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Scaffolding reflective learning in clinical practice: A comparison of two types of reflective activities

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Abstract

Background: The development of reflective learning skills is a continuous process that needs scaffolding. It can be described as a continuum, with the focus of reflection differing in granularity from recent, concrete activities to global competency development.
Aim: To explore learners' perceptions regarding the effects of two reflective writing activities designed to stimulate reflection at different degrees of granularity during clinical training.
Methods: Totally 142 respondents (students and recent graduates) completed a questionnaire. Quantitative and qualitative data were triangulated.
Results: Immediate reflection-on-action was perceived to be more valuable than delayed reflection-on-competency-development because it facilitated day-to-day improvement. Delayed reflection was perceived to facilitate overall self-assessment, self-confidence and continuous improvement, but this perception was mainly found among graduates. Detailed reflection immediately after a challenging learning experience and broad reflection on progress appeared to serve different learning goals and consequently require different arrangements regarding feedback and timing.
Conclusions: Granularity of focus has consequences for scaffolding reflective learning, with immediate reflection on concrete events and reflection on long-term progress requiring different approaches. Learners appeared to prefer immediate reflection-on-action.

Introduction

The development of reflective learning has been described as essential for experiential learning in clinical practice (Driessen et al. 2010). Definitions of reflection generally relate to review, interpretation and understanding of experiences to guide present and future behaviour (Mann et al. 2009; Wald et al. 2009; Wald & Reis 2010; Mann 2011; Vivekananda-Schmidt et al. 2011). Education programmes use various activities to promote reflection but little is known about their learning effects (Sargeant et al. 2011).

Reflective writing has been described as an effective activity to promote reflective learning (Parboteeah & Anwar 2009; Wald & Reis 2010) but it does not always lead to critical reflection and methods used, such as journals and portfolios, have met with mixed student responses (Driessen et al. 2005; Wald et al. 2009; Vivekananda-Schmidt 2011). Nevertheless, there seems to be general agreement about the elements that are most influential in developing reflection. Activities involving documentation of reflective activities will only foster in-depth reflection if they are: (1) related to relevant experiences; (2) clear and meaningful for learning; (3) flexible to address individual learning needs; (4) guided by well-informed tutors who promote reflective learning; (5) scaffolded by feedback based on reading of the written reflections; (6) assessed using qualitative criteria; (7) discussed with tutors and peers; (8) implemented in a safe learning environment and (9) supported by the availability of adequate time for reflection and feedback (Driessen 2009; Li et al. 2009; Mann et al. 2009; Wald et al. 2009; van der Vleuten et al. 2012).

Reflective skills are essential for the development of professionals who are competent, self-aware and have the ability to self-monitor and self-assess their performance and

Practice points

- Learners prefer to write reflections on concrete actions because of the immediate perceived learning effect on performance improvement.
- Reflection-on-action and reflection-on-competency-development are two different learning activities, requiring different educational arrangements.
- For both types of reflective learning activities, formative assessment is preferred over summative assessment.

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engage in continuing learning throughout their professional careers (Mann 2011). Reflective learning in the workplace is a continuous process aimed at guiding present and future behaviour (Wald & Reis 2010) and varying in granularity of focus from a recent concrete activity to global performance over a longer period of time. Models of reflective learning differ depending on the granularity of focus that is aimed for. According to Schön, there is a difference between 'reflection-in-action' and 'reflection-on-action' (Schön 1987). Sagasser et al. (2012) found that learning in practice occurred in a short and a long loop, both involving self-monitoring. Their analysis revealed that trainees reflected during and after activities, which suggests that their self-monitoring may reflect Schön's 'reflection-in-action' (short loop) and 'reflection-on-action' (long loop). This concept of self-monitoring diverged from Eva and Regehr (2011) who defined reflection-in-action as a process of self-monitoring performance in the moment and reflection-on-action as a more integrative process of self-assessment, drawing on all relevant experience to date, respectively. Van Kammen developed a model for discussing reflection viewing reflection as interaction between reflection on concrete actions and reflection on competencies, the latter being defined as a more abstract thinking process than the former (Van Tartwijk et al. 2003). In response to these two types of reflection, education programmes have introduced a variety of reflective learning activities (Wald et al. 2009; Li et al. 2010). In general, strategies focusing on concrete actions are described as a substantially more accurate mechanisms for ensuring safe and effective performance, because reflection on a day-to-day basis and the corresponding feedback facilitate students' awareness of where they have gone wrong and how they can improve (van Tartwijk et al. 2003; Parboteeah & Anwar 2009; Eva & Regehr 2011). Although reflection-on-competency-development is a more abstract and complex process than reflection-on-action, Eva and Regehr consider reflection on progress essential for continuous professional development (Eva & Regehr 2005, 2011).

