



LUND UNIVERSITY

Analysis of midwifery students' written reflections to evaluate progression in learning during clinical practice at birthing units.

Persson, Eva-Kristina; Kvist, Linda; Ekelin, Maria

Published in:
Nurse Education in Practice

DOI:
[10.1016/j.nepr.2015.01.010](https://doi.org/10.1016/j.nepr.2015.01.010)

2015

[Link to publication](#)

Citation for published version (APA):

Persson, E.-K., Kvist, L., & Ekelin, M. (2015). Analysis of midwifery students' written reflections to evaluate progression in learning during clinical practice at birthing units. *Nurse Education in Practice*, 15(2), 134-140. <https://doi.org/10.1016/j.nepr.2015.01.010>

Total number of authors:
3

General rights

Unless other specific re-use rights are stated the following general rights apply:

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Read more about Creative commons licenses: <https://creativecommons.org/licenses/>

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00

**ANALYSIS OF MIDWIFERY STUDENTS' WRITTEN REFLECTIONS TO
EVALUATE PROGRESSION IN LEARNING DURING CLINICAL PRACTICE AT
BIRTHING UNITS**

Eva K. Persson [§], RN, RM, RNT, PhD*, Department of Health Sciences, Lund University, PO Box 157, S-221 00 Lund, Sweden. Phone: +46 46 222 1890, fax +46 46 2221808, eva-kristina.persson@med.lu.se

Linda J. Kvist , RN, RM, PhD, Associate Professor, Department of Obstetrics & Gynaecology, Helsingborg Hospital, S-251 87 Helsingborg, Sweden and Department of Health Sciences, Lund University, PO Box 157, S-221 00 Lund, Sweden, Phone: +46 42 4022203, linda.kvist@med.lu.se

Maria Ekelin, RN, RM, PhD, Department of Health Sciences, Lund University, PO Box 157, S-221 00 Lund, Sweden. Phone: +46 46 222 1939, fax +46 46 2221808, maria.ekelin@med.lu.se

Keywords

Midwifery education, progression, taxonomies, written reflection,

Abstract

Written daily reflections during clinical practice on birthing units have been used during several years in midwifery education at Lund University, Sweden. However, the usefulness of these reflections for evaluation of progress in learning and professional development of students has to date not been evaluated. In order to analyze written reflections, two taxonomies developed by Bloom and Pettersen have been applied to the texts. Progression in the professional development of midwifery students can be seen through levels of complexity in cognitive and psycho-motor learning areas and also in the description of learning situations. Progression can be seen from a basic description of facts in simple situations at the beginning of the students' practice to a complex description of complicated situations towards the end of the practice. Written daily reflections appear to be a suitable method to help students to reflect in a structured way, thereby helping their professional development. Reflections can help clinical supervisors to understand the needs of the individual student and to support their knowledge accrument. Daily written reflections on clinical practice can be of use in other health education programs.

Word count: 5120 words including references

4480 words excluding references

In addition, 494 words in the table and 100 words in the figure.

Acknowledgements

The authors wish to thank the midwifery students who kindly agreed to allow their reflections to be used in this study. This study was funded by ALF (Governmental Funding of Clinical Research within the National Health Service) Faculty of Medicine, Lund University, Sweden.

ANALYSIS OF MIDWIFERY STUDENTS' WRITTEN REFLECTIONS TO EVALUATE PROGRESSION IN LEARNING DURING CLINICAL PRACTICE AT BIRTHING UNITS

INTRODUCTION

Written daily reflections during clinical practice on birthing units have been used during several years in midwifery education at Lund University, Sweden. However, the usefulness of these reflections for evaluation of progression in learning and professional development of students has to date not been evaluated.

BACKGROUND

During midwifery education, theoretical knowledge and learning are integrated with clinical competence in order to maintain progression and professional development based on a holistic approach to professional practice. Some types of knowledge can be accumulated through theoretical learning whilst others are dependent on context and learning can only occur during situations in real time (Boud and Walker, 1998; Dreyfus, 1982; Yardley et al., 2012). In these situations, reflection is an integral part of learning (Elmgren and Henriksson, 2010) and there is a need to develop validated methods to support students' reflections during clinical practice. Research has shown that structured reflection models enhance reflective thinking in clinical

practice (Asselin & Fain, 2013) and that students' narratives may uncover practices that otherwise might go unnoticed (Levett-Jones, 2007). Schön (1995) described two types of reflection; "reflection-in-action" and "reflection-on-action". Using personal experiences as a base, the aim of reflection is to develop knowledge and skills that can be called upon when similar clinical situations occur in the future (Mann et al., 2009).

