

Review

Reflective writing in undergraduate clinical nursing education: A literature review

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ABSTRACT

The aim of this review was to explore the evidence of learning from reflective writing in undergraduate clinical nursing education. A combination of 17 quantitative and qualitative studies were included and three main categories emerged *Development of clinical reasoning skills*, *Professional self-development* and *Facilitators and barriers for learning*. The results revealed that reflective writing enhanced the students' reasoning skills and awareness in clinical situations. However, most students reflected primarily at a descriptive level, showing only limited and varied development of reflective skills. They focused on self-assessment; on their own emotional reactions and ability to cope in clinical situations, but had difficulties reflecting on the process of thinking and learning. Learning was promoted through instructive guidelines, scaffolding and detailed feedback from a trusted, available and qualified faculty teacher. Factors that facilitated learning included student maturity, individual cognitive skills, student collaboration and mixed tools for learning. Time constraints, conflicting values, lack of feedback and support, and lack of trust acted as barriers for learning. Reflective writing is a tool for students' professional learning, but above all for the students' personal development in becoming a professional nurse.

1. Introduction

Norwegian undergraduate nursing education is built on the European standard for Nursing Education (European Commission, 2013/55) and aims to educate independent, responsible, flexible and patient-oriented professionals who show a deliberate and reflective attitude when practicing nursing care (Ministry of Research and Education/MRE, 2008). To achieve these aims, reflective writing has become a well-established tool for learning in clinical studies in many faculty programs. This review explores student learning from reflective writing to ensure quality of learning in clinical studies. As learning from reflective writing involves teacher mentoring, teacher mentoring and other aspects that affect the process of learning is integrated. The scope of this study is not to provide a critique on the method of reflective writing. However, some aspects are included to describe the complexity of reflective learning.

2. Background

Reflective writing is one of many tools to promote reflective learning (Tashiro et al., 2013). It is a tool for development of reflective thinking skills, self-understanding and coping with professional experience (Allan and Driscoll, 2014; Craft, 2005; Kennison, 2006; Lasater and Nielsen, 2009; Oerman and Gaberson, 2009). It is a means to promote critical thinking, analysis, metacognition and synthesis, and a means for developing reading as well as writing skills (Craft, 2005). Reflection involves critical examination of one's own beliefs and attitudes for development of self-awareness, self-monitoring and self-regulation (Mann et al., 2009). It is a way to bridge the gap between thought and action and an opportunity to describe internal processes, evaluate challenges and recognize triumphs in ways that otherwise would remain unarticulated (Allan and Discroll, 2014).

The need for reflection occurs in situations that trigger the brain to find new information to calm tension provoked by an incident (Dewey, 1933). According to Schön (1987), there are two dimensions of reflection for development of professional learning and expertise,

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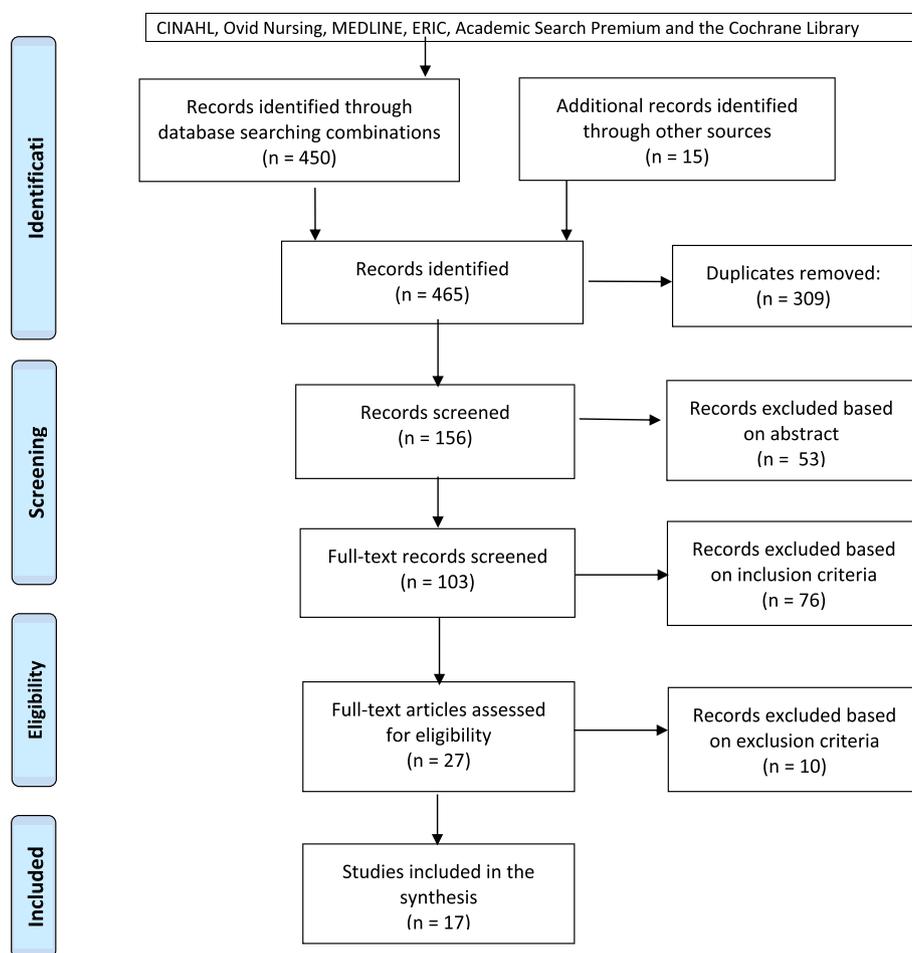


Fig. 1. PRISMA Flow diagram (Moher et al., 2009).

reflection *on-action* and reflection *in-action*. Skilled knowledge, knowing *in-action* is artistry and tacit knowledge. Reflecting *on-action* we think back on what we have done to discover how our actions influenced the situation. “Reflection involves taking the unprocessed, raw material of experience and engaging with it as a way to make sense of what has occurred” (Boud, 2001, p.10). It is a process of merging into professional thinking (Craft, 2005; Dysthe et al., 2010), and a process of development, transformation and new understanding. Students can be transformed, but only if they acknowledge their experiences (Benner et al., 2010).

