Integrating learning assessment and supervision in a competency framework for clinical workplace education

M. Embo,⁎ E. Driessen, M. Valcke, C.P.M. van der Vleuten

Midwifery Department, University College Arteveldehogeschool Ghent, Voetweg 66, 9000 Ghent, Belgium
Department of Educational Development and Research, Faculty of Health, Medicine and Life Sciences, Maastricht University, P.O. Box 616, 6200 Maastricht, The Netherlands
Department of Educational Studies, Faculty of Psychology and Educational Sciences, Ghent University, H. Dunantlaan 2, 9000 Ghent, Belgium

Summary

Although competency-based education is well established in health care education, research shows that the competencies do not always match the reality of clinical workplaces. Therefore, there is a need to design feasible and evidence-based competency frameworks that fit the workplace reality. This theoretical paper outlines a competency-based framework, designed to facilitate learning, assessment and supervision in clinical workplace education. Integration is the cornerstone of this holistic competency framework.

© 2014 Elsevier Ltd. All rights reserved.

Introduction

Competency-based education is well established in health care education but there is still much work that needs to be done to make it a workable reality in clinical education (Pijl-Zieber et al., 2014a). Current literature identifies some areas that make the practical implementation of competency-based education problematic: 1) divergent values among stakeholders as a result of the lack of consensus on the definition of competence within health care (Pijl-Zieber et al., 2014a); 2) imbalance between specific and general competencies (Pijl-Zieber et al., 2014a); 3) problematic holistic assessment of clinical competence (competence is more than the sum of individual competencies) (Garside and Nhemachena, 2013; Pijl-Zieber et al., 2014a; Zibrowski et al., 2009); 4) discontinuous supervision (Sundler et al., 2014; Sweet et al., 2013); 5) inadequate guidance of developing reflective ability (Mann et al., 2009); and 6) a lack of a consistent (Pijl-Zieber et al., 2014a) and programmatic approach (van der Vleuten et al., 2012). The authors wanted to address these problems and to contribute to future competence by designing an ‘Integrated Learning Assessment and Supervision Competency Framework’ for clinical workplace education. Within this theoretical paper, we will describe the underpinning theoretical perspectives, and the pedagogical concepts that are relevant in the framework. Fig. 1 shows the workplace framework and Fig. 2 illustrates the underlying workplace learning instrument.

Methods

Reviews of the relevant workplace literature and four empirical studies that were conducted during a doctoral research project resulted in the design of this framework. Two qualitative studies used a content analysis approach to explore students’ and supervisors’ perceptions on how this framework facilitated learning, assessment and supervision (Embo et al., 2010, 2014a). A subsequent mixed-method study explored how two reflective writing activities stimulated reflection at different degrees of granularity during workplace learning (Embo et al., 2014b). A cross-sectional and retrospective-longitudinal correlation cohort study was used to investigate the relationship between reflection and performance and how reflection contributes to development (Embo et al., 2014c). The framework was developed in the context of midwifery education at the University College Arteveldehogeschool Ghent (Belgium).

The Workplace Framework Components

We describe successively the different components of this workplace framework: 1) competency-based education and competency framework; 2) workplace stakeholders; 3) workplace learning, assessment and supervision; 4) learning and assessment instrument;
5) programmatic learning and assessment; and 6) essential conditions for a successful integrated workplace learning design.

**Competency-based Education and Competency Framework**

The framework is embedded in a competency-based approach to clinical education. Learners start education (e.g. undergraduate, postgraduate, residency education) in order to graduate as a competent professional (e.g. nurse, midwife, doctor) fit for practice. Developing professional competence is a lifelong learning process, rather than ‘a state to be achieved’ at the moment of graduation (Eraut, 1994; Garside and Nhemachena, 2013; Govaerts and van der Vleuten, 2013). We use the analogy of a Lifelong Competence Journey (Fig. 1). Competencies are learned and assessed during a programme, consisting of building blocks of in-school and workplace learning and assessment.

Competency-based education is defined as an education in which “assessments ensure that graduates have the essential knowledge, skills, and attitudes to enter the workforce and begin functioning in
entry-level positions” (Anema, 2009). This definition emphasises an outcome-based educational approach (Pijl-Zieber et al., 2014a). The competency framework provides the structure for the education of the professional. It provides the opportunity for all the stakeholders, involved with learning and assessment to share the same concepts and values (problem 1).

