-step descriptions on consent-requesting while performing routine aspects of the task. Moreover, in cases where a trainee experiences difficulty in performing a particular aspect of the task, simulated training can always be used for part-task practice. For instance, some trainees may struggle with operating a software system where informed consents are registered and archived. These trainees could practice in a computer-based simulation session and achieve automation in software operation.

Finally, after the gradual acquisition of competence in all task classes, the trainee may show readiness to perform the actual EPA (i.e. obtaining informed consent for any test or procedure from a patient at workplace) to gain entrustment. While observing the trainee during consent requests (EPA), the supervisor would then have sufficient first-hand knowledge of trainees' development trajectory and readiness to execute the entrustable task, which is gathered from the longitudinal supervision throughout the training continuum. Moreover, the multiple practice sessions and repeated trainee–supervisor encounters will eventually help in promoting learning in a safer environment, developing the trainee–supervisor relationship and building trust.

Implications, Challenges and Future Directions

In this paper, we proposed complementing EPA guided training programs with the 4C/ID model to address some of the challenges related to the trust-building process. In our described training model, we suggested that working together through variable learning tasks in learning settings of different complexities might provide sufficient opportunities to nurture grounded trust. This is in line with literature in which a longer relationship between the trainee and the supervisor has been associated with more reliable judgment of the trainee's capabilities and readiness for entrustment (Hirsh et al., 2014; Peters et al., 2017; Sheu et al., 2017). Program developers, directors, and supervisors might adopt this training approach in which EPAs specify the tasks that must be mastered and 4C/ID guides the design of task-based training curriculum. Such task-based training might also meet the highest level of the integration ladder (Harden, 2000), where trainees construct their mental models and cognitive strategies by integrating different real-life task experiences (Brauer & Ferguson, 2015). The whole-task based training designed with the 4C/ID model might also facilitate trainees in effectively transferring knowledge and skills to clinical practice while performing the EPA.

In this perspective, we also explained how supervisory support and guidance can be scaffolded with gradual improvement in task performance, and how tasks can be sequenced from simple tasks in a low-fidelity learning environment to complex tasks in a complex clinical learning environment. The EPA literature also speaks of multiple small EPAs that may be ‹nested› within broader EPAs at a later stage of training (ten Cate et al., 2015), which parallels with the idea of part-tasks that together constitute whole tasks in the 4C/ID model (van Merriënboer & Kirschner, 2017). Clinical supervisors, especially those who struggle with affording trust to their trainees due to the lack of certainty about their readiness, could make use of this approach. It is, however, crucial to determine how much support and guidance should be provided and at what rate, and when is the right time to withdraw it to keep the trainees in a zone of proximal development (Daniel et al., 2018; Fernández et al., 2015; van Merriënboer & Kirschner, 2017). While some studies have started to explore this area (ten Cate & Chen, 2020), more in-depth research is needed to explore the factors that supervisors consider while providing or withdrawing support to/from their trainees.

As the proposed longitudinal supervision in simulated and clinical learning environments is a novel approach, its practical feasibility is still to be investigated. A suspected practical limitation could be clinical supervisors' lack of time to provide longitudinal supervision due to a high patient load or additional work responsibilities. In such instances, pairing up of a relatively smaller group of trainees and a supervisor throughout the simulated and clinical training continuum might help in addressing the workload problem. In this way, the supervisors could track the progress of the allocated group more conveniently, compared to tracking the progress of the whole batch/class. In cases where the supervisor would be unable to continue with the longitudinal supervision, trainee handover from one supervisor to another, along with a detailed report on previous trainee-supervisor encounters, might serve as a backup approach (Chen,

O'Sullivan, et al., 2015). The trainee handover process can further be streamlined by incorporating e-portfolios in training (Gumuchian et al., 2020; van der Schaaf et al., 2017; Warm, Englander, Pereira, & Barach, 2017). The progress of trainees on competencies required for performing learning tasks and EPAs can be documented and tracked through e-portfolios by the subsequent supervisor (Peters et al., 2017).

Conclusion

Supervisors are responsible for granting autonomy to the trainees to practice unsupervised in most medical education programs. While making such crucial decisions, the supervisors must have sufficient trust in trainees' competence and readiness for entrustment. This article described an innovative training model that complements EPAs with 4C/ID to support the trust-building process through frequent trainee-supervisor encounters. Grounded in the principles of the 4C/ID model and supported by a worked example, we explained how scaffolding support and guidance in each task class could help supervisors observe the developmental trajectory of the trainee and help them make well informed entrustment decisions. Our suggested training approach, that includes both simulated and workplace learning environments, might also provide sufficient practice opportunities for trainees to develop their competence. While acknowledging certain practical challenges, we anticipate that program directors and supervisors might find our proposed training approach useful in catering to the workplace related challenges that impede the trust-building process.

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CHAPTER 7

General Discussion

The fundamental purpose of faculty development is to help teachers improve their teaching skillset. However, incorporating a sustainable change in teaching practices has remained debatable because of the lack of structured training and less focus on teacher evaluation. This project aimed at developing and validating a comprehensive EPA framework that can be used as a plausible approach to structure training and to entrust small group facilitators. To achieve our project goal, we designed five research questions that led to five studies. The research questions along with their brief outcomes are given in Figure 7.1.

This general discussion chapter elaborates on: (1) the findings of the five studies and how they contribute to achieving the overall goal of this project, (2) theoretical implications of this dissertation and suggestions for future research, (3) strengths and limitations of this project, (4) implications for practice, and (5) conclusion.