Reflective skills are regarded as an essential element of professional competence (Bowman and Addyman, 2014; Mann et al., 2009; Regmi and Naidoo, 2012), and reflection is widely used in nursing education to facilitate learning (Epp, 2008). Reflection however is multifaceted (Boud, 2001; Epp, 2008; Norrie et al., 2012) and a term with different concepts and meanings (Coward, 2011; Regmi and Naidoo, 2012). It is abstract by nature and involves affective as well as cognitive skills (Kuiper and Pesut, 2004). When students reflect on learning, they are encouraged to understand the goals of the curriculum (Allan and Driscoll, 2014). Given the already full curriculum and the complexity of reflective learning, skills should be introduced in the first year of education. Scaffolding alongside with accomplishing goals such as competency milestones might help to establish a culture of reflection and enable students to learn from it (Aronson et al., 2012, p 812).

A number of models have been developed to aid the process of reflection (Aronson et al., 2012; Boud, 2001; Regmi and Naidoo, 2012). These models vary in both complexity and how their authors conceptualize and categorize framework factors (Tashiro et al., 2013). According to Mann et al. (2009), there are two main dimensions of

models: a vertical one, with different levels of reflection, and an iterative process-oriented dimension focusing on learning to act differently in new situations. Vertical models vary in complexity from simple (with few levels) to complex (with several levels). Lower level reflection is purely descriptive, while medium is reflective and higher levels involve critical reflection (Dyment and O’Connell, 2011). The reflective process itself is non-linear and cyclic, and includes six generic steps: emotional reaction, description, internal examination, critical analysis, evaluation, and planning of new action (Tashiro et al., 2013).

Earlier reviews on reflective writing in healthcare education, including nursing (Dyment and O’Connell, 2011; Epp, 2008; Mann et al., 2009) reveal that students mostly reflect on descriptive levels and that educators struggle to incorporate reflective practice. However, when supported by a good facilitator in an environment of trust, learning was enhanced. The presence of guidelines and feedback improves learning (Aronson et al., 2012; Wen et al., 2015). Several studies show that reflective skills develop over time, depending on a student’s age, maturity, experience and level of education (Embo et al., 2014; Epp, 2008; Hannans, 2013; Mann et al., 2009). In order to learn from reflective journaling, students need to know what is expected of them and what to do. Teaching staff need to emphasize reflection, allow space for student voices, acknowledge the effects of time constraints and accept that not all students embrace journaling (Aaron, 2013). However, staff may be unaware of how to help students to reflect or how to deal with student concerns (Kennison, 2012).

3. Aim

The aim of this review is to explore the evidence for reflective

Table 1
Quality appraisal.

Author, Year, Nation	Design and method	Aims/Back-ground/ Frame-work	Sample/Method/ Analysis	Method suited/ issue focused	Validity/reliability/limitations/ ethical aspects reported
Fernández-Peña et al., 2016, Spain	Mixed method. Survey and focus group.	+ / + / +	+ / + / +	+ / +	+ / + / +
Ruiz-López et al. (2015), Spain	Mixed methods; Data-triangulation: content analysis, interviews & discussion groups.	+ / + / +	+ / + / +	+ / +	- / + / - / +
Coleman and Willis (2015),UK	Qualitative design. Focus group interviews. Phenomenological analysis.	+ / + / +	+ / + / +	+ / +	+ / + / + / +
Naber and Wyatt (2014), USA	Quantitative. Experimental pre-post-test design with control group.	+ / + / +	+ / + / +	+ / +	+ / + / + / +
Naber et al. (2014), USA	Qualitative. Analysis of open-ended questions, parent study: Naber and Wyatt (2014).	+ / + / +	+ / + / +	+ / +	+ / + / + / +
Ross et al. (2014), Canada	Qualitative. Analysis for concept and occurring themes. Pilot. Openness and creativity approved.	+ / + / +	+ / + / +	+ / +	- / + / + / +
Silvia et al. (2012), Italy	Mixed methods. Qualitative content analysis, Mezirows' seven-level model, and focus groups	+ / + / +	+ / + / +	+ / +	- / - / +
Ip et al. (2012), China	Quantitative. Single cohort group, pre- and post-test design.	+ / + / +	+ / + / +	+ / +	+ / + / + / +
Edelen and Bell (2011), USA	Quantitative quasi- experimental post-test comparison of RJ.	+ / + / +	+ / + / +	+ / +	+ / + / + / -
Koskinen and Jokinen. (2011), Finland	Qualitative hermeneutic analysis of 39 journals.	+ / + / +	+ / + / +	±	+ / + / +
Marchigiano et al. (2011), USA	Quantitative. Descriptive cross- sectional design. Survey post intervention.	+ / + / +	+ / + / +	+ / +	+ / + / + / +
Harrison and Fompa-Loy (2010), USA	Qualitative. Content analysis according to Goleman et al.'s emotional competencies.	+ / + / +	+ / + / -	+ / +	- / - / - / +
Mun (2010), S- Korea	Qualitative. Hermeneutic analyses of content in journals.	- / + / -	+ / + / +	+ / +	- / + / - / +
Callister et al. (2009), USA	Qualitative. Thematic content analysis of guided RJ.	+ / + / +	+ / + / +	+ / +	+ / - / + / +
Dickieson et al. (2008), Canada	Mixed methods. Quantitative analysis of RJ compared with OSCE-test scores & clinical lab.	+ / + / +	- / + / -	+ / -	+ / - / - / -
van Horn and Freed, 2008, USA	Quantitative. Content analysis, intervention and control group.	+ / + / +	+ / + / +	+ / +	+ / + / - / -
Honey et al. (2006), New Zealand	Qualitative. Line-by-line content analysis.	+ / + / +	+ / + / +	+ / +	- / - / - / +

Table 2
Studies and results.