We conducted a study to explore students' perceptions of the effectiveness of these two reflective processes for their learning. For this purpose, we collected and analysed perceptions of learners who had experienced two reflective activities during clinical training: moment-by-moment reflection on concrete recent actions and delayed reflection on overall competency development during longer periods of three to six weeks. Our main research question was: 'in the perception of students, what are the learning effects of reflective writing aimed at 1: improving actions in the moment (reflection-on-action) and 2: competency development over a longer period of time (reflection-on-competency-development), and which approach do students value the most?

Method

Context

The study was conducted among students of the undergraduate programme of the midwifery department of University College Arteveldehogeschool Ghent (Belgium). The three-year programme in Midwifery that is offered by the school consists of a modular, competency-based curriculum based on a framework of 24 medical and generic competencies, related to six professional roles. From the end of the first year students engage in workplace-based learning during clinical internships. During the internships, students are guided and supported by a clinical supervisor in the workplace and a teacher from the Midwifery department. Both the clinical supervisor and the teacher take up the educational (supervision of the learning process) and the clinical role (provision of patient care with the student). Normally, teachers are more focused on the overall learning process and clinical supervisors emphasise the observation during patient care. Students are stimulated to reflect on concrete activities and global competency development by a combination of reflective writing on actions immediately after their occurrence and reflective writing on longitudinal competency development. For immediate reflection on actions, students are instructed to write daily reflections on their performance in the workplace. They are also encouraged to ask for an immediate feedback on these actions (Embo et al. 2010) and required to submit their written reflections to their supervisor or teacher and ask for their feedback. For reflection on competency development students are asked at the end of each internship to produce written reflections on their competency development during the internship and to use these reflections to set learning goals for the next internship. This type of reflection starts at the end of the first, six-week, internship at the end of year 1, and continues at three-week intervals during years 2 and 3, resulting in five and seven written reflections on competency development in years 2 and 3, respectively. The clinical supervisor and the teacher from the Midwifery department are instructed and trained to give students verbal and written feedback on activities they have performed and on their reflections on these activities. Assessment of reflection is based on pre-set criteria, measuring learners' authenticity and level of reflective thinking. The written reflections on competency development are read only by the teachers from the department, who provide verbal and written feedback on the development of students' learning processes and on students' reflections on it. The reflections on action are assessed summatively by a school committee using ratings on a scale from 0 to 20. The teachers rate students' reflections on competency development using the same scale. This score accounts for 5% of the final score.

Design

We administered a short paper-based questionnaire to elicit perceptions of the effects and value of the two types of reflection. Respondents were asked to rate the overall value of the two activities on a 10-point scale (1 = very low; 10 = very high). Perceptions of the learning effects of both types of reflection were elicited by asking for each type of reflection the following open-ended questions: (1) describe what you learn from reflective writing; (2) describe elements inhibiting and stimulating learning. A pilot test of the questionnaire among third-year students resulted in one minor change in lay-out and showed that the questions were easy to understand and elicited pertinent data.