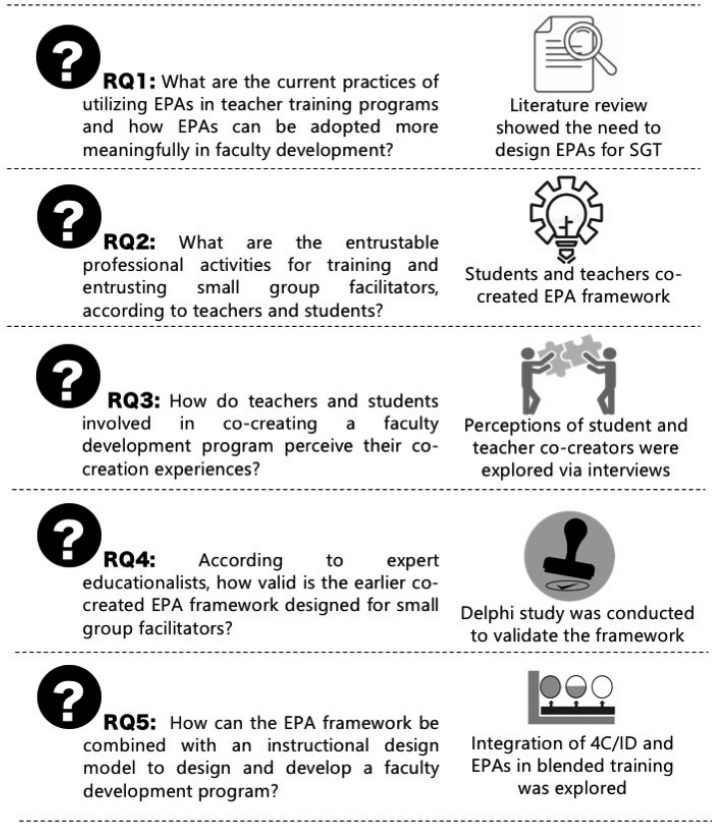

Figure 7.1: Five research questions and their outcomes

The Utility of EPAs in Faculty Development

In Study 1 (Chapter 2), a literature review study was conducted by using two databases: Scopus and PubMed. The study explored how EPAs have been utilized so far in the teacher training domain. The literature search revealed few perspectives in which EPAs for various teaching domains were discussed (Dewey et al., 2017; Gardner et al., 2018), and only two programs were found in which EPAs were implemented. One of them was a postgraduate training program for health professional educators (Fitzgerald et al., 2016; Gruppen et al., 2016), and the other was for clinical teachers of family medicine (Clavet, Antao, Koppula, & Walsh, 2015; Walsh et al., 2018). Both programs provided comprehensive details regarding their framework designs and also reported their practical experiences with the framework implementations. The postgraduate program used EPAs to underpin the program's curriculum and assessment and to guide learning of the trainees. Contrarily, the so-called fundamental teaching activities framework was designed merely to guide the continuous professional development of the clinical teachers. Both practices shared fascinating insights into the utility of EPAs in teacher training, however, both programs lacked generalizability as they were designed for specific teaching roles (Iqbal, Al-Eraky, & AlSheikh, 2018).

Some framework-specific limitations were also found. On the one hand, the postgraduate program did not focus on the direct trainee-examiner encounter, but they used artifacts to entrust their trainee educators (Fitzgerald et al., 2016). On the other hand, the fundamental teaching framework, designed for clinical teachers, was not intended to assess teaching proficiency in the first place, which contradicts the basic purpose of introducing EPAs in medical education. The scholars argued that those health professionals who seek academic careers are eligible to teach by default and entrusting them may not be desired in their context (Walsh et al., 2018). We concluded that EPAs in faculty development was a newly emerging domain and certain gaps exist that highlight the potential for designing EPAs for other teaching roles such as small group teaching. This served as a starting point for designing EPAs for small group facilitation.

Co-creation of the EPA Framework by Students and Teachers

In Study 2 (Chapter 3), students and teachers co-created an EPA framework through a series of workshops. In the orientation workshop, open discussion and question-answer sessions were conducted which helped the participants in understanding the topic, study design, and their roles. The design workshop resulted in 11 professional tasks and 17 competencies on which consensus was sought in a follow-up workshop. In the consensus workshop, an agreement was achieved on 9 tasks and 12 competencies after three voting rounds and three open-ended discussion sessions. Finally, after selecting the competencies required to perform each EPA from the agreed-upon list of 12 competencies, the EPA framework was achieved.

Participant Perceptions on Co-creating the EPA Framework

Since co-creation between teachers and students for faculty development is an innovative initiative, we explored their co-creation experience in Study 3 (Chapter 4) via interviews. The interviewees mostly reported a positive and productive co-creation experience. Students frequently reported they felt comfortable during the co-creation exercise because of the supportive, friendly, non-confrontational, and motivating attitudes of the teachers within their groups. Similarly, the teachers shared that they were comfortable with the students' presence because of the respectful and co-operative attitudes of students shown during the activity. The overall positive behavior of both stakeholders created a conducive working atmosphere that motivated many participants to contribute actively. Some negative experiences were also reported, such as: teacher dominance, student shyness, lack of grip on the study topic, and reluctant participation, which limited the active contribution of some participants.

The inclusion of both students and teachers in co-creating the training framework was perceived essential as it offers multiple benefits for stakeholders, faculty development programs, and the co-creation process. With respect to the suggestions for improving student-teacher partnership, the most frequently mentioned recommendations were *purposeful recruitment* of the participants and their *contextual training* prior to the co-creation activity. We found that co-creating the EPA framework was an enriching experience for both students and teachers. Study 3 concluded that engaging different stakeholders in the design process nurtures diversity and rigor, and therefore their inclusion should be ensured in future educational initiatives as co-creators.

Expert Validation of the Framework

In Study 4 (Chapter 5), a modified Delphi technique was used to validate the framework designed in Study 2. To establish the content validity, international health professions educationalists with expertise in designing faculty development programs participated. This study was conducted in three rounds. In Round 1, a validated seven-item rubric was used to evaluate the quality of the pre-designed nine EPAs. Data analysis revealed a consensus on retaining three out of nine EPAs: namely, *preparing for a small group session, facilitating a small group session,* and *reflecting upon self and the session*. In Round 2, participants were asked to select the competencies required to perform each agreed-upon EPA from the pool of 12 competencies developed in Study 2. The competencies were then classified into three categories as per their selection frequency: *essential, relatively important* and *not required*. In Round 3, a consensus was sought on the sub-activities which were suggested for EPAs in Round 2. The final framework not only indicated EPAs, competencies, and sub-activities but also provided a detailed description of each EPA, including its context, specifications, and entrustment resources. The study also submitted a three-level entrustment scale that can be used to make entrustment decisions after training.

Complementing EPAs with 4C/ID

Chapter 6 describes the possibility of integrating EPAs and the 4C/ID model as an approach to structure training around professional tasks. In this chapter, we described that combining EPAs and the 4C/ID model for designing a blended training environment could help in trust-building and entrustment decision making. We proposed that the training must start from simple learning tasks in a low fidelity learning environment and proceed toward the targeted EPAs by gradually increasing the complexities of both the tasks and the learning environments. With the acquisition of competence in each learning task, the supervisory support and guidance should be gradually withdrawn. Once the supervisor has sufficient first-hand knowledge of a trainee's readiness and proficiency to execute the actual EPA, an entrustment decision could be made. These multiple practice sessions and trainee–supervisor encounters would eventually help in promoting learning in a safer environment, developing the trainee–supervisor relationship, and building mutual trust. This study concluded that the 4C/ID model might help in designing a task-based training model where the EPA framework guides the training outcomes.

Theoretical Implications

With increasing educational complexities and financial constraints (Srinivasan et al., 2011), faculty development programs are under more scrutiny than ever. The program developers are expected to ensure efficient training that teachers can translate to their teaching practices (Dath & Iobst, 2010; Steinert, 2009). This project provides an EPA framework that can be used to train teachers for their role as small-group facilitators. Using EPAs for teacher training is in line with literature suggesting that EPAs can be used for the effective professionalization of teachers (Dewey et al., 2017; Fitzgerald et al., 2016; Gruppen et al., 2016; Iqbal et al., 2018). In addition to outlining the entrustable tasks, it is equally important to granulate the EPAs, and identify and describe their components. Ten Cate et al. (2015) argue that task descriptions help the trainees to understand the training outcomes and work expectations. While closely following the literature guidelines, our framework provides the task descriptions and links them to their respective sub-activities and the competencies required to perform them, which might be useful for program developers and trainee teachers. To warrant the feasibility of the framework in designing faculty development, future researchers and program developers could conduct experimental studies; they could design and execute a training program around our framework and report their experiences so that valuable lessons can be learned.