Author origin	Aims & Sample	Results
Fernández-Peña et al., 2016, Spain	To assess perceived usefulness/challenges in reflective learning. 107 BNS/bachelor nursing students	Students reported positive experiences with reflective journals/RJ. RJ helped students to better understand themselves through self-reflection and to discover needs for improvement. RJ was less useful for planning own learning and for identifying areas of weakness and needs for improvement on knowledge, skills and attitudes. Low motivation, lack of familiarity with the method, concerns for grading and privacy and difficulties regulating time acted as barriers.
Ruiz-López et al. (2015), Spain	To improve implementation of RJ 102 BS/bachelor student, 12 faculty instructors	Four themes identified: RJ as teaching strategy, building a relationship of trust, role of the teacher and the world of emotions. The quality of reflection depended on mutual trust, maturity and experience, time and distance, and faculty feedback. Students in first year more descriptive than students in fourth year. Teacher motivation and qualification enhanced learning. Tutorship is an effort, and teachers need training.
Coleman and Willis (2015), Scotland, UK	To explore perspectives on poetry and RW/reflective writing in reflective practice. 10 BNSH/BNS of Hons, mental health placement.	Students found RW intimidating and anxious provoking, but valued the process over time as a means for professional development, independent learning and confidence building. Students had mixed views on forms. RW helped students to empathize with patients. Models helped to scaffold the process and to learn more from experiences. Assessment “watered down” the narrative/led to “doctoring” in fear of being judged. Perceived barriers; time constraints, resistance to changes in the clinic and inconsistency in mentor support.
Naber and Wyatt (2014), USA	To test critical thinking CT-skills based Paul's model, identify and compare high-scoring participants. 70 BNS. Two schools.	No significant increase in reflective levels from pre-to post-test, any group. Intervention group scored significantly higher on truth-seeking, increase on four and higher on three of four subcategories. Student's ability to seek best knowledge for practice and communicate effectively with other professionals was enhanced. High-scoring students on pre- and post-test scored also high on all sub-categories. Prior health care experience had positive impact on skills.
Naber et al. (2014), USA	To identify situated CT and its contextual characteristics in RW. 30 BNS. Two schools.	Six themes identified; transferring knowledge from one situation to the other, centering care on client, collaboration with patient, relatives and co-workers, recognizing consequential issues, examining self and conceptualizing the whole. RW enhanced self-reflection and self-regulation and was useful for calming emotions and avoiding panic.
Ross et al. (2014), Canada	To explore experiences and learning through open RJ. 11 third-year BNS. Community mental health placement.	Four themes identified: Preconceived notions, learning outcomes and experiences, atmosphere and holistic client-centered care. Most dominant learning: elimination of stigmatization and judgmental attitudes towards mental illness. Empathy developed through interaction. As trust grew, students could integrate and transfer knowledge learned in the classroom. Critical self-reflection and a trusting relationship necessary to accomplish growth.
Silvia et al. (2012), Italy	To explore levels of reflection and learning experiences. Mezirow's model. 14 BNS, 12 RJ	Level 1-3: reflective, affective and discriminant reflectivity most dominant. Level 5 & 7: conceptual and theoretical reflectivity seldom reached, level 4 & 6: judgmental psychic reflectivity rarely reached. RJ was useful for evaluating own actions, and for recognizing and venting negative emotions. Anonymity important, assessment acted as barrier.
Ip et al. (2012), China	To evaluate utility and changes in levels of reflection. John's model. 38 BSN of 173 completed.	A structured model improved self-reflective skills. Significant increase in reflective levels at first test compared with pre-test, but no further development on second and third test. Few reached critical reflective levels. Barriers: lack of time, teacher not available, lack of a trusting relationship and too short a period. Students recognized the value of the instructor and student sharing for learning.
Edelen and Bell, USA (2011)	To address the need for effective tools for CDM/clinical decision-making. 51 ADNS, 10 FI	Majority of students indicated that RJ had positive effect on CDM skills. Comparing situations had significant effects on analytical skills and CDM. Feedback and direction to evaluate details and actions, post-clinical discussion groups and teacher questioning enhanced learning and self-reflection. Skills developed with age.
Koskinen and Jokinen. (2011), Finland	To explore students' reflective narratives for improvement of student mentoring. 20 BNS. Mental health placement	Three storylines identified: self-awareness/-esteem, nurse-patient relationship and care methods. Pre entering practice students felt insecure. Narratives helped students to describe learning, face own emotions and coping through confrontation. Attitudes changed through interaction with client, and empathy developed. A feeling of belonging, guidance and support enhanced independence.
Marchigiano et al. (2011), USA	To evaluate CT and perceived confidence comparing two types of clinical assignments. 51 3rd year BSN.	Students were significantly more confident using journals compared to the care-plan format on six of seven thinking skills: analyzing information, determining relevance, making connections, selecting appropriate information, applying relevant knowledge and evaluating outcomes. Students spent considerable less time on journals. Journaling enhanced student's thinking and reflection on context and experience.
Harrison and Fompa-Loy (2010), USA	To assess RW guide-lines for development of emotional competencies. 16 BNS, Mental health clinical placement.	Progressive journals stimulated reflection. Students described emotions, but understanding was superficial. Separating thoughts from emotional reactions was difficult. Many did not perceive emotions as valuable and useful for learning. RJ were time consuming and emotional draining, but useful for stimulating reflection on emotional competencies. Faculty met challenges implementing RJ.
Mun (2010), S– Korea	To identify CT-context in psychiatric clinical practice. 30 BSN	JW helped students to reflect on learning and to examine and analyze feelings and reactions to clients and client's conditions. Four themes emerged: anxiety, conflict, hyper-awareness and dilemmas. Most dominant: emotional discomfort, reflection on self and self-development. JW provided insight to student thinking and perceived difficulties.

