

# A Competency-Based Midwifery E-Workplace Learning Portfolio: Concept, Theory and Pedagogy

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## Abstract

Competency-based workplace learning is well established in health care education and e-Portfolios have become increasingly popular among educators as valuable learning and assessment tools. e-Portfolios come in various shapes and forms, they are used in a multitude of different settings and for different purposes. Published studies show that e-Portfolios can be utilized to facilitate self-directed learning and continuous competency development during the workplace learning curriculum. Therefore, the midwifery department of the Artevelde University College Ghent designed a digital workplace learning portfolio on the bases of Embo's Continuous Workplace Learning model. This paper aims to describe the Midwifery e-Workplace Learning Portfolio with its underlying competency-based workplace learning concepts, theory and pedagogy.

## Introduction

During last years, the use of e-Portfolios as learning, assessment and professional development tools has become widespread in many fields. In fact, a number of higher quality papers have found that e-Portfolios show the greatest promise for meeting several needs, such as encouraging self-directed learning and reflection, increasing self-awareness and motivation, promoting learner-centred learning, and contributing to identity development [1].

In its most basic form, a portfolio is a purposeful collection of student work that illustrates efforts, progress, and achievement in one or more areas over time [1]. The term e-Portfolio refers to the use of information and communication technologies in the portfolio development process. In the literature, different definitions of the e-Portfolio have been proposed. In fact, while some authors view the e-Portfolio as a purposeful collection of evidences of both the processes and products of learning, others regard it as an archive or a tool that manages these evidences [1-3]. Many systems also allow information sharing [2].

Today, several forms of e-Portfolios can be distinguished based upon the specific purpose they serve. Within current competency-based healthcare curricula, e-Portfolios quickly became popular for facilitating and measuring the development of professional competencies [1,4]. In this manuscript, we describe a competency-based Midwifery e-Workplace Learning Portfolio with its underlying concepts, theory and pedagogy.

## The Midwifery e-Workplace Learning Portfolio

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Ghent (AUC, Belgium) implemented a competency-based workplace learning e-Portfolio (Medbook®) to support continuous and self-directed learning during the workplace learning curriculum. This e-Portfolio was designed during a two-year educational innovation project 'digitizing workplace learning' (AUC, 2015-2017). One of the aims of this project was to digitize Embo's Continuous Workplace Learning Model®, a paper-based model that was designed during a doctoral research project and implemented in the midwifery department of the AUC [5,6]. This competency-based model integrates the learning-, assessment- and supervision processes in six recurrent steps (Figure 1).

## The Concept of Workplace Learning and e-Portfolio

A rather new conceptualization of workplace learning is to consider the three terms included in the composite, that is 'work', 'place' and 'learning' [7].

The new conception of 'work' can be defined as an enabled purposive effort by an individual to initiate activity or respond to an issue or problem in a range of situations for some perceived (by them) productive end. This definition emphasizes that the action is an intentional engagement by an individual learner. Engagement in learning requires individuals to take some agency and discussion about how, when, where and why to engage [7]. e-Portfolios are valuable tools to support learners in this engagement.

The second term is 'place'. Places where learning occurs can be any of interpersonal, intrapersonal, physical, spiritual and virtual [7]. We know from practice that educators and learners generally think about physical places where midwifery care takes place, but research shows that much added value can be gained from considering differing perspectives of place, the role of people in places and how this relates to learning. e-Portfolios have emerged as a technical solution to expand the scope of learning places.

The final term 'learning' is the most complex of the three. It is generally accepted that learning is a process that is continuous and lifelong [7]. A major challenge for midwifery education is to design workplace learning according this dominant and globalized discourse of lifelong learning. e-Portfolios can serve to keep track of development and to plan future directions [1].

## Underlying Theory of the Midwifery e-Workplace Learning Portfolio

This midwifery e-Portfolio and the underlying competency-based model are based on modern socio-cultural learning theories. These theories understand learning as participation in cultural practices and emphasize social interaction at work as an important source of learning, as well as the challenges of the work itself and the organization at work [8]. Workplaces are interpreted as learning environments and learning at work is dependent on interactions between characteristics of the workplace as a learning environment and a range of individual learner factors, including biographical characteristics, motivation, self-efficacy and previously acquired knowledge and skills. According to Billett [9], a qualitative learning environment has a 'learning readiness' to the extent