Next to defining the training outcomes, the essential purpose of EPAs is to assess performance and grant entrustment. EPAs are observable tasks of a professional domain that can be *entrusted* to candidates once they demonstrate acceptable performance (Shorey, Lau, Lau, & Ang, 2019; Tekian, ten Cate, Holmboe, Roberts, & Norcini, 2020; ten Cate, 2013,

2018; ten Cate et al., 2015). This project showed that the concept of entrustment is also applicable to academia, where EPAs can be used to assess teaching proficiency and generate evidence of whether teachers are *entrusted* to perform their assigned academic tasks (Gardner et al., 2018; Iqbal, Könings, Al-Eraky, AlSheikh, & van Merrienboer, 2020). Scholars also presume that entrusting teachers is vital for developing mutual trust between faculty hierarchy, for helping the teachers internalize the value of other EPA-based training programs and for streamlining competency-based medical education and training (Shorey et al., 2019). It is, however, unknown how acceptable and/or feasible the idea of teacher entrustment would be for teachers and administrative bodies. Future researchers pay explore faculty perceptions to understand how teachers and administrative bodies perceive teaching entrustment.

Although entrusting teachers has its advantages, Walsh and colleagues (2018) suggest otherwise; they argue that in most countries, health professionals opting for academic positions are usually eligible to teach under local body regulations and therefore entrusting the teachers may not be a feasible approach. It is important to mention here that a lack of focus on teaching competence is not a universal phenomenon and not all institutes support health professionals to teach without some sort of teaching qualification. For instance, in the Netherlands and some western-European countries, a university teaching qualification (UTQ) is mandatory for a university teaching position (de Jong, Mulder, Deneer, & van Keulen, 2013). However, it is not the case in most countries, especially in the eastern and middle eastern regions. The vast difference on teaching qualification requirements in different countries could be an interesting research area where a comparative analysis can be drawn and its implications on education can be studied.

To support the teacher entrustment process, an entrustment scale has also been proposed in Study 4. Our proposed scale offers only three, instead of the conventional five entrustment levels (observe only, perform EPA under direct supervision, perform EPA under indirect supervision, perform EPA independently, and supervise others) that have been suggested in the previous studies (Chen, Van Den Broek, & ten Cate, 2015; Rekman, Gofton, Dudek, Gofton, & Hamstra, 2016; ten Cate et al., 2016). We avoided using the entrustment levels of *performing under indirect supervision* and *supervise others* in the scale as it might not be feasible in small group teaching. We also avoided using *entrusted to supervise others* level in the scale because an entrusted teacher may not be competent enough to train others. Training other teachers demands additional competence in adult pedagogy, educational psychology, program design, implementation and evaluation, and resource management et cetera (Baker et al., 2018).

Although the entrustment scale was developed with the contention to support the entrustment decision-making process (Sagasser, Fluit, van Weel, van der Vleuten, & Kramer, 2017; Tekian, ten Cate, Holmboe, Roberts, & Norcini, 2020; Yoon et al., 2020), we do not know how the entrustment process would work in the context of teaching, which is why certain questions remain unanswered in this project. For instance, who should be responsible for making

the entrustment decisions? Should the evaluators be program developers, senior faculty members, students, or a combination of them? In clinical training, supervisors are by default responsible to make entrustment decisions (Rekman et al., 2016; Tekian, ten Cate, et al., 2020; ten Cate, Schwartz, & Chen, 2020). However, a typical supervisor-trainee relationship is usually not observed in academic settings. Could paring up a trainee teacher with a senior and experienced teacher be a viable solution? These are potential questions for future researchers who can explore collaborative apprenticeship and further our understanding.

Another potential area for future research is exploring how trust establishes between an evaluator and a trainee and which factors influence this trust-building. Literature suggests that trust-building is a complex and multifactorial process that is influenced by the trainee, the evaluators, their mutual relationship, the context, and the task to be entrusted with (Hauer et al., 2014; Peters et al., 2017; Tekian et al., 2020; ten Cate et al., 2016). We recommend an in-depth qualitative study to explore the factors that may influence trust-building between the evaluator and the trainee teacher. It will be interesting to see whether factors that play a role in clinical training are also applicable in a teaching context or some other variables are also involved.

Another potential implication of our framework is instigating the transfer of training to the workplace. The transfer of training to the workplace is defined as the application of the knowledge, skills, and attitudes acquired in faculty development to teaching in the educational environment (De Rijdt, Stes, van der Vleuten, & Dochy, 2013; Iqbal & M. Al-Eraky, 2019; Yelon, Ford, & Anderson, 2014). Transfer of training has remained questionable in faculty development as teachers often fail to apply the newly learned skillset in real teaching settings (Iqbal & AlSheikh, 2018; Yelon et al., 2014). EPAs-based training has the potential to transfer acquired teaching competence to the workplace (educational setting). An EPA-based teacher training essentially has three phases: formal training, practice, and entrustment evaluation (Iqbal et al., 2018). After training, the practice period at the workplace may provide an opportunity for the trainee teacher to transfer the learned skillset to his/her teaching practices. Although the transfer of learning through EPAs-based training program seems plausible in theory, experimental research is needed to assess and report how much transfer occurs (if any) in actual practice. Here, complementing EPAs with 4C/ID in faculty development might offer a solution as the instructional design, in principle, caters to the 'transfer paradox' in addition to compartmentalization and fragmentation (van Merriënboer & Kirschner, 2017). Future researchers can design and conduct a longitudinal training project by complementing EPAs with 4C/ID and observe the short- and long-term transfer of learning potential of such faculty development programs.

In addition to the main product of the project (i.e., the EPA framework), certain methodological implications are worth mentioning. In Study 2, we used a novel co-creation approach to develop the EPAs which added rigor and diversity to the design process. Since students and teachers are directly affected by the 'change' that results from faculty development

(Stalmeijer, Dolmans, Wolfhagen, Muijtjens, & Scherpbier, 2008), we sought their participation to co-create the EPA framework. Literature also suggests that the active involvement of recipient stakeholders in the design process helps in generating a higher level of acceptance, understanding, and utility of the resulting product by its users (Könings, Bovill, & Woolner, 2017; Könings, Brand-Gruwel, & van Merriënboer, 2010).

Our project also expanded the scope of co-creation by adding another domain (faculty development) to it. In congruence with the recent scholarship on student-teacher collaboration in higher education (Abbot & Cook-Sather, 2020; Bovill, Cook-Sather, Felten, Millard, & Moore-Cherry, 2016; Dollinger & Lodge, 2019; Marquis, Power, & Yin, 2019), our exploratory study demonstrated that including relevant stakeholders in designing faculty development programs is just and timely. The critical insights of students and valuable teaching experience of teachers can help to co-create a practical and comprehensive training program. The study also provided recommendations to improve student-teacher collaboration in future co-creation activities.