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Table 2 (continued)

Author origin	Aims & Sample	Results
Callister et al. (2009), USA	To explore ethical awareness/reasoning using the what, so-what and now-what format. 70 BNS Ethical/maternal/childcare.	Students demonstrated discriminant and judgmental levels reflecting on clinical experiences. Main theme: “in the process of becoming”; being professional, lacking confidence as a student to take an ethical stand, advocating for patients, identifying the spiritual dimensions of nursing, confronting the ‘real world’ of care, making commitment to practice and caring enough to care.
Dickieson et al. (2008), Canada	To evaluate three tools for integrative learning. Second year level, BNS.	26 of 34 RJ focused on empirical knowledge, 12 on aesthetical, 5 on personal and 1 on ethical thinking. Journaling elicited negative thinking, enabled clinical judgement and awareness of social roles & professional responsibility. Scaffolding and mixing of tools enhanced learning.
Van Horn and Freed, 2008, USA	To explore student reflective processes working individually or in dialogue pairs. 39 ADNS in acute hospital care.	Themes across groups: emotions, connecting theory to practice and learning. Working in pairs significantly increased reflective levels. Those working alone had difficulties connecting knowledge to solving problems and more often described negative emotions; anxiety, fear, intimidation and doubt. Working in pairs, students saw learning as result of social context. Both high- and low-scoring students profited.
Honey et al. (2006), New Zealand	To evaluate effects of John & Carper's CT model. Second year BNS, 12 assignments, disability placement.	Students focused on overall learning and experience rather than on clients. Coping most central. Subthemes: fear/anxiety, feeling alone/unprepared, coping strategies; setting boundaries, reflecting on previous knowledge and experience and seeking understanding through knowledge. Outcomes indicated a need for clear guidelines to aid the process of learning.

writing as a tool for learning in undergraduate clinical nursing education.

4. Method

This mixed studies review was conducted based on procedures described by Polit and Beck (2012). Searches were carried out in November–December 2016 combining the following keywords: reflective writing OR journaling OR reflective learning, AND learning AND nursing education AND bachelor OR baccalaureate OR undergraduate AND clinical OR clinical education AND effect* OR/AND evidence. The following databases of EBSCOhost were included: Cinahl, Ovid Nursing, Medline and ERIC. Additional searches included searches in each of these databases on corresponding Mesh-terms and keywords, and searches in Academic Search Premium and the Cochrane Library. Numerous searches combined with manual searches in reference lists were conducted until no new articles appeared. Inclusion criteria were: (i) scholarly peer reviewed full-text articles written in English, (ii) articles published between 2006 and 2016, (iii) qualitative studies, quantitative studies and mixed methods, (iv) reflective writing in clinical studies and (v) undergraduate nurse education. Exclusion criteria were: (i) reflective writing in theoretical studies, (ii) academic writing, (iii) portfolio writing, (v) sample < 10 and (vi) graduate nursing education (see Fig. 1).

4.1. Analysis

First, all articles were read independently by two researchers to ensure that the focus was in line with the inclusion criteria and had sufficient credibility. Secondly, codes were assigned and collected in a data extraction sheet. Codes are concepts that summarise the main outcomes. After the process of coding, all codes that were identical or alike were grouped together and referred to as a theme. Regular meetings were held during every phase of the selection, evaluation and extraction processes under the supervision of a senior researcher. Emerging themes were marked and organized as categories with subcategories. A thematic analysis involved detecting patterns and regularities, as well as any inconsistencies (Polit and Beck, 2012).

4.2. Quality appraisal

Research critique is a careful appraisal of the strength and weakness of a study (Polit and Beck, 2012). To evaluate the quality of the studies the authors used the Critical Appraisal Skills Program. Making sense of

the evidence of quantitative studies and case-control studies focused on study validity, results and applicability (CASP, 2015) combined with Finding and Critiquing Evidence by Polit and Beck (2012). The quality appraisal focused on clear issues and research questions, background, sampling procedures and sample size, appropriate choice and use of method, validity and reliability, statistical strength, study limitations and ethical considerations.

5. Findings

5.1. A description of the studies

Seventeen studies were included in the final analysis (Table 2). Seven studies had been conducted in the United States, two in Canada, two in Spain, one in UK, one in Italy, one in Finland, one in China, one in South Korea and one in New Zealand. Eight studies had a qualitative design, five had a quantitative design and four used mixed methods. Study aims varied, but the methods employed were suited for the focus of inquiry and thoroughly described. The qualitative publications were for the most part thoroughly described and of good quality. The quantitative publications had good quality measured by methods, interventions, measurements and analysis, although several studies had statistical limitations including voluntary and/or convenience sampling, small samples, high drop-out figures, short intervention periods and few results at significant levels (Table 1).