The concepts used in this framework are competency and professional competence, concepts that are often used interchangeably in the literature (Pijl-Zieber et al., 2014a). Competency represents the integration of knowledge, skills, values and attitudes (Carraccio et al., 2002; Eraut, 1994; Frank et al., 2010; Pijl-Zieber et al., 2014a) that are demonstrated at a defined level of proficiency in the particular context of education and practice (Fullerton et al., 2011). The competencies within this framework consist of specific and general competencies (problem 2). General competencies are valid across different clinical contexts, whereas specific competencies are linked to specific areas of practice (Eraut, 1994).

The second concept, professional competence, refers to a quality or state of being. It is a holistic term that refers to a person’s overall capacity or ability to do something successfully (ten Cate and Scheele, 2007; Epstein and Hundert, 2002). The view of professional competence considers that the competent person “not only possesses the requisite competencies but is also able to use them” (Eraut, 1994) and make appropriate decisions and judgements according the context (Pijl-Zieber et al., 2014a).

Workplace Stakeholders

Clinical workplaces are socio-cultural communities of practice. Current socio-cultural theories of workplace learning claim that learning and learning outcomes emerge through active participation in activities and in interaction with complex and dynamic systems of the clinical work environment (Govaerts and van der Vleuten, 2013; Mann, 2011). Active participation and interaction within clinical workplaces involve that clinical supervision is no longer regarded as instruction, but as facilitation of learning (Fox and Bennett, 1998). Supervisors need to view their role as that of providing learning experiences, giving useful feedback and trusting learners to take responsibility for their learning. Learners’ need to value the ability to identify gaps and document improvement, rather than “gun” for the “A” (Dannefer, 2013).

Based on the community of learning theory, it is important that all the workplace members share the responsibility for learners’ performance improvement and competency development (Irby et al., 2013). Self-directed learners are expected to take the initiative in their learning but they need support and collaboration of others (Hammond and Collins, 1991). Collaboration of others refers to professionals in workplaces and professionals in schools. Educators need to establish effective collaboration with professionals in clinical workplaces and standards are needed to clarify the roles and responsibilities of the supervisors at the workplace (Sundler et al., 2014).

Within this framework, a collaboration between learners, workplace and school is established by defining the following roles: learner, observer, learning guide, and school committee. All community members who meet learners during individual instances of patient care are observers. Observers might be patients, peer learners, or professionals from the workplace and school. Learning guides have an intermittent but longitudinal relationship with the learner during the work placement. This framework makes a distinction between learning guides from the workplace (supervisors) and learning guides from school (teachers). The assessment school committee consists of all the teachers. The roles of the stakeholders will be clarified by describing the learning, assessment and supervision processes in the next paragraph.

Workplace Learning, Assessment and Supervision

We will describe the workplace processes that exemplify a random work placement in six steps (Fig. 1).

**Step 1: Competency Selection**

Each placement starts by defining which competencies from the competency framework can be learned and assessed in the context of that workplace. This step emphasises the importance of context in workplace learning (Epstein and Hundert, 2002). The selected competencies at the start are the outcomes expected of the learner at the end of the placement. An underlying assumption is that a clear set of competencies can help learners to self-direct their own learning (Harden, 2007). This step is guided by the supervisor and the teacher.

**Step 2: Learning Goals**

After selecting relevant competencies, learners start their learning plan by formulating learning goals in relation to each competency. These competencies and learning goals are important for learners and learning guides in order to plan for and monitor progression to each learning outcome (Dannefer, 2013; Harden, 2007).

**Step 3: Self-monitoring Performance**

Learners are instructed to take the initiative to write reflections on daily performances and to ask for feedback. Observers have an essential role in guiding individual performances by observing performances, inviting learners to reflect before giving feedback, reading written reflections, and providing effective feedback. There are different reasons why it is important that learners first write down reflective notes before asking for feedback: learners are encouraged to reflect on their abilities and opportunities for improvement, supervisors are more likely to give more feedback for reflective learners, and reading learners’ reflective notes before giving or writing feedback makes individual supervision easier (Embo et al., 2010, 2014a). High quality reflections and feedback on daily performances facilitate the development of self-monitoring competencies, a process that is further enhanced by observers and learning guides (supervisor and/or teacher). By comparing daily collected written information with competency standards, learners are able to diagnose their learning needs and to evaluate their learning. Importantly, to encourage self-directed learning, it is the learners’ responsibility to ensure that sufficient feedback on all the competencies has been collected at the end of the placement.