Data collection

Both types of reflective writing were introduced in the curriculum in 2007. Invitations to participate in the study were sent to all present and former students who had experienced these activities: all current undergraduate students and midwives one year after graduation. Between May and September 2011, the questionnaire was completed by 146 respondents (overall response rate: 53%; first-year students 32/76, second-year students 57/77, third-year students 36/62, graduates 21/58). Students in years 2 and 3 completed the questionnaire in the classroom in the presence of a teacher who was not involved in the research project. First-year students received the questionnaire from the teacher during the first week of their internship and were asked to complete and return it in a closed envelope at the end of the internship. The graduates received the questionnaire by post. A reminder was sent by e-mail.

Data analysis

The scores were entered into SPSS for Windows, Release 20.0 (IBM SPSS Statistics, NY). Paired sample *t*-tests were performed to compare the perceived value of the learning effects of the two different types of reflection: reflection-on-action and reflection-on-competency-development. Effect sizes were calculated for the differences between the two means. Effect sizes are an increasingly important 'scale-free' index used to quantify the degree of practical significance of study results (Hojat & Xu 2004).

The answers to the open-ended questions were analysed qualitatively to identify patterns and themes. All the answers were typed up and analysed using Atlas.ti 6.0 software (Scientific Software Development GmbH, 2006). The first author and a research assistant performed qualitative content analysis (Graneheim & Lundman 2004). The answers were read through several times to gain an overall idea of the content. Texts relating to learning effectiveness and texts on inhibiting and stimulating conditions were analysed separately for the two types of reflective activities. Units of meaning, i.e. words, sentences and paragraphs expressing the same meaning, were identified, condensed, abstracted and coded. Based on commonalities, the codes were sorted into categories, and based on the researchers' interpretations of the underlying meaning of the categories, themes were developed. The latter process involved moving back and forth between full text, codes and categories.

Ethical considerations

The Ethical Review Board of the Dutch Association for Medical Education (NVMO) approved the study. Prior to the study, all participants received information about the study and signed an informed consent form. They were assured of confidentiality and anonymity when the findings were used for discussions or published in any form. The students were free to withdraw from the study at any time. Data were used for educational research purposes only. Participation was voluntary and participants received no compensation.

Results

We first present the quantitative results followed by the qualitative results. Table 1 displays the mean scores (on a 10-point scale) on the perceived learning value of the two types of reflective activities. The score for immediate reflective writing on actions was generally higher compared to the score for reflective writing on competency development at the end of an internship. Second year students, in particular, gave very low scores on the learning value of reflection-on-competency-development. It was not until after graduation that respondents, retrospectively, valued delayed reflection more positively, although the mean score was moderate (6.42/10, SD 1.66). A paired *t*-test showed that the differences between the two reflective writing activities were statistically significant for all respondents except for graduates. The differences decreased from year 2 onwards. Effect sizes were large for all student groups (year 1: 0.98; year 2: 1.48; year 3: 1.10), but low for the graduates (0.26).

Reflection-on-action

The main reason the respondents gave for their preference for immediate reflection-on-action was that it made them pause, look back on concrete actions and record information about their learning, which provided insight into their strengths, weaknesses and learning needs. This reflective writing activity enabled them to take immediate remedial steps to improve their performance in the next action: 'The daily reflections help both in noticing mistakes and difficulties and in making

Table 1. Perceived learning value of reflection-on-actions versus reflection-on-competency-development.

		Reflection-on-action		Reflection-on-competency-development		Paired sample *t*-test			
	n	Mean	SD	Mean	SD	*t*	df1	sig	Effect size
Year 1	32	7.28	1.08	5.70	1.99	4.31	31	0.000	0.98
Year 2	57	6.85	1.20	4.57	1.81	8.06	56	0.000	1.48
Year 3	36	6.88	1.23	5.20	1.76	5.57	35	0.000	1.10
Grad.	21	6.88	1.77	6.42	1.66	0.74	20	0.466	0.26

N = number of respondents; Mean: on a score from 1 to 10; SD = standard deviation; *t* = paired samples *t*-test; df = degrees of freedom; sig = significant at $p < 0.0001$; Effect size = Effect size estimate for the differences between two means.

adjustments at an early stage so that you reach the competency level faster' (UG1-R28). Students particularly appreciated that immediate reflection on clinical experiences stimulated their learning during internships: 'Because I was made to reflect on a daily basis, I made a lot more progress during my six-week internship' (UG1-R23).