Strengths and Limitations

To the best of our knowledge, this is the first research project that provides a comprehensive EPA framework for the professionalization of small group facilitators. This project has several features that indicate the strength of both the *product* and the *process*. With respect to the product (EPA framework), its major strength is that, unlike other EPA studies, the framework not only delineates EPA titles but also offers an extensive description of each EPA including its context, specifications, associated sub-activities, and required competencies. Moreover, the framework also elucidates resources and an entrustment scale which can be used to expedite the entrustment process. With respect to the design process, it is worth mentioning that the framework has been developed and validated by using rigorous methodologies. First, an innovative co-creation approach was used in the context of faculty development, and multiple workshops were conducted to develop the framework. Then, a modified Delphi technique was used through an iterative process in which multiple parameters were used to achieve content validation of the framework instead of using a unidimensional consensus approach. Another strength of this project is the inclusivity of all key stakeholders – students, teachers, and expert educationalists – in designing the framework. Participants from different professional backgrounds (medicine, dentistry, nursing, pharmacy), seniorities (juniors, seniors), and stakeholder groups (students, teachers, expert educationalists) were engaged to develop a robust framework. Consequently, the empirical studies conducted in this project advance the literature in the context of faculty development, EPAs, entrustment processes and the co-creation approach.

This PhD research project is not without limitations. Since the EPA framework has been designed for small group teaching only, its generalizability to other teaching and learning contexts is unknown. It will be interesting to explore the feasibility of this framework in other teaching contexts such as clinical teaching, classroom-based large group teaching et cetera. Another potential limitation is that participants (students, teachers, and experts) were purposefully recruited to develop and validate the EPA framework in Studies 2 and 4, respectively. Although rigorous design approaches were used, an element of potential selection bias cannot be ignored. Another potential bias could be that the framework was validated through expert educationalists only. Although using experts in validation studies is a common practice, the value of other stakeholders cannot be ignored. Regarding Study 3 in which we explored the co-creation experiences of Study 2 participants, the interviewees might have given socially desirable responses that might not reflect the realistic nuance of the co-creation approach. Another limitation of this study is that the findings may not reflect the perceptions of all participating students and teachers as some co-creators could not be interviewed due to their unavailability. Lastly, in Study 5, we explored the potential feasibility of integrating the EPAs and the 4C/ID model. We also acknowledge other instructional design models like Dick and Carey (Dick, 1996) and cognitive apprenticeship (Stalmeijer et al., 2013) that can be used to design faculty development programs. However, we avoided discussing them as it was beyond the scope of this project. We consider it a potential literature gap that can be filled by future researchers by exploring and comparing the viability of different models in guiding the instructional design of EPA-based teacher training.

Practical Implications

The EPA framework resulting from this project has several implications for trainee teachers, educational leaders, program developers and health professions students.

Implications for Trainee Teachers

Literature suggests many competency frameworks *in theory* for various teaching domains (Harris, Krause, Parish, & Smith, 2007; Sherbino, Frank, & Snell, 2014; Srinivasan et al., 2011), yet they do not address how these competencies can be acquired and systematically assessed. As EPAs are known to translate the theoretical competencies into practice, our framework could help in filling the gap between theory and practice. Instead of enlisting the competencies only, our framework might help trainee teachers to understand and link the competencies with a particular teaching task in the context of small group pedagogy. The framework can also be used by those teachers who are newly assigned to facilitating small groups. Instead of learning on the job by observing peers and/or using the trial-and-error method, the trainee teachers could use

our validated EPA framework as a learning guide for their personal and professional development. The EPA framework might help the trainee teachers in indicating areas of strengths and deficiencies in their teaching practices and might also help them in building their academic portfolios (Antao et al., 2017).

Implications for Educational Leaders

Administrative authorities (Deans, Department Chairpersons, and/or Directors) could use the framework to allocate academic roles to newly recruited staff. A baseline assessment of teaching performance might be conducted by either directly observing the task performance or by using indirect resources (peer evaluation and student feedback). Based upon his/her performance, entrustment decisions could be made as per the proposed entrustment scale (Sklar, 2016; Tekian et al., 2020; ten Cate et al., 2016). Upon demonstrating sufficient proficiency in the allocated work, the trainee teacher might be awarded a *STatement of Awarded Responsibility* (STAR). The awarded STAR represents the *entrustability* of the trainee teacher in a specific teaching task. In case the trainee teacher does not perform as desired, s/he may improve his/her skillset via structured training, practice, and mentoring. On the one hand, including such a model in the professional portfolio of teachers might help the faculty to internalize the value of being an *entrusted* teacher (Iqbal et al., 2020). On the other hand, the STAR award might support administrative bodies in regulating academic recruitments and promotions of the faculty (Dewey et al., 2017; Iqbal et al., 2020; Walsh et al., 2018).

Implications for Faculty Development Program Developers

Achieving an observable improvement in teaching through faculty development activities has always remained a challenge for program developers. Recent scholarship suggests task-based-teacher training, guided by performance evaluation, may offer promising results in bringing a sustainable change in teaching practices (Cantillon, D'Eath, De Grave, & Dornan, 2016; Iqbal et al., 2020; Morris & Swanwick, 2018; Steinert et al., 2016). The integration of the 4C/ID model and EPAs in the program design might help in establishing such faculty development programs. To illustrate the proposed task-based training, EPA 2 (facilitating small group sessions) of our EPA framework will be used as a worked example.

In a faculty development program grounded in 4C/ID and supported by EPAs, the training should be a blend of simulation-based and workplace-based learning environments, repeatedly followed by entrustment evaluation. The simulated training on facilitating small groups could be executed via role plays, peer learning, and demonstrations in workshops and seminars. The EPA (facilitating small group sessions) would serve as a basis for designing *learning tasks* that lay down the foundation of the training program. Followed by formal training would be the practice

session in an educational setting (for instance, a PBL session) where the trainee teachers could rehearse in the actual workplace and further polish their task performance through student and/or peer feedback. As the trainee teacher will advance in task proficiency, the task complexity will increase, and the level of support will decrease over time. In the current example, facilitating a small group of motivated students that have ample PBL experience is a much simpler task than facilitating a larger, heterogeneous group of non-motivated students who are used to lecture-based learning.

In our worked example of the training program, the presentations and the literature on theories of group dynamics, learning strategies, feedback et cetera will serve as *supportive information*, whereas, tips on handling difficult or quite students, interpreting body language et cetera will serve as the *procedural information*. The last phase will be an entrustment meeting where the performance of the trainee teacher in facilitating small groups will be evaluated by an expert teacher trainer. In the entrustment meeting, a pre-designed checklist consisting of the EPA specification and required competencies such as *content expertise, communication skills, professionalism,* and *time management* will define the performance standards. During the face-to-face evaluation, a level of entrustment will be assigned. Constructive feedback for improvement can also be provided, particularly in case the trainee teacher is not ready to be entrusted yet. Based on the expert decision, the trainee teacher can be instructed to proceed as per the achieved level of entrustment (observe only, facilitate under supervision or facilitate independently).

The proposed 4C/ID and EPA integration might not only be useful in faculty development but also in clinical training contexts. The program directors and supervisors might find our suggested approach useful for optimizing the training, calibrating supervision, and entrusting trainees, which could ultimately result in improved patient safety, fewer medical errors, and fewer malpractice litigations. Since the integration of EPAs and 4C/ID has only been theoretically proposed, its practical feasibility would be worth exploring by future researchers.