**Step 4: Self-assessing Competency Development**

Repeating reflections on competency development allows for the self-assessment of the overall progress. Although this fourth step is more abstract and complex than step three, reflection on progress is essential for continuous competence development (Eva and Regehr, 2011). Learners are instructed to reflect on competency development over a longer period of time in order to learn how to take a more objective and comprehensive view of their progress (Yuan et al., 2011). Learners and learning guides review the written reflections, and assess these against the learning goals and competency standards. It is important that this review is then discussed between the learner and the learning guide (supervisor and/or teacher) in order to support the development of a personal learning plan for the future. Essential conditions are: 1) a limited number of competencies, 2) a long interval between two reflections on competency development, and 3) time for discussing these reflections (Embo et al., 2014b).

**Step 5: Summative Assessment of Individual Competencies**

Although formative learning and assessment is important (steps 1 to 4), ultimately, patients and society place strong emphasis on summative assessment (steps 5–6). Summative assessment provides assurance that graduates have met minimum standards and are ‘fit for practice’ (Noricini et al., 2011). Summative assessment of individual competencies takes place during the assessment meeting at the end of each placement with both the learner and learning guides. Before entering the assessment meeting, learners completed a competency-based assessment checklist with pass/fail decisions and they write a reflection on competency development (step 4). During the meeting, written information is compared
with the competency standards and a final pass/fail decision for each selected competency is discussed. Enough time to carry out assessment discussions, and awareness of the supervisor’s role in summative assessment are essential conditions for high quality individual competency judgements (Embo et al., 2010, 2014a,b).

**Step 6: Summative Assessment of Global Professional Competence**

Summative assessment of professional competence takes place in school. This is an overall judgement of specific and generic competencies within each particular context (Eraut, 1994; Garside and Nhemachena, 2013). The assessment school committee aggregates pass/fail judgements on individual competency level into a final judgement on professional competence (score from 1 to 20). This step addresses the importance of holistic assessment of competence (problem 3). Learners are advised of the score and have the opportunity to ask for feedback from the teachers. These teachers took part in the assessment meetings in the workplace and in the school committee. In this way, teachers can be seen as learning assistants, generating a unique ‘competence fingerprint’ for each student (Pijl-Zieber et al., 2014a).

**Workplace Learning and Assessment Instrument**

To facilitate competency-based learning, assessment and supervision in clinical workplaces, we designed an instrument that fits the complex workplace reality (Fig. 2). This instrument is competency-based, it integrates a learning and assessment unit, it recognizes different roles for workplace stakeholders, and it unfolds the six steps of the learning processes. The instrument presents a paper and pencil format to document continuously the evolving nature of the competencies in the workplace, and this following the six steps. Each step is supported with clear guidelines and a tailored educational structure to facilitate the educational processes.

The instrument presents the competencies following a framework. For each internship, the relevant competencies in the framework can be selected (step 1), and learning goals are formulated (step 2). The instrument presents a format for both the feedback unit and the assessment unit. The learning unit focuses on reflection and feedback in relation to performance (step 3) and competency development (step 4). Importantly, the structure of the learning unit is different for performances and competency development. The performance learning unit consists of a blank sheet for each day with the following categories: 1) performance (e.g. blood puncture), learner’s reflection, 2) observer’s feedback, 3) observer’s name for validation of written information, and 4) learner’s identification of competencies that are relevant for the performance. Daily collected written information is important to optimize continuity in supervision (problem 4) and to guide the reflective learning process (problem 5) (Embo et al., 2014b). The competency development learning unit, is a blank sheet for each selected competency instead of a blank sheet for each day. Learners reflect on competencies and learning guides (supervisors and/or teachers) give verbal and written feedback on these reflections.

The learning unit is linked to a competency-based assessment unit. This assessment unit contains a checklist of the selected competencies that learners must develop during the clinical placement. Each competency has a set of context-specific competency standards. These standards are defined and expressed in concrete terms in order to facilitate learning, assessment and supervision. In the checklist, different competency levels are labelled with a colour code reflecting the year of the curriculum to which the placement has been assigned. This integrated learning and assessment instrument recognizes that professional competence is a developmental process and that it is these more specific developmental aspects that should be attained at different stages of learning (Epstein and Hundert, 2002; Garside and Nhemachena, 2013). The checklist helps learners to indicate whether the learning outcomes for that specific year have been achieved (pass) or not (fail). The checklist is used by learners for self-monitoring (step 3) and self-assessment (step 4). It is used by learning guides to direct formative learning and assessment, and in turn also by learning guides and the school committee to support the summative assessment (steps 5 and 6).