In Sweden, midwifery education is at present based firstly on a three-year university course leading to registration as a qualified nurse followed by a further 18 months in the midwifery program. Acceptance to the midwifery program is dependent on both previous registration as a nurse and that the presumptive student has had at least one year of clinical experience after registration. Many midwifery students have worked for several years in nursing practice. The program entails a total of 90 ECTS of which 45 ECTS are assigned to specific clinical midwifery practice. During this period the student learns about normal birth and should develop from an individual who may never have earlier witnessed a birth to a practitioner who can independently supervise one or more normal births simultaneously (Syllabus, SBMP 18). Clinical placements follow directly after the theoretical courses; the theoretical course in normal birth (six weeks) is followed by two blocks of clinical practice of 12 weeks. A theoretical course in complicated birth (4 weeks) is followed by a five week block of clinical practice. All students have their clinical practice blocks simultaneously. The headings "*knowledge and understanding*" and "*skills and abilities*" are learning targets in the program's curriculum and are based on variables stipulated in the examination requirements (Swedish National Agency for Higher Education, 1993:100). These areas are compatible with the cognitive and psycho-motor areas of learning which are of importance for development of professional knowledge (Elmgren and Henriksson, 2010). There is no universal consensus on the definition of "*profession*" although there are

phenomena that signify a professional body: a group of individuals with agreed ethical norms, which is judged by society to have special knowledge and skills that have been accrued through education and professional practice at a high level of competence (Australian Council of Professions, 1997). Professional practitioners intend to use their knowledge and skills to help individuals and society in general (ICM, 2008; Cruess et al., 2004; Australian Council of Professions, 1997).

According to the Dreyfus model of mental activities involved in directed skill acquisition, a student passes through five stages during learning: novice, competence, proficiency, expertise and mastery (Dreyfus and Dreyfus, 1980). In 1984 Patricia Benner modified the model for a nursing context and conceptualised it as novice, advanced beginner, competent, proficient and expert. A novice relies often on fast principals and regulations whilst an expert reacts in an intuitive manner and with a view of the whole situation (Benner, 1984). The novice tends to be an observer whilst the expert participates actively in the situation (Benner, 1984).

The way in which educators view knowledge will reflect on the students learning (Elmgren and Henriksson, 2010). Marton et al., (1977) separate an approach to surface learning from an approach to deep learning and describe surface learning as atomistic whereas deep learning is seen as holistic. Surface learning is described as rote learning of facts. Deep learning is described as interpretative learning where the student strives to understand meaning, connection, context and implication. The Swedish Board for Health and Welfare (2006) requires that midwifery competence be characterised by a holistic approach. Laws governing Swedish tertiary education state that teaching should develop students' ability to carry out independent and critical judgements and their ability to independently recognise formulate and solve problems (Swedish

Higher Education Act., 1992:1434, Chapter1 § 9). In order to assess the level of knowledge attained, it is possible to apply different taxonomies (Elmgren and Henriksson, 2010). Bloom's taxonomy encompasses cognition and informs on six differing levels of knowledge from basic to complex as follows: knowledge, comprehension, application, analysis, synthesis and evaluation (Bloom et al., 1956). According to Pettersen (2008) the area of psycho-motor skills can also be divided into six different levels of complexity from perception, readiness for action, imitation, routine actions, and complex skills to fully developed proficiencies. During recent years the clinical practice components of health care education have received considerable attention in Sweden (Elmgren and Henriksson, 2010). Evaluation of the usefulness of written daily reflections on experiences of clinical practice may help to provide evidence-based methods for the support of students' learning and professional development. Teachers' understanding of the characteristics of critical thinking in clinical education will help them to identify students' progress and evaluate their competencies (Naber et al., 2014). Students stand to benefit from increased ability to critically reflect, since reflection will allow them to create strategies for the management of clinical issues within their profession (Joyce-McCoach et al., 2013).

The aim of the present study was to evaluate progression in learning inherent in student midwives' written daily reflections on practice.

METHODS

Design

Reflections written by a cohort of midwifery students were analysed by means of a qualitative method with a deductive approach.

Subjects

Daily reflections were written by a group of 18 midwifery students at Lund University, Sweden, during a 17- week clinical placement at