Implications for Health Professions Students

In institutes with a low faculty-to-student ratio, senior students are often given the responsibilities to facilitate small group sessions, also known as *student* or *near-peer tutoring* (Moore & Kain, 2011; Oda, Onishi, & Sakemi, 2014). Student tutoring is a cost-effective strategy and has been found useful in educational settings with limited resources. It helps in boosting students' confidence and motivation, and in developing students' professional identities (Burgess, Dornan, Clarke, Menezes, & Mellis, 2016; Crowe Jean, 2001). Although student tutoring has known benefits, the students assuming the role of a tutor may need support regarding small group facilitation. In such cases, our framework could be used by student tutors as a learning guide.

The eventual purpose of effective faculty development programs is to positively influence

students' learning experiences and academic performances through improved teaching practices (Rutz, Condon, Iverson, Manduca, & Willett, 2012). An indirect implication of our framework for the students is that the entrusted facilitators, resulting from the EPA-based faculty development programs, might have a positive impact on student learning experiences because of their improved and certified teaching competence.

In most cases, students are usually considered as mere recipients of education, and they are often not accepted as equal partners in academia. However, with time, student voices have started echoing in the literature and they are gradually becoming active contributors in various educational development activities. Our project contributes to accepting students as partners, and while meeting to our expectations, the students showed active, vocal and productive participation. Their novel involvement in co-creating EPAs might help in normalizing student participation while designing faculty development programs in the future.

Conclusion

This dissertation has delivered an EPA framework for small group facilitation. The framework was first co-created by students and teachers and then validated by expert educationalists which brought rigor to the development process. The framework intends to hold multiple potential utilities for trainee teachers, program developers, educational leaders and students. Originally proposed to support teacher training and entrustment, the EPA framework could also be used to guide the personal and professional development of individual teachers and as a scaffold for their teaching portfolios.

The project also expands the literature on co-creation by adding the faculty development domain to it. We learned that including students and teachers in co-creating a framework for teacher training is an essential and timely educational advancement. Moreover, the project proposes the integration of 4C/ID and EPAs where 4C/ID would orchestrate the instructional design of the training program and EPAs would define the training outcomes. We have also highlighted various venues for future research that might be interesting for fellow scholars working in the context of EPAs and faculty development. We hope that the educational community will find this thesis helpful in streamlining the professionalization of small group facilitators.

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Summary

This dissertation describes five studies conducted to develop and validate an EPA framework that could be used for professionalization of small group facilitators. In the General Introduction (Chapter 1), we describe faculty development and its contemporary challenges. Then, after describing EPAs and their characteristic features, we rationalize the potential suitability of EPAs to overcome the challenges in faculty development. Followed by highlighting the literature gap, we explain why there is a need to design an EPA framework for training and entrustment of small group facilitators. We then argue involving all stakeholders in the design process instead of developing the framework through conventional methods. Lastly, we explain why designing a framework might not be enough and why EPAs might need to be complemented with an instructional design model to systematically structure faculty development programs.

In order to develop and validate a comprehensive EPA framework for small group facilitation, five studies were conducted. These studies were guided by the following five research questions:

1. What are the current practices of utilizing EPAs in teacher training programs and how can EPAs be adopted more meaningfully in faculty development? (Study 1 - Chapter 2)
2. What are the EPAs for training and entrusting small group facilitators, according to teachers and students? (Study 2 - Chapter 3)
3. How do teachers and students involved in co-creating a faculty development program perceive their involvement and how do they reflect upon their co-creation experiences? (Study 3 - Chapter 4)
4. According to expert educationalists, how valid is the earlier co-created EPA framework designed for small group facilitators? (Study 4 - Chapter 5)
5. How can the EPAs be complemented with an instructional design model to design and develop a training program? (Study 5 - Chapter 6)

In Study 1, described in Chapter 2, a literature review was conducted to explore and report the utilization of EPAs in the context of faculty development. The results showed that the use of EPAs for teacher training is a novel approach. Only a couple of programs were found in which EPAs for health professional educators and clinical teachers were designed and implemented. For several reasons, the existing frameworks were found unsuitable for other teaching roles, and there was a call to develop EPAs for training and entrustment of small group facilitators.

To fill this literature gap, a co-creation approach was used to develop an EPA framework for small group facilitation. In Study 2, discussed in Chapter 3, both students and teachers collaborated to design the framework, and three workshops were conducted to achieve the study objectives. In the *orientation* workshop, the participants were trained on the content, study design, and their expected roles. Then, a *design* workshop was conducted in which students and teachers enlisted 11 EPAs and 17 competencies of small group facilitators. Finally, in the *consensus* workshop, an agreement was achieved on 9 tasks and 12 competencies, followed by a mapping between the agreed upon EPAs and competencies.

Since co-creating an EPA was a novel approach, it was important to explore how the

participating students and teachers perceive their co-creation experiences because their negative perceptions could jeopardize the sustainability of both the co-creation approach and the resulting framework. Therefore, in Study 3, described in Chapter 4, we interviewed 11 students and 11 teachers who co-created the framework in Study 2. The interviewees mostly reported a positive and productive co-creation experience. Students frequently reported that they felt comfortable during the co-creation exercise because of the supportive, friendly, non-confrontational, and motivating attitudes of the teachers within their groups. Similarly, the teachers shared that they were comfortable with the students' presence because of the respectful and co-operative attitudes of students shown during the activity. Some negative experiences were also reported, such as: teacher dominance, student shyness, lack of grip on study topic, and reluctant participation which limited the active contribution of the participants. The inclusion of both students and teachers in co-creating the framework was perceived essential as it offers multiple benefits for stakeholders, faculty development programs, and the co-creation process. With respect to the suggestions for improving student-teacher partnership, the most frequently mentioned recommendations were *careful selection of the participants* and their *contextual training* prior to the co-creation activity. The study concluded that engaging relevant stakeholders in the design process nurtures diversity and rigor, and therefore their inclusion as co-creators should be ensured in future educational initiatives.

Although a robust design approach was used to develop the framework, expert health professions educationalists were not consulted, which is important to ensure scrutiny and quality. Therefore, in Study 4, described in Chapter 5, we used the modified Delphi technique to validate the framework through international experts. Thirty-one health professions educationalists participated in three online rounds. In Round 1, a validated seven-item rubric was used to evaluate the quality of the pre-designed nine EPAs, which resulted in retention of three EPAs: namely, *preparing for a small group session*, *facilitating a small group session* and *reflecting upon self and the session*. In Round 2, participants selected nine competencies required to perform each agreed-upon EPA from the pool of 12 competencies. In Round 3, five, six, and four sub-activities achieved consensus for EPA 1, EPA 2, and EPA 3, respectively. The final framework also provided a detailed description of each EPA, including its context, specifications, entrustment resources and an entrustment scale.

The validated EPA framework elaborates the training content and outcomes that faculty development programs should aim to achieve. However, the framework does not provide details on the instructional design of an EPA-based faculty development program. In Study 5, described in Chapter 6, we proposed a task-based training model by complementing EPAs with the 4C/ID model. In this model, we explored the possibility of sequencing the training for an EPA into different learning tasks of variable complexities, followed by task-based training from simple tasks in a low fidelity simulated learning environment to complex tasks in the real workplace learning environment. We then proposed that the training must start from simple learning tasks in a low fidelity learning environment and with growing competence, the complexities of both

the learning tasks and the learning environments should gradually be increased. Additionally, a longitudinal supervision should be provided across the training continuum in order to develop mutual trust and trainee–supervisor relationship, and to grant a well-informed entrustment decision.