Another effect of immediate reflection-on-action mentioned by respondents was that it challenged them to ask for feedback, which, in turn, stimulated supervisors to give verbal feedback on observed performances. Nevertheless, one-third of respondents perceived a lack of feedback, especially written feedback on their written reflections. Respondents perceived different barriers preventing supervisors from giving feedback: lack of time, lack of motivation and the competency-based structure of the feedback form. The latter is illustrated by the following quote: 'Competencies are positive to note progress. However, sometimes it would be easier to write reflections of the day on a blank sheet. This would also make it easier for midwives who are unfamiliar with the competencies to write feedback' (UG1-R10). Senior students and graduates reported this phenomenon more often than junior students.

Although most respondents emphasised the value of daily reflective writing, some respondents indicated that they thought daily reflection was excessive, especially considering that experiences worth reflecting on did not occur every day. Respondents also reported that reflecting honestly upon weaknesses that were revealed during challenging experiences was essential for learning, but caused tension between 'writing fair reflections' and 'fear of summative assessment': 'Because this is part of your assessment, you tend to write about experiences that you believe will give a positive assessment. You don't really learn from this. A lot depends on the strength of the relationship you have with your supervisor. When you make a big mistake, you are afraid to reflect on it for fear it will disadvantage you during the final assessment of the placement. Nevertheless, these are the very learning experiences on which you should reflect' (Grad-R12).

Reflection-on-competency-development

Students gave different reasons for their lower appreciation of reflection-on-competency-development at the end of internships.

Respondents frequently mentioned their overriding preoccupation with immediate performance during the present internship and that reflecting on competency development had no direct effect on their day-to-day performance. First- and second-year students, in particular, felt that the daily reflections facilitated their awareness of competency development during the internship. Consequently, reflection on competency development at the end of an internship seemed a mere repetition of the daily reflections and students felt that they wrote reflections on competency development mainly for the benefit of their supervisor, the assessment and their portfolio.

Another frequently reported reason for not valuing reflections on competency development was the perceived time investment, which appeared to be associated with the frequency of reflection, the writing activity, summative assessment and the competency structure of reflective writing assignments. The majority of respondents felt that writing reflections every three weeks took up too much of their supervisors' and their own time. Time constraints and little progress often caused respondents to resort to 'copying previous reflections' or 'just putting something down to get it over with'. One in five respondents suggested that the learning effect might be enhanced by reducing the frequency of reflective writing, e.g. to once or twice a year. As with reflection-on-action, respondents reported a lack of feedback on their progress. To deal with this, it was suggested to replace written reflections with a reflective dialogue, which might facilitate learners' reflections and supervisors' feedback on competency development. As one of the respondents put it: 'This seems to me to result in less work to write for the student, less time to read for the supervisor and a more fair reflection with feedback' (Grad-R2). Additionally, a reflective dialogue might reduce the perceived imbalance between time investment and weight in summative assessment: 'The reflection report takes about one day to complete and it is only 5% of the points' (UG2-R4). Finally, respondents reported that the structure of the writing assignment required them to reflect on all the competencies, whereas not all competencies were relevant to or addressed during all the internships.

Competency-related reflection was valued mostly by graduates, who retrospectively saw the merits of this type of reflective activity. Graduates recognised more often that, during undergraduate training, reflective writing on competency development was useful because it facilitated longitudinal learning across internships: 'I learnt to deal with a longer period of training and feedback. I made a global analysis of my own actions and that often had a positive effect on my next internship' (Grad-R15).