Most studies evaluated or tested the effects of reflective frameworks and models or explored journal content, levels of reflection, student characteristics and student confidence with reflective writing. Some studies compared learning from reflective writing with other tools for learning, and many studies had more than one focus. Three main categories with subcategories emerged. Two categories focused on learning and development of reflective skills. The third category was factors promoting and hindering learning from reflective writing.

5.2. Development of reflective reasoning skills

The first main category “Development of reflective reasoning skills” consisted of two subcategories: “Clinical decision-making” and “Reflection on-action.” Studies included had mainly quantitative designs. Six studies across subcategories tested the development of reflective levels (Edelen and Bell, 2011; Ip et al., 2012; Naber and Wyatt, 2014; Ruiz-López et al., 2015; Silvia et al., 2012; van Horn and Freed, 2008), and four studies explored the focus and quality of student reflection (Callister et al., 2009; Naber et al., 2014; Marchigiano et al.,

2011; Silvia et al., 2012).

5.2.1. Clinical decision-making

Six studies tested clinical decision-making skills. Naber and Wyatt (2014) found no significant differences between the intervention and the control group in total critical thinking scores and critical thinking dispositions from pre- to post-test. However, the ability to communicate and seek best knowledge for practice improved significantly. A majority of students in Edelen and Bell's study (2011) reported that reflective writing had positive impact on their analytical decision-making skills. Comparing and identifying similarities in novel and prior situations had significant effects on analytical skills, and provided opportunities to analyse the situation, put it all together and adapt more quickly in new situations. When students were asked to solve clinical problems by discussing and answering questions in pre and post clinical discussion groups, students in the intervention-group had a significant increase in their levels of reflection in reflective writing compared to students in the control group (van Horn and Freed, 2008).

Students focused on empirical knowledge and on transferring knowledge. Writing helped students to create some distance from their experiences. This distance helped them to see through negative self-interpretations that hindered logical reasoning and their ability to interpret a given situation (Dickieson et al., 2008; Edelen and Bell, 2011; Naber and Wyatt, 2014). When comparing the journal format to the care-plan format, students felt significantly more confident writing journals for analysing information, determining the relevance of patient data, making connections, applying relevant knowledge and evaluating patient outcomes. Journaling in addition provided the possibility for reflection on context and experiences not given in the care-plan format (Marchigiano et al., 2011).

5.2.2. Reflection on-action

Keeping a journal helped students to reflect on-action and developed students' analytical and critical thinking skills. However, students most commonly described and evaluated situations, and/or described their emotional reactions to experiences. Naber and Wyatt (2014) found no significant differences between the experimental and control groups on total analytical reflective scores. Students in the experimental group however had significant increases in searching for knowledge, and described the assignments as an opportunity to think critically about patient interactions. Qualitative analysis of the same data showed that students were able to interpret and connect experiences to other situations. Elements of good reasoning included making observations and assumptions (Naber et al., 2014). Ip et al. (2012) discovered significant improvement in self-reflection at the first test, but no further development from second to third test. The number of students identified as reflectors increased, but few reached the level of critical reflection.

Some students in Silvia et al.'s study (2012) were able to evaluate the efficacy of their own actions. Mostly however they reflected on descriptive, affective and discriminant levels. Reflection on higher critical levels seldom appeared in students' journals (Ip et al., 2012; Silvia et al., 2012). The ability to reflect varied across groups and contexts and tended to rely on individual traits and cognitive dispositions. Analysis of covariance among participants revealed significant individual differences. Individuals identified as high-scoring critical reflectors remained constant from first to the last test, and scored high on all other areas requiring analytical reasoning skills (Ip et al., 2012; Naber and Wyatt, 2014).

5.3. Professional self-development

The second main category "Professional self-development" consisted of three subcategories: "Self-awareness and self-assessment", "Social awareness and ethical reasoning" and "The process of learning." Studies in this category had mainly qualitative designs.

5.3.1. Self-awareness and self-assessment

Students' reflections on their own emotional reactions to clinical experiences dominated and occurred in thirteen studies. Reflective writing promoted the expression of feelings (Fernández-Peña et al., 2016; Harrison and Fompa-Loy, 2010; Ip et al., 2012; Silvia et al., 2012) and provided insight to the ways that students perceived and thought about difficulties in clinical learning (Mun, 2010). The students experienced waves of emotions that they did not know how to control and express (Fernández-Peña et al., 2016; Ruiz-López et al., 2015). They focused on setting boundaries and seeking understanding, but most frequently, they reflected on their own limitations, including time management, calming emotions and building confidence. Furthermore, they reflected on emotional discomfort such as fear, anxiety, feeling alone and feeling unprepared (Honey et al., 2006; Koskinen and Jokinen, 2011; Mun, 2010; Naber et al., 2014; Ross et al., 2014; van Horn and Freed, 2008).

Journal reflection promoted students' self-esteem, and was useful for venting stress and negative emotions for coping in clinical situations and gaining self-control (Dickieson et al., 2008; Mun, 2010; Edelen and Bell, 2011; Silvia et al., 2012). When students reflected on their own feelings, negative emotions were conquered and learning took place (Dickieson et al., 2008; Edelen and Bell, 2011; Harrison and Fompa-Loy, 2010; Ip et al., 2012; Koskinen and Jokinen, 2011; Ross et al., 2014). Results from Harrison and Fompa-Loy's study (2010) showed that the students had difficulties analysing and separating their thoughts from emotional reactions, and recognizing emotions as valuable and useful for learning.