**Programmatic Learning and Assessment**

Let us move from the individual work placement to the importance of linking individual workplaces in the context of the overall learning programme. A final problem of competency-based education is a lack of a consistent and programmatic approach. Programmatic learning and assessment is essential to guarantee learners’ readiness to practice at the novice level at the end of the educational programme (Pijl-Zieber et al., 2014b). We documented workplace processes of one single work placement in six steps (Fig. 1). These steps facilitate the design of a programmatic framework. By repeating the six steps for each work placement in the programme, all the competencies will be learned and assessed in a consistent and programmatic way. This is a traditional view on programmatic learning and assessment. A more contemporary programmatic view recommends “to employ a continuous – and even purposive – collection of assessment information about each student, which would only then lead to decision moments when the collected information is rich enough”. An important feature is a disconnection between assessment and decision moments (van der Vleuten et al., 2012). Within this framework, assessment of individual competency levels might be seen as assessment moments (step 5), assessment of professional competence (step 6) as decision moments. We explain this second programmatic view with an example. At the end of the first placement, learners have a clear view about each competency (steps 1 to 5) but they don’t receive a professional competence score (step 6). When they arrive in the second placement, the same educational activities are followed (steps 1 to 5). If professional competence can be assessed after this second placement, the assessment school committee will decide about this grade (step 6).

**Essential Workplace Learning Conditions**

The success of implementing an integrated workplace learning model is strongly dependent on the extent to which essential conditions are met. An important condition is the provision of time for reflection, feedback and dialogue. The time-issue is related to the educational structure of the learning instrument. Learners (Embo et al., 2010, 2014b) and supervisors (Embo et al., 2014a) perceived difficulties to write reflections and feedback about performance and competency development. Clearly demarcated expectations are essential to engage learners in self-directed learning and supervisors in observing and guiding learners. However, it is important to adapt the instructions to the reality of busy workplace learning environments. Therefore, reflection and feedback on performance can be limited to striking learning experiences (instead of daily reflections), and reflection and feedback on competency development can be limited to longer periods of time and a limited number of competencies (Embo et al., 2014b). Supervisors don’t have time to read extensive reflection bundles (Embo et al., 2014a) and learners prefer less reflective writing so that there is more time for a dialogue. Furthermore, supervisors worried about the writing activity of their colleagues that might hamper the value of learners’ collected evidence (Embo et al., 2014a). Learners and supervisors must be trained to be prepared for their workplace learning role and they need support from a range of members of the health care team. This brings us to the importance of creating an effective workplace learning culture in health care.

**Discussion**

We have described an Integrated Learning Assessment and Supervision Competency Framework to deliver competency-based education in
clinical workplaces. The cornerstone of this framework is integration. Integrating learning (reflection and feedback), assessment (self-, formative, summative) and supervision (observer, learning guide, school committee) in a competency framework can contribute to solving the problems of competency-based clinical education this study set out to address. We will use our empirical studies to discuss how this framework can contribute to addressing these problems. We will discuss strengths and weaknesses of the framework as well as opportunities for further research.

A first important strength of this framework is the competency-based educational structure. The competencies of the professional are central in the workplace processes (Fig. 1, steps 1 to 6) and in the workplace instrument (Fig. 2). The results in Embo et al. (2014a) showed that a competency structure promotes a focus on realistic outcomes, and that the integration of specific and generic competencies is valuable when considering a more complete list of competencies. Also Pijl-Zieber et al. (2014b) described that using established competencies promotes uniformity between educational preparation and workplace expectations, and provides a common language between stakeholders. Despite the advantages of this structure, the results in our studies confirmed the complexity of competence-based education in clinical practice (Embo et al., 2010, 2014a,b). Therefore, an important difference was made in the structure of the learning unit (Fig. 2). Specifically, the structure for reflection on performances was adapted to the performance reality in clinical workplaces. Within the current structure, performances mustn’t be unravelled in competencies but competencies are detected in the performance stories. This structure is intended to optimize learners’ reflection and observers’ feedback behaviour. Further research is important to measure this effect.