Discussion

We collected and analysed quantitative and qualitative data on the perceptions of students and recent graduates of an undergraduate midwifery programme regarding the learning effects of activities to stimulate reflection-on-action and reflection-on-competency-development.

Students were required to engage in both types of reflective activities, and the results revealed a marked preference for reflection-on-action. Respondents valued the immediate applicability of this type of reflection to improve their learning and performance in the workplace, whereas they did not experience a similar direct effect from reflection on overall competency development. These results are consistent with the work of Eva and Regehr (2011), who reported an apparent divergence between poor overall self-assessment and effective self-monitoring. This divergence may be similar to respondents' different perceptions of the two types of reflection that we found in the present study.

In the introduction, we listed the most influential enabling elements for the development of reflective learning. New in this study are the perceptions of learners that reflective writing activities aimed at different learning goals may require different learning conditions, relating to timing and content

of reflection and to feedback. We will discuss these conditions consecutively.

As is so often the case in clinical education, time or rather the lack of it was an important reason given by respondents to explain why they did not perceive reflection on competency development to be very useful. The strict scheduling of both types of reflection during internships – immediate reflection on actions (daily) and reflection on competency development (every three weeks) – made reflection highly labour intensive for both students and supervisors. The short time interval between reflections on competency development may also have prevented students from appreciating the different purposes of the two types of reflection. Respondents suggested that a stronger distinction might be made between detailed reflection immediately after challenging learning experiences and global reflection after effective progress, which could be achieved by increasing the intervals at which the latter type of reflection was required. Increasing the intervals will reduce the amount of reflection required. This amount of reflection may have led to some quite superficial and ritualised reflections. As discussed by Boud and Walker (1998), consideration of the context in which reflective action is engaged is a challenge in using reflection.

The second difference in learning conditions relates to feedback. An interesting effect of daily reflection on action was that it encouraged students to ask for feedback and supervisors to provide feedback on observed actions. Nevertheless, respondents consistently indicated that they would like to receive more written feedback. This applied for both types of reflection but there appears to be a difference between the two types of reflection with regard to content and delivery of feedback. In this respect, the results of the present study appear to be consistent with research indicating that different reflective processes may require different feedback: specific feedback on performance versus general feedback on the learning process (Hirsch & Gabriel 1995). The distinction between specific and general feedback refers to feedback content, but the respondents in this study distinguished also between different ways of delivering feedback. For feedback on progress, they preferred a progress dialogue over written feedback. Trainees in the long self-regulation loop also valued progress meetings, because these enabled them to discuss their progress and learning plans (Sagasser et al. 2012).

First-year students were most positive about how structuring reflection-on-action facilitated reflective learning. As students got more experienced, however, they preferred a less structured format over the fixed structure they had to use. These results confirm evidence that flexibility is essential to address individual learning needs and foster in-depth reflective learning (Driessen et al. 2007; van der Vleuten et al. 2012). We suggest further research exploring the effect of the feedback form's structure on the type, and perhaps quality of feedback provided.

The limited sample size, the response rate of 53%, the short questionnaire and the setting of the study in one Midwifery department in Belgium inevitably limits the generalisability of the results. The response rate was moderate and we cannot exclude that responders might be more orientated to one reflection approach. Also the results may be specific for an educational setting where both types of reflection are used simultaneously. This means we have to be careful in generalising the findings to learning environments where only one type of reflection is used.

Conclusion

Developing reflective learning in clinical practice is a continuous process, and this study gives some insight into effects of the granularity of the focus of reflection on learner's perceptions of its usefulness. Immediate detailed reflection on actions was appreciated the most. Most learners were primarily focused on direct improvement of specific actions, which was most effectively supported by reflection-on-action, especially as it stimulated them to ask for feedback. Reflecting on more global long-term competency development was less appreciated, because it had no clear and direct effect on improvement of day-to-day performance. The results suggest that since the two types of activities to support reflective learning address different learning goals they probably also require different underlying educational arrangements, specifically in respect of the length of the reflective learning cycle and the provision of feedback.

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