5.3.2. Social awareness and ethical reasoning

Reflective writing enhanced social awareness and relationship management (Harrison and Fompa-Loy, 2010; Koskinen and Jokinen, 2011; Ross et al., 2014; Ruiz-López et al., 2015). Students reflected on challenges such as lack of confidence in clinical situations, elimination of judgmental attitudes and holistic patient-centred care (Koskinen and Jokinen, 2011; Naber et al., 2014; Mun, 2010; Ross et al., 2014). They reflected on the difficulties of becoming a nurse, on feeling ethically unprepared and being unable to advocate for their patients. Moreover, they reflected on lack of courage to take an ethical stand and on making a commitment to practice with integrity (Callister et al., 2009).

Several studies indicated that reflecting on collaboration with other care providers and interactions with patients and families enhanced the student's ability to acknowledge and prioritize care according to patient needs. Journaling also helped students to develop their therapeutic communicative skills (Koskinen and Jokinen, 2011; Mun, 2010; Naber and Wyatt, 2014; Naber et al., 2014; Ross et al., 2014). Furthermore, the results indicated that clinical interaction promoted empathy for patients and vented negative attitudes and preconceived notions (Callister et al., 2009; Coleman and Willis, 2015; Harrison and Fompa-Loy, 2010; Koskinen and Jokinen, 2011; Ross et al., 2014). Self-reflection enhanced students' awareness of social roles and professional responsibilities and enabled students to think through difficult situations, as well as synthesize and validate personal decisions (Callister et al., 2009; Dickieson et al., 2008).

5.3.3. The process of learning

Several studies have focused on the process of learning including metacognition (reflection on one's own thinking). For the most part, students reflected on how to improve their own actions. They reflected on knowledge and lack of knowledge, and on seeking understanding through knowledge. Trust in their own skills grew when students could transfer knowledge from the classroom to clinical settings and vice-versa (Naber et al., 2014; Ross et al., 2014; van Horn and Freed, 2008). Less frequently, students focused on metacognition and on their own professional developmental needs, on nursing care practice, methods of nursing care and on patient outcomes (Coleman and Willis, 2015; Fernández-Peña et al., 2016; Ip et al., 2012; Koskinen and Jokinen,

2011).

Students examined and evaluated their own performances but had difficulties in recognizing themselves as the source of knowledge (Fernández-Peña et al., 2016; van Horn and Freed, 2008). Reflecting on how to use their knowledge, how to apply it to prior experience and how to verify appropriate actions was challenging. Identifying one's own needs for self-development, and reflecting on one's own weaknesses and areas that needed improvement also appeared difficult. However, reflective writing enable students to engage in self-reflection and self-evaluation (Dickieson et al., 2008; Edelen and Bell, 2011; Fernández-Peña et al., 2016; Ip et al., 2012; Marchigiano et al., 2011; Ruiz-López et al., 2015), and over time, students acknowledged that the process of reflective writing made them feel responsible for own learning (Coleman and Willis, 2015; Fernández-Peña et al., 2016).

5.4. Facilitators and barriers for learning

Models and instructive guidelines improved reflective learning and helped students to structure their clinical experience (Coleman and Willis, 2015; Edelen and Bell, 2011; Ip et al., 2012; Mun, 2010; Naber et al., 2014; Silvia et al., 2012). This structuring stimulated reflection on emotional reactions and provided tools for assessing one's own strengths and weaknesses (Harrison and Fompa-Loy, 2010). Models provided insight to student thinking (Mun, 2010), gave directions for teacher feedback and facilitated communication and dialogue with the teacher (Harrison and Fompa-Loy, 2010; Ruiz-López et al., 2015). Some students though found models too complex, and restrictive to their narratives. Older students preferred simple to complex models (Coleman and Willis, 2015; Fernández-Peña et al., 2016). Models and guidelines enhanced students' reflective learning and facilitated teacher feedback and mentoring, irrespective of the study design.

Several studies emphasized the importance of a trusting relationship and open dialogue with a supportive and well-qualified teacher. The process of learning required feedback and reinforcement (Edelen and Bell, 2011; Harrison and Fompa-Loy, 2010; Ip et al., 2012; Naber and Wyatt, 2014; Ruiz-López et al., 2015). Feedback, in writing or in writing combined with post-clinical discussions, directed students to describe details on their own actions. Teachers played an important role in helping students to both clarify the meaning of their experiences, and understand how their professional actions could be altered in future situations (Edelen and Bell, 2011; Ruiz-López et al., 2015; Silvia et al., 2012). However, students in several studies also voiced a need for anonymity, and reported difficulties with sharing personal reflections in fear for assessment. The perceived trustworthiness of the teacher therefor affected student learning (Coleman and Willis, 2015; Ip et al., 2012; Ross et al., 2014; Ruiz-López et al., 2015; Silvia et al., 2012).

Sharing and comparing experiences with fellow learners and interaction with staff and patients enhanced individual students' reflective skills (Edelen and Bell, 2011; Ip et al., 2012; Mun, 2010; Ross et al., 2014; Ruiz-López et al., 2015; van Horn and Freed, 2008). Students working in pairs described learning as result of social interaction, whereas students working alone focused on psychomotor skills and negative emotions such as fear, anxiety, intimidation and doubt. These negative emotions had an inhibitory effect on learning and reflective skills, which remained unchanged from pre-to post test (van Horn and Freed, 2008). Students expressed themselves more freely in discussion groups than in writing, and post-clinical group discussions, as well as the pairing of students had significant positive effects on reflective skills (Edelen and Bell, 2011; Mun, 2010; van Horn and Freed, 2008). Scaffolding and mixed tools for learning enhanced integrative and reflective thinking skills (Edelen and Bell, 2011; Dickieson et al., 2008; Harrison and Fompa-Loy, 2010). Pairing students with low and high academic scorings had positive effects on all students' reflective skills (van Horn and Freed, 2008).