A second strong point of this study is the underlying socio-cultural learning theory, that of underpinning workplace learning as partnership and collaboration between learners, workplace and school. Different roles are described with respect of the clinical workplace reality, characterized by high workload and conflicting demands of service and education (Embo et al., 2010). A profound collaboration between all the stakeholders could prevent current problematic divergent values among stakeholders (Pijl-Zieber et al., 2014a), discontinuity in supervision (Sweet et al., 2013), inadequate reflection guidance (Mann et al., 2009), and fragmental competence assessment (Garside and Nhemachena, 2013; Pijl-Zieber et al., 2014a; Zibrowski et al., 2009). The newly designed instrument (Fig. 2) is potentially valuable on facilitating this collaboration because all the stakeholders use the same instrument. Notwithstanding the importance of this instrument, learners confirmed the importance of supervisors over learning instruments (Embo et al., 2010). This aligns with the findings in a recent review that most enablers and barriers to quality student workplaces relate to socio-cultural aspects of the workplace, rather than to micro-skills in supervising learners (Trede et al., 2014).

A third strength is that of a twofold reflective learning strategy, in the development and guidance of reflective learning (Mann et al., 2009). Workplace learning in health care education starts with experiences during patient care. The importance of experience and reflection in relation to learning is well-known (Mann et al., 2009). New in this framework is a reflective learning strategy consisting of two reflective writing activities: reflection on performances and reflection on competency development. This strategy is based on the theoretical and methodological distinction between self-monitoring performance in the moment (step 3) and self-assessment as a cumulative evaluation of overall performance (step 4) (Eva and Regehr, 2011). A longitudinal reflective writing strategy is important to enable continuous development of professional competence (Embo et al., 2014c). The long-term effect of this twofold reflective writing strategy on lifelong learning is an interesting topic for further research.

The fourth feature is the twofold holistic assessment approach, addressing the problem of fragmental competence assessment (Garside and Nhemachena, 2013; Pijl-Zieber et al., 2014a; Zibrowski et al., 2009), Holistic assessment of competencies and professional competence is achieved by integrating learning and assessment. We integrate self-, formative and summative assessment and a twofold summative assessment strategy. The focus of this framework is the ongoing evaluation and provision of feedback to improve performance and competency development. This focus is in line with current workplace assessment literature (Govaerts and van der Vleuten, 2013; Norcini and Burch, 2007; Norcini et al., 2011). A twofold assessment strategy fits current thinking to rehabilitate subjective judgement (Hodges, 2013). In Embo et al. (2014c), we found a significant correlation between the ability to reflect on own performance and professional competence scores, for all the midwifery learners. Further research on the topic of summative judgements is necessary to optimize competency-based education in clinical workplaces.

The fifth feature is the programmatic view on learning and assessment. We documented how this framework contributes to a traditional and contemporary view on programmatic learning and assessment. Further research on programmatic education would contribute to the implementation of an essential holistic competency-based education philosophy in clinical workplaces.

The sixth and final feature is the identification of essential conditions for a successful implementation of an integrated workplace learning design. Ideally workplaces should encourage and motivate learning leading to personal and professional growth (Anton, 2015). However, many contextual factors have been established as necessary elements for students to learn in the workplace (Dornan et al., 2012). As our model integrates different components of workplace learning, successful implementation will rely on the integration of all the conditions that were described in relation to the separate components in the workplace learning literature. This is not only about the tips for effective reflection (Aronson, 2011; Walker et al., 2013), feedback (Archer, 2010; Ramani and Krackov, 2012), assessment (Govaerts and van der Vleuten, 2013; Norcini et al., 2011), or supervision (Sundler et al., 2014). The challenge for the future is to implement the evidence-based approaches in practice and to create an effective workplace learning culture in health care education.

The main weakness of this study is that the framework design has been implemented in just one Midwifery department in Belgium, which inevitably limits the generalizability of the framework. However, the framework described could be useful as a guide to other health care disciplines who wish to plan, implement and evaluate a competency-based model of workplace learning in their educational programmes.

Conclusion

Competency-based education in clinical workplaces is complex. The complexity of workplace learning is conceptualized in an Integrated Learning Assessment and Supervision Competency Framework. Promoting continuous competence development requires an integration of competencies, learning (reflection and feedback on performance and on competency development), assessment (self-, formative and summative) and supervision (observers, learning guides and school committee). Creating a collaborative workplace culture where all the stakeholders share the responsibility for the quality of complex but inseparable workplace learning, assessment and supervision processes can optimize competency-based education in clinical practice. The authors hope that this framework will contribute to the competence future in clinical health care and education.

Acknowledgements

We thank Tracy Embo for editing the final versions of this manuscript. We also thank Kristien De Smet for advising a graphic designer. Ann Van Haeken did a wonderful job with translating Embo’s complex workplace model in an understandable and modern design.