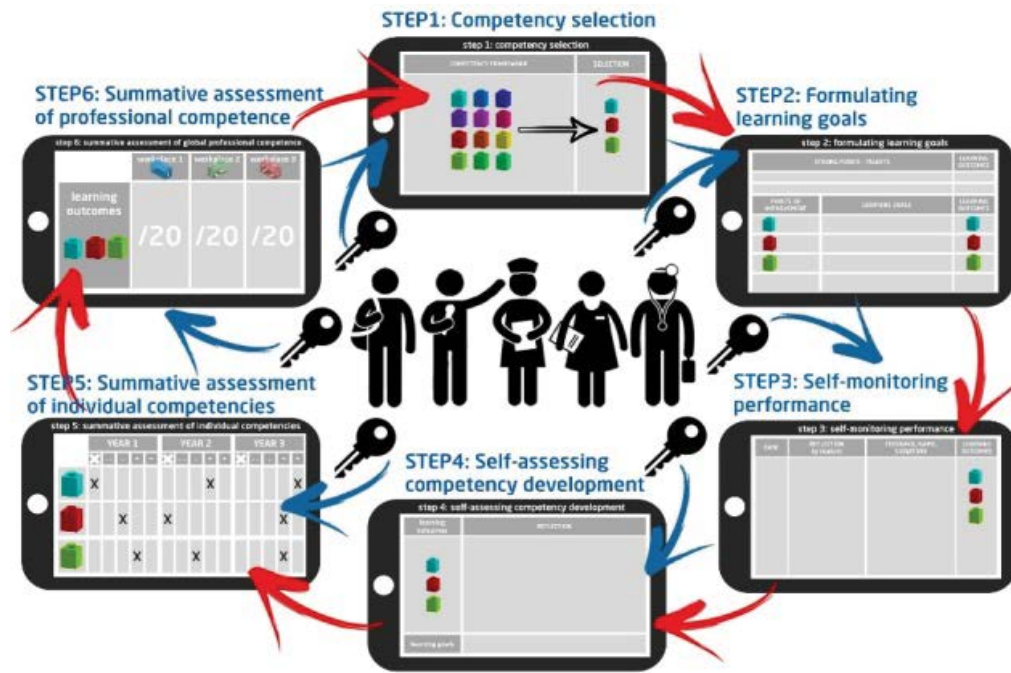


Figure 1: 6 steps of Embo's Continuous Workplace Learning Model©.

that it affords opportunities for learners to engage in and be supported with learning [8].

### Competency-based Pedagogy and the Midwifery e-Workplace Learning Portfolio

The e-Portfolio design is based on the key principles of Competency-Based Education (CBE). CBE is a type of education that focuses on the requirements of healthcare professionals (job contexts, job tasks, job roles and professional competencies needed for the job) and on societal needs in a more general sense (being flexible, self-responsible, learning-oriented etc.) as the starting point for curriculum development. CBE aims to stimulate competency development in students [10].

Wesselink et al. [11] described key-principles of competency-based education that are helpful for enhancing the quality of workplace learning in practice.

1. The professional profiles and competencies that are the basis for the curriculum are defined. Learning outcomes are located in a framework of standardized levels of achievement.
2. Professional core problems or essential responsibilities and tasks are the organizing unit for (re)designing the curriculum.
3. Self-responsibility and self-reflection of students is stimulated. Approaching students as self-responsible adults and stimulating them to constantly reflect on their performances and competency development will increase their ownership of the workplace curriculum and their motivation. Self-direction gradually increases with confidence and engagement.
4. Teachers both in schools and practice fulfill their roles as coach and expert in balance. Supervisors must acknowledge the diverse range of competency levels brought into practice by learners. They must combine short-term feedback on specific tasks with longer-term more strategic feedback on general progress.
5. Competency development of students is assessed frequently (before, during and after the learning process).

6. Learning activities take place in several authentic situations.
7. Knowledge, skills and attitudes are integrated in learning and assessment processes.
8. Competency development is never ending. A basis is realized for a lifelong learning attitude for students.

In the next paragraph, we describe how the Midwifery e-Workplace Learning Portfolio applies these CBE-principles in the digital Medbook-tool that implemented the six steps of Embo's model.

### Competency structure

The midwifery competencies that are the basis of the workplace learning curriculum are clearly defined and presented in Medbook (step 1) [6,12,13]. The outcomes in Medbook are achievable and assessable, transparent and fair, and reflect the result of learning. Clear understanding and articulation of intended learning outcomes facilitates the design of appropriate assessment to measure achievement, and to plan the learning process for individual students [14]. Medbook supports currently promoted entrustment-based workplace assessment by articulating competency standards of achievement and entrustability scales. The competency standards in Medbook were validated by experts involved with workplace learning [15]. The entrustability scales, sometimes referred to as 'independence rating scales' are aligned with day-to-day assessments of competency and independence in the setting of workplace education [16].