Chapter 7 provides an overarching discussion about findings of the studies along with their theoretical and practical implications. The strengths and limitations of the whole project have also been discussed in addition to multiple recommendations for future researchers. Overall, this project provides a comprehensive EPA framework that could be used to train and entrust the teachers in their role as small-group facilitators. The participation of all three stakeholders – students, teachers and expert educationalists – in the development and validation process highlights the strength of the resulting framework. The framework intends to hold multiple potential utilities for trainee teachers, program developers, educational leaders and students. This project also expands the literature on co-creation by adding the faculty development domain to it. We learned that including students and teachers in co-creating a framework for teacher training is an essential and timely educational advancement. Moreover, the project proposes complementing EPAs with 4C/ID where EPAs would define the training outcomes and 4C/ID would orchestrate the instructional design of the training program. We anticipate that this thesis might help in streamlining the professionalization of small group facilitators in health professions education.

Samenvatting

(Dutch Summary)

Dit proefschrift beschrijft vijf onderzoeken die ten doel hadden een kader voor Entrustable Professional Activities (EPAs), oftewel gestructureerde beschrijvingen van afgebakende professionele activiteiten, te ontwikkelen en te valideren dat kan worden gebruikt voor de professionalisering van begeleiders van kleine groepen. In de Algemene Introductie (Hoofdstuk 1) beschrijven we docentprofessionalisering en haar hedendaagse uitdagingen. Vervolgens, na het beschrijven van EPAs en hun kenmerkende eigenschappen, gaan we in op de vraag in hoeverre EPAs geschikt zijn om de bestaande uitdagingen op het gebied van docentprofessionalisering het hoofd te bieden. Na gewezen te hebben op de lacunes in de literatuur, lichtten we nader toe waarom het noodzakelijk is een EPA-kader voor het opleiden van en toevertrouwen van professionele activiteiten aan begeleiders van kleine groepen te ontwerpen. Vervolgens poneren we dat alle belanghebbenden betrokken moeten worden in dit ontwerpproces in plaats van het kader met behulp van conventionele methoden te ontwikkelen. Tot slot leggen we uit waarom het ontwerpen van een kader misschien niet volstaat en waarom EPAs mogelijk aangevuld dienen te worden met een onderwijsontwerpmodel dat de docentprofessionaliseringsprogramma's systematisch vormgeeft.

Teneinde een sluitend EPA-kader voor de begeleiding van kleine groepen te ontwikkelen en te valideren, verrichtten we vijf onderzoeken. In deze onderzoeken waren de volgende vijf onderzoeksvragen leidend:

1. Wat is de huidige gang van zaken omtrent het gebruik van EPAs bij docentenopleidingen en hoe kunnen EPAs zinvoller worden ingezet bij docentprofessionalisering? (Onderzoek 1 – Hoofdstuk 2);
2. Welke EPAs horen er volgens docenten en studenten bij het opleiden van en toevertrouwen van professionele activiteiten aan begeleiders van kleine groepen? (Onderzoek 2 – Hoofdstuk 3);
3. Hoe ervaren docenten en studenten gemoeid met het gezamenlijk ontwerpen of "cocreëren" van een docentprofessionaliseringsprogramma hun betrokkenheid en hoe reflecteren zij op hun ervaringen met cocreatie? (Onderzoek 3 - Hoofdstuk 4);
4. Hoe valide is volgens onderwijsdeskundigen het EPA-kader

dat eerder door middel van cocreatie werd ontworpen voor begeleiders van kleine groepen? (Onderzoek 4 – Hoofdstuk 5);

5. Hoe kunnen de EPAs worden aangevuld met een onderwijsontwerpmodel op basis waarvan een opleiding kan worden ontworpen en ontwikkeld? (Onderzoek 5 – Hoofdstuk 6).

In het eerste onderzoek dat wordt beschreven in Hoofdstuk 2, verrichtten we een literatuuronderzoek om inzicht te verkrijgen in het gebruik van EPAs in de context van docentprofessionalisering en dit vast te leggen. De resultaten lieten zien dat het gebruik van EPAs bij het opleiden van docenten een nieuwe aanpak is. We vonden slechts enkele programma's waarbij EPAs voor opleiders in de gezondheidszorg en klinisch docenten werden ontworpen en ingevoerd. De bestaande kaders werden om diverse redenen ongeschikt bevonden voor overige onderwijsrollen en er werd een

oproep gedaan om EPAs te ontwikkelen voor het opleiden van en toevertrouwen van verantwoordelijkheden aan begeleiders van kleine groepen.

Om deze lacune in de literatuur op te vullen, werd met behulp van een cocreatie-methode een EPA-kader ontwikkeld voor de begeleiding van kleine groepen. In het tweede onderzoek dat in Hoofdstuk 3 werd besproken, werkten studenten en docenten samen aan het ontwerp van voornoemd kader en werden er drie workshops gegeven om de onderzoeksdoelen te bereiken. In de oriëntatieworkshop werden de participanten geïnstrueerd over de inhoud, onderzoeksopzet en wat er van hen werd verwacht. Vervolgens werd er een ontwerpworkshop gegeven waarbij studenten en docenten een lijst maakten van 11 EPAs en 17 competenties die zij vonden passen bij begeleiders van kleine groepen. Ten slotte werd er in de consensusworkshop overeenstemming bereikt over 9 taken en 12 competenties, die vervolgens in een overzicht werden geplaatst.

Aangezien het cocreëren van een EPA een nieuwe aanpak was, was het van belang om te onderzoeken hoe de deelnemende studenten en docenten hun ervaringen met cocreatie beleefd hadden, omdat een negatieve beleving de houdbaarheid van zowel de cocreatie-methode als het resulterende kader in het geding zou kunnen brengen. In het derde onderzoek dat in Hoofdstuk 4 wordt beschreven, hielden we daarom interviews met 11 studenten en 11 docenten die het kader uit Hoofdstuk 2 hadden gecocreëerd. De geïnterviewden gaven voornamelijk aan dat zij een positieve en productieve ervaring hadden met cocreatie. Studenten brachten regelmatig naar voren dat zij zich tijdens de cocreatie-oefening op hun gemak voelden vanwege de ondersteunende, vriendelijke, niet-confronterende en motiverende houding van de docenten uit hun groep. Ook docenten lieten weten dat zij zich prettig voelden bij de aanwezigheid van studenten vanwege de respectvolle en samenwerkende opstelling van studenten gedurende de activiteit. Er werden ook enkele negatieve ervaringen genoemd, zoals: overheersing door docenten, verlegenheid van studenten, geen grip op het onderzoeksonderwerp en een terughoudende deelname waardoor de actieve bijdrage door participanten werd beperkt. Het betrekken van zowel studenten als docenten bij het cocreëren van het kader werd als essentieel beschouwd, omdat dit belanghebbenden, docentprofessionaliseringsprogramma's alsook het cocreatie-proces meerdere voordelen biedt. Wat betreft de suggesties ter verbetering van student-docent partnerschappen waren het zorgvuldig selecteren van participanten en het geven van contextgebonden instructies voorafgaand aan de cocreatie-activiteit de aanbevelingen die het vaakst werden genoemd. Het onderzoek concludeerde dat het betrekken van relevante belanghebbenden bij het ontwerpproces diversiteit en zorgvuldigheid bevordert en dat daarom hun betrokkenheid als medeontwerpers in toekomstige onderwijsinitiatieven gewaarborgd moet worden.