Students' ages, prior health care experiences, number of years in education and prior positive experiences with reflective writing

enhanced learning and reflective skills, and altered the students' motivation for writing (Edelen and Bell, 2011; Ip et al., 2012; Naber and Wyatt, 2014; Ruiz-López et al., 2015). Lack of healthcare experiences and prior negative experiences with reflective writing affected students' motivation for writing (Fernández-Peña et al., 2016; Ip et al., 2012; Ruiz-López et al., 2015).

Barriers for learning included difficulties in understanding the method and the aims of reflective writing, lack of or inconsistency in teacher mentoring, lack of feedback and support and/or unavailable teachers (Coleman and Willis, 2015; Fernández-Peña et al., 2016; Harrison and Fompa-Loy, 2010; Ip et al., 2012; Ruiz-López et al., 2015). Further barriers among the students were feelings of overburden due to the general number of learning objectives, time constraints, and lack of status around reflective writing in the clinic (Coleman and Willis, 2015; Ip et al., 2012; Ruiz-López et al., 2015).

Other aggravating barriers were challenges in sharing personal feelings and experiences, the lack of an arena for sharing experiences with fellow students, and a lack of qualified and motivated teachers (Coleman and Willis, 2015; Harrison and Fompa-Loy, 2010; Ip et al., 2012; Ruiz-López et al., 2015; Silvia et al., 2012). In some studies, the teacher acted as both mentor and assessor, but there was little evidence of how teacher assessment affected student learning. For some students reflective writing felt intimidating and anxiety provoking, and assessment appeared to lead to "doctoring of events" in fear of being judged (Coleman and Willis, 2015, p. 909). Students also found reflective writing time-consuming and emotionally draining (Fernández-Peña et al., 2016; Harrison and Fompa-Loy, 2010; Ip et al., 2012), and reported difficulties in sharing their own feelings and performances with their teacher due to privacy, anonymity and grading concerns (Fernández-Peña et al., 2016; Ip et al., 2012; Silvia et al., 2012).

6. Discussion

The analysis revealed that there was a large variation in learning and in forms of reflective writing. The studies built on established frameworks, but concepts and categorization of the framework factors varied, as did the study designs. Quantitative studies mainly focused on the development of cognitive reasoning skills and levels of reflection, while qualitative studies tended to focus on process-oriented learning aimed at acting differently in future situations. When focus, form and intervention vary, the evidence of effects is difficult to trace (Allan and Discroll, 2014).

In accordance with earlier reviews (Dyment and O'Connell, 2011; Epp, 2008; Mann et al., 2009) students in the current review mostly reflected on a descriptive level. However, learning varied and tended to depend on factors that affected learning. Over time (and in particular with the accumulation of positive experiences) reflective writing enhanced student learning. Furthermore, and consistent with the concept of transformative learning (Benner et al., 2010; Boud, 2001; Schön, 1987) students focused on self-awareness and self-assessment in clinical situations rather than on the process of learning and writing and goals of the curriculum. According to Boud (2001), reflective writing is a means for self-expression, a record of events and a form of therapy (p. 9). Furthermore, self-awareness is the foundation of management, both of the self and relationships. Emotions are crucial in clinical decision-making and are a factor often overlooked (Harrison and Fompa-Loy, 2010). Nursing care involves interaction with patients and their relatives in vulnerable situations. Self-awareness and knowing oneself first is therefore vital in order for students to be able to provide nursing care in a mindful, reflective and caring manner, in line with the aims of their education (MRE, 2008). Results from this review therefore highlighted the need for teachers to acknowledge the importance of emotions in clinical learning.

In line with previous reviews (Dyment and O'Connell, 2011; Epp, 2008; Mann et al., 2009), and as suggested by Paterson (1995), students' abilities and willingness to reflect rely on their individual level of

development, the clarity and nature of expectations and the quantity and quality of teacher feedback. Overall, the results from this review showed that learning tended to be both time and labour intensive, and depended on a number of internal and external factors. The results further indicated that teachers had not been sufficiently aware of how to help students reflect, and how to deal with students' concerns. To be able to help students reflect, faculty must be aware of and acknowledge external and internal processes that affect learning (Allan and Discroll, 2014; Kennison, 2012; Mann et al., 2009). Teachers are responsible for supporting students' learning and the faculty of nursing is responsible for the quality of tools for learning (EC, 2013; MRE, 2008). The current review did not identify a lack of quality in any of the reflective writing tools being used. The results therefore highlight a need for more attention on successful implementation of reflective writing, in particular, a focus on teacher mentoring in clinical learning and on facilitators and barriers affecting student learning.

Reflective tools without guidelines do little to develop reflective skills (Aronson et al., 2012). Independent of the model used, or the study year, clear aims and instructive guidelines enhanced student learning. Reflective writing must correspond with its purpose, and students and preceptors must know its desired form and function (Dysthe et al., 2010; Oerman and Gaberson, 2009). Models and guidelines helped the students to structure their thinking and learning, and younger students in particular valued instructive and detailed guidelines for writing. Structure may be helpful to less experienced practitioners, as analytical skills may not yet be in place (Kuiper and Pesut, 2004). Students in higher classes preferred less structured models, arguing that structure restricted their thinking and acted as barriers for learning. When students mature, doubt and questioning of their actions might be less dominant (Hannans, 2013).