### Professional core problems or essential responsibilities and tasks

Midwives are bound by European Directives (2013/55/EC) [17] on the recognition of professional activities. These Directives describe essential tasks that students must perform under supervision during the three-year program (e.g. at least 100 pre-natal examinations, 40 pregnant women in labour, 40 deliveries). The tasks are also called Entrustable Professional Activities or EPA [18]. These tasks are included under a separate heading in the portfolio: 'Logbook', where all

registration data can be entered and the sum calculated. The qualitative information about the performance of these activities (e.g. reflections, feedback and level of independency) can easily be found by selecting the filtering category in the 'Diary' (step 3). At any time, the logbook can be downloaded and printed out.

### Stimulating self-directed learning

Medbook, like other e-Portfolios, encourages students to take responsibility for their own learning by developing learning goals (step 2), collecting evidence through daily reflections on performances (step 3), demonstrating progress by periodical reflection on competency development (step 4) and regularly seeking feedback from a range of individuals. Medbook meets the needs for entrustment-based assessment by promoting sampling and integration of key performances or professional activities over time, in order to develop a holistic picture of competence by assessing individual competencies (step 5) and global professional competence (step 6) [6]. It is generally accepted that students' self-directed learning competence will gradually increase with confidence and engagement [4,19].

### Facilitating supervision

Self-directed learning is a two-way street. Aside from the student, the teacher is a major asset in the self-directed learning process [20]. Practising midwives are accountable for helping students shoulder increasing responsibility and should continually ask themselves if the student is capable of completing a task independently. Building trust and making entrustment decisions are complicated social interactions influenced by many competing factors in the workplace [16]. Current supervisors using Medbook have confirmed that this e-Portfolio facilitated their supervisory coaching and assessment roles.

### Competency development

A principal educational element in CBE is that the learning is fixed (outcomes) and that the time to achieve these outcomes is the variable [21]. Medbook facilitates the progress of learners over time because data is collected, summarized and presented in a way that can be used easily by learners and supervisors. The continuous documentation of the learner's competency development and progression allows for early signals of strengths and weaknesses [22]. Competency development must be assessed frequently [11]. Medbook allows for all kinds of assessment described in current competency-based assessment literature: self-, formative- and summative assessment [23,24]; assessment of Entrustable Professional Activities [16,22] and programmatic assessment [25,26].

### Authentic context

Adult learning theory emphasizes the importance of experience, and technology has the potential to capture experiences in several authentic situations [2]. Medbook provides an opportunity to tie together learning experiences while demonstrating continual development of personal qualities, competencies and experiences that are essential to professional practice [27-29]. Foucault et al. [3] referred in their study to the valuable third step of the model (reflection and feedback on concrete, lived clinical situations), designed as 'Diary' in Medbook.

### Integration and holistic approach

Researchers valued the holistic approach of the model. According to them, holistic assessment of competencies and professional competence is achieved by integrating learning and assessment [13,24,30]. Nevertheless, the assessment Delphi study [15] revealed that professionals at the workplace needed more detailed information about observable behaviour indicators in order to support the feedback process and enhance the quality of competency-assessment. Therefore, we have redesigned the portfolio with respect to the needs of portfolio users and added competency components (knowledge, skills and attitudes) in the assessment checklists with a pop-up list. This integrated and holistic

approach prevents the often existing problematic gap between theory and practice or between on-the-job and off-the-job training.

### Lifelong learning

Competency development is never ending. It is generally accepted that learning is a process that is continuous and lifelong [3,31]. Medbook supports the development of lifelong learning skills during the undergraduate program. It is a long-term portfolio that can serve to keep track of development within and across internships and to plan future directions after graduation [1]. Students can download information before leaving or can pay for continuous Medbook access after graduation [2].

### Conclusion

The Midwifery e-Workplace Learning Portfolio (Medbook®) is a powerful tool to support continuous and self-directed learning in practice. The electronic format of Embo's Continuous Workplace Learning Model® allows for built-in mechanisms that facilitate active engagement in learning, supervision and assessment. The technology offers numerous advantages such as the potential to capture experiences in several authentic situations; to collect and manage learning information according the midwifery competencies; to share information with all the stakeholders involved with workplace learning; to measure competency development over time because of validated assessment checklists with a pop-up list including competency components; and to support continuing professional development after graduation.

Generalizability to other healthcare professions is being investigated in different projects. A Digital and International Midwifery Workplace Learning Network was launched. We recommend putting workplace education and e-Workplace Learning Portfolios higher on the agenda in order to enhance the quality of competency-based learning, assessment and supervision in healthcare education.

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