Hoewel voor de ontwikkeling van het kader een gedegen ontwerpbenadering was gebruikt, waren deskundigen op het gebied van het gezondheidszorgonderwijs niet geraadpleegd en dit is belangrijk om controle en kwaliteit te waarborgen. In het vierde onderzoek dat in Hoofdstuk 5 wordt beschreven, hebben we daarom een gemodificeerde Delphi-methode gebruikt om het kader met behulp van internationale deskundigen te valideren. Eenendertig deskundigen op het gebied van het gezondheidszorgonderwijs namen deel aan drie online rondes. In Ronde 1 werd een

gevalideerde rubric met 7 items gebruikt om de kwaliteit van de vooraf ontworpen negen EPAs te beoordelen, hetgeen resulteerde in behoud van drie EPAs, namelijk: het voorbereiden van een sessie met een kleine groep, het begeleiden van een sessie met een kleine groep en het reflecteren op zichzelf en de sessie. In Ronde 2 kozen participanten uit de pool van 12 competenties negen competenties die zij noodzakelijk achtten voor het uitvoeren van elke EPA waarover overeenstemming was bereikt. In Ronde 3 werd consensus bereikt over vijf, zes en vier subactiviteiten voor respectievelijk EPA 1, EPA 2 en EPA 3. Het definitieve kader werd ook voorzien van een gedetailleerde beschrijving van elke EPA, waaronder de context, een omschrijving, middelen voor het toevertrouwen van activiteiten en een schaal voor deze toevertrouwing.

Het gevalideerde EPA-kader beschrijft de inhoud en de eindtermen van de opleiding die docentprofessionaliseringsprogramma's zouden moeten nastreven. Het kader geeft echter geen details over hoe het onderwijsontwerp van een EPA-gericht docentprofessionaliseringsprogramma eruit moet zien. In het vijfde onderzoek dat in Hoofdstuk 6 wordt beschreven, stelden we een taakgericht onderwijsmodel voor door de EPA's aan te vullen met het vier-componenten instructieontwerp model, in het navolgende aangeduid met "4C/ID-model", de afkorting van het Engelse four-component instructional design model. Met dit model onderzochten we de mogelijkheid om het onderwijzen van een EPA op te delen in verschillende leertaken geordend naar mate van complexiteit, gevolgd door taakgericht opleiden waarbij eerst eenvoudige taken worden uitgevoerd in een gesimuleerde leeromgeving met een lage mate van natuurgetrouwheid (low-fidelity), alvorens complexe taken te verrichten in de échte leeromgeving op de werkplek. Vervolgens stelden we voor om deze opleiding te laten beginnen met eenvoudige leertaken in een low-fidelity leeromgeving en om de complexiteit van zowel de leertaken als de leeromgeving geleidelijk op te voeren naarmate meer competenties werden verworven. Daarbij zou gedurende het gehele opleidingscontinuüm langdurige supervisie geboden moeten worden om het wederzijds vertrouwen en de relatie tussen aios en supervisor te stimuleren en om tot een weloverwogen besluit tot toevertrouwen van activiteiten te komen.

In Hoofdstuk 7 worden de bevindingen van de onderzoeken, alsmede hun implicaties voor theorie en praktijk, globaal besproken. Daarnaast werden de sterke punten en beperkingen van het gehele onderzoeksproject besproken en werden er meerdere aanbevelingen gedaan voor toekomstige onderzoekers. Over het algemeen biedt dit onderzoeksproject een sluitend EPA-kader dat kan worden gebruikt voor het opleiden van docenten tot begeleiders van kleine groepen en voor het toevertrouwen van de daarbij behorende verantwoordelijkheden aan deze docenten. De betrokkenheid van alle drie de groepen belanghebbenden, d.w.z. studenten, docenten en onderwijsdeskundigen, bij het ontwikkelings- en validatieproces onderstreept de kracht van het verkregen kader. Het kader is bedoeld om op meerdere potentiële manieren van nut te zijn voor docenten in de vervolgopleiding, onderwijsontwikkelaars, onderwijsleiders en studenten. Voorts vult dit onderzoeksproject de literatuur over cocreatie aan door het domein van docentprofessionalisering eraan toe te voegen. We hebben geleerd dat het betrekken van studenten en docenten bij de cocreatie van een kader voor docentenopleidingen een essentiële en passende actuele

onderwijsontwikkeling is. Het onderzoeksproject stelt verder voor om EPAs aan te vullen met 4C/ID, waarbij EPAs de eindtermen van de opleiding beschrijven en 4C/ID vormgeeft aan het onderwijsontwerp van de opleiding. We verwachten dat dit proefschrift zou kunnen helpen de professionalisering van begeleiders van kleine groepen in het gezondheidszorgonderwijs te optimaliseren.

Impact Paragraph

In this impact paragraph, we briefly explain the rationale and objective of this PhD project, followed by a short summary of the conclusive findings of each study. Afterwards, we explain the scientific and societal impact of the research that has been reported in this dissertation. Within these scientific and societal impact sections, we explicitly explain for whom our results are relevant and how they might benefit from this project.

Project Rationale, Objectives and Findings

Small group pedagogy is continuously gaining popularity in health professions education due to the growing focus on active and self-directed learning. Teaching in small groups is a more challenging task than often perceived. Stimulating critical thinking and facilitating constructive discussions among students is difficult and teachers sometimes struggle in effectively facilitating small group sessions. To help teachers improve their facilitation skillset, faculty development programs play a vital role. Faculty development refers to all activities that teachers pursue to advance their teaching knowledge, skills and attitudes so that they can positively influence student learning. A contemporary challenge in current faculty development programs is the lack of a training framework that can help in designing structured training and in assessing the impact of training on small group facilitation. Entrustable professional activities (EPAs) have been suggested as a plausible approach to systematically design faculty development programs and to entrust teachers.

The concept of entrustment is derived from the word 'trust'. Entrustment is confiding trust in a person that s/he is eligible to conduct the professional task (EPA) independently in an expert fashion without supervision. EPAs are professional tasks which can be entrusted to a trainee once s/he demonstrates the necessary competence to execute it. Unlike competencies, these holistic professional tasks represent the work and not qualities of a person. Moreover, for any task to qualify as an EPA, it should have a definite beginning and end. It should be observable in process and measurable in outcome. It should also represent the work of a professional domain and should be suitable for entrustment.

Although EPAs for several clinical domains have been described in the literature, an EPA framework dedicated to small group facilitation was missing. In this PhD project, we aimed at developing and validating a comprehensive EPA framework for small group facilitation by involving all stakeholders relevant to faculty development. To achieve this goal, we conducted five studies, including one literature review, three empirical studies and one perspective study.