Overall, the results showed that models enhanced learning. However, scepticism for structured reflective writing, in particular as a means for assessing student learning might be in order. According to Coward (2011), the “interrogating” user-friendly structure in models might teach its users how to “pass” rather than to understand the true nature of the methodology. Furthermore, and according to Rolfe (2014, p. 1182), reflection has become more and more technological as reflective writing is assessed according to rigid guidelines and inappropriate criteria. Schön never intended the process of reflection to be so structured that it would restrict thinking (Coward, 2011). Qualitative results showed that assessment affected student motivation for reflective writing and that student perception of the teachers' trustworthiness affected the students' willingness to share difficulties and experiences. Mostly assessment acted as a barrier for learning. In contrast, results from Allan and Discroll's review (2014) showed that some teachers reported more success when reflection “counted” as students tended to engage in deeper reflection when the quality of reflection was graded. Either way, the results underlined the importance of gathering more evidence of both positive and negative effects from the assessment of reflective writing.

Being completely honest about one's own experiences in the face of judgement is challenging (Bowman and Addyman, 2014). As in earlier reviews (Dyment and O'Connell, 2011; Epp, 2008; Mann et al., 2009), the importance of a trusting relationship between students and their teachers was highlighted. Paterson (1995) argued that there was a tendency for students to write at non-reflective levels until they had sufficiently judged the trustworthiness of the teacher. Where trust is lacking, students might write what they believe the evaluator is interested in hearing, and avoid reflecting on situations that are complex and difficult to handle, express and understand. The opportunity for integrated and transformative learning might then be lost.

Students in the current review mostly reflected on self-assessment when evaluating their own clinical actions. However, and in congruence with former studies (Aronson et al., 2012; Craft, 2005; Epp, 2008; Mann et al., 2009), reflective skills developed over time. A study from midwifery education revealed that reflective focus and skills

developed with level of education. While undergraduates preferred to reflect on their actions to improve “day-to-day” performances, graduates valued reflection for professional self-development more positively (Embo et al., 2014). When students in the current review reflected at a descriptive levels on action rather than on their own thinking and learning this most likely indicated the students' study year progression, and a need for reflective tools to be adjusted to the level in education. Furthermore, the review suggests that sufficient time for writing, thorough instruction and sufficient guidance on writing must be taken into account when implementing reflective writing tools.

In accordance with former reviews (Epp, 2008; Mann et al., 2009), combined tools facilitated learning. Discussion groups opened up new perspectives on learning, and working in pairs had significant positive effects on learning. Reflection is multifaceted, and “it stands to reason that more than one strategy could be employed to teach and encourage reflection” (Epp, 2008, p. 1386). According to Rolfe (2014), reflective writing and learning are similar processes. They both involve forming hypotheses and trying them out. Reflection is not simply having an experience and going home to write about it. Mixed tools significantly improved student learning. The importance of diverse tools should therefore not be underestimated and need more focus in future studies.

Students valued teacher feedback and mentoring. However, evidence of effects from different forms of feedback was limited. A study from medical education showed that while faculty feedback supplied students with multiple perspectives and information (such as highlighting topics and giving information on additional reading), feedback from students acted as a “sounding board”, eliciting meaning from experiences (Wen et al., 2015, p. 5). Another study showed that while feedback on content alone stimulated learning, feedback on content combined with feedback on the process of learning had significant positive effects on student learning (Aronson et al., 2012). Testing an instrument to measure reflection, Padden (2013) found higher levels of critical reflection compared with earlier studies, arguing that the results depended on the amount of instruction and level of teacher feedback provided during the intervention period. These results and the results from the current review are in line with the work of Jensen and Joy (2005), suggesting that the process of reflection at higher levels requires guidance, critique, feedback and reinforcement rather than just more practice. The results underlined a need for more evidence of positive effects from teacher feedback and mentoring in clinical learning. In particular, the effect of feedback on reflective writing and the process of thinking and learning need more attention.

Results from this review emphasized the importance of the teacher's role in helping students to transfer knowledge attained in the classroom to praxis, and the importance of the quality of teacher mentoring and feedback. Over all, the results revealed that in order to attain the aspired aims of bachelor nursing competencies (EU, 2013; MRE, 2008) an improvement in the implementation of reflective writing tools is needed. The results also show a need for further knowledge of bachelor nursing students' thinking and concerns, and a need for better evidence surrounding the effect of teacher mentoring on emotional coping and students' professional self-development. When preparing students for professional praxis there is a need to shift focus from models and development of cognitive skills from doing to *becoming*. Professional education needs to focus more on the process of transformation in becoming a nurse (Dall'Alba, 2009; Sandvik et al., 2014). Becoming a nurse is not simply a consequence of having access to a certain amount of knowledge and a tool kit of skills. This review showed that students required mentoring and support in their transformation from students to professional nurses.

6.1. Strengths and limitations

The strength of the current review is that the studies are from different parts of the world. The quality of the studies was mainly good, but results from the quantitative studies should be interpreted with

caution due to small sample size and convenient sampling. None of the studies were RCT studies. Limiting the review to studies published in English might have excluded important evidence. However, as most findings were in line with prior reviews and studies from nursing and comparable health care study programs the findings strengthen existing evidence and seem trustworthy, reliable and important.

7. Conclusion

There is no strong statistical evidence for reflective writing as an evidence-based tool for learning in undergraduate clinical nursing education. However, reflective writing helps students to focus on their own professional development. Learning and the development of reflective skills tends to depend on clear guidelines, sufficient mentoring and constructive feedback. A trusting relationship with the teacher and a good moral environment are prerequisites. Combining different tools such as discussion groups and student collaboration has significant effects on student learning. Reflective writing is a tool for students' professional learning, but above all for the students' personal development on the pathway to becoming a professional nurse.

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Appendix A. Supplementary data

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