Study 1 demonstrates that the utilization of EPAs for teacher training is a novel concept and there is a need to design EPAs for specific teaching roles such as small group facilitation. To fill this gap, Study 2 was conducted in which we used a co-creation approach to design the EPA framework by recruiting students and teachers. Co-creation is a close collaboration of students and teachers where they actively interact with each other to design educational processes and/or products to

improve teaching and learning. In this study, three workshops (orientation, design and consensus) were conducted that resulted in a framework consisting of 9 EPAs and 12 competencies.

Since co-creating EPAs was a novel method, we explored the perceptions of participating students and teachers in Study 3 regarding their co-creation experiences. The interviewees mostly reported a positive and productive co-creation experience. However, some negative experiences were also reported which limited the active contribution of the participants. The study concluded that engaging students and teachers in the design process nurtures diversity and rigor, and therefore their inclusion should be ensured in future educational initiatives as co-creators.

In addition to students and teachers, the third important stakeholder group in the context of faculty development are expert health professions educationalists who are primarily responsible for designing faculty development programs. In Study 4, we recruited international health professions educationalists and conducted a modified Delphi study to validate the previously co-created EPA framework. After three rounds, we achieved a consensus on 3 EPAs, followed by mapping of 9 competencies against the agreed-upon EPAs. The final framework also provided a detailed description of each EPA, including its context, specifications, entrustment resources and an entrustment scale. The complete framework can be consulted in Tables 2 and 3 of Chapter 5.

After developing and validating a comprehensive EPA framework, we proposed a task-based training model in Study 5. In this study, we suggested that complementing EPAs with the Four Component Instructional Design (4C/ID) model might help in structuring the training programs more effectively. 4C/ID is an evidence based instructional design model that helps in designing a blueprint for an educational training program. It comprises of four components: learning tasks, supportive information, procedural information and part-task practice. In our proposed task-based faculty development, EPAs would define the training outcomes and 4C/ID would orchestrate the instructional design of the training program.

Scientific Impact

This project contributes to three scientific domains: faculty development, entrustable professional activities and co-creation. This project provides a comprehensive framework for training and entrustment of small group facilitators which might cater to some of the challenges in faculty development. The proposed task-based training model might provide additional support to structure the training program. The project also widens the scope of EPAs beyond undergraduate and postgraduate clinical training programs by adding an additional teaching domain to it. Lastly, by using a co-creation approach to EPA development, the project not only advances the literature on co-creation but also adds a novel method to the existing EPA design approaches (surveys, interviews, expert meetings, Delphi). Additionally, the active involvement of all stakeholders in the design process might help in generating a higher level of acceptance, understanding, and utility of the resulting framework.

As an additional outcome of the project, we foresee multiple potential utilities of the EPA framework for program developers, trainee teachers, educational leaders and students.

IMPACT ON PROGRAM DEVELOPERS

Achieving an observable improvement in teaching through faculty development activities has always remained a challenge for program developers. The framework might help program developers to ensure effective training that could result in an actual change in teaching practices. Next to defining the training outcomes, the essential purpose of EPAs is to assess performance and grant entrustment. To support the teacher entrustment process, a three-level entrustment scale has also been proposed. Entrusting the trainee teachers after their repeated competent performance might also help in developing trust between faculty, lower and higher in the organizational hierarchy.

IMPACT ON TRAINEE TEACHERS

Instead of learning on the job by observing peers and/or using the trial-and-error method, trainee teachers could use our descriptive framework as a learning guide that can help them understand the training outcomes and the expected work. The EPA framework might help trainee teachers in indicating areas of strengths and deficiencies in their teaching practices and might also help them in building their academic portfolios. Another potential implication of our framework is instigating the transfer of training to the workplace. EPAs-based training might help teachers effectively transfer the acquired small-group facilitation competence to their actual teaching sessions. The integration of 4C/ID with EPA-based faculty development might provide additional support to ensure the transfer of training to teaching.

IMPACT ON EDUCATIONAL LEADERS

Administrative authorities (Deans, Department Chairpersons, and/or Directors) could use the framework to allocate academic roles to newly recruited staff. A baseline assessment of teaching performance might be conducted, and based upon the performance of trainee teachers, entrustment decisions could be made as per our proposed entrustment scale. In case the trainee teacher does not perform as desired, s/he may improve his/her skillset via structured training, practice, and mentoring. Adding the concept of entrustment in the professional portfolio of teachers might help the faculty to internalize the value of being an entrusted teacher. It might also support administrative bodies to regulate academic recruitments and promotions of the faculty.

IMPACT ON STUDENTS

In educational settings where peer tutoring is practiced, the students could use our framework as a learning guide to perform their tutoring roles proficiently. Our project also endorses students as partners while co-creating the framework, which might help in normalizing student participation in other educational development programs.

Societal Impact

The social contract between health professionals and society derives the social accountability of the medical profession. Social accountability suggests that the health concerns of the community and/or society should be the priority of all stakeholders that are directly or indirectly related to the health sector. Consequently, regulatory bodies, educational institutes, health professions educationalists, and policy makers throughout the world strive to produce competent care givers so that they can meet societal needs and expectations. At the level of implementation, the responsibility rests on the shoulders of teachers to design and conduct enriching educational experiences for their students. Considering the role that teachers possess in carving competent health professionals, it is not only important but essential to ensure competence of the teaching staff. As of Ernest Leroy, "*A poor surgeon hurts 1 person at a time, but a poor teacher hurts 130*". Therefore, through both competent health professionals and competent teachers can the social contract between the society and the education system be perfected. Since competent teachers serve as one of the foundational pillars of a socially accountable healthcare system, it is the responsibility of the institutes to provide structured and effective training venues to their faculty. While planning such training programs, the educational leaders and programs developers could use our framework to train and certify their teachers.

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Dedication

I heartily dedicate my thesis…

To my parents who left no stone unturned to prioritize my education and academic excellence. I strongly believe that the sincere prayers of my father and my late mother are the reason for this academic achievement.

To my beloved wife who stood by me through every thick and thin, and supported me unconditionally throughout my PhD journey. She deserves special credit for taking care of our twin toddlers single handedly so that I could focus on my work.

To my daughter for being the joy of my life.

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Curriculum Vitae

Muhammad Zafar Iqbal is a Lecturer in the Department of Medical Education, College of Medicine, Imam Abdulrahman Bin Faisal University, Saudi Arabia. He is also the visiting faculty at University of Health Sciences, Pakistan.

Dr. Iqbal did his graduation from Army Medical College in 2011. In 2013, Dr. Iqbal developed a passion for medical education which inspired him to obtain a Master degree in medical education in 2016 from the University of Lahore, Pakistan. And as you are reading these lines, he has almost concluded his PhD in health professions education in the School of Health Professions Education (SHE) at Maastricht University, the Netherlands. Moreover, he has done several certifications in health professions education, including scientific writing, assessment, curriculum planning and educational research.

Dr. Iqbal holds special interest in small group pedagogy, teaching and learning, faculty development and assessment. In line with his passion, he actively contributes to faculty development workshops and courses at both national and international levels. He is also engaged in curricular and assessment reforms, and several research projects at undergraduate and postgraduate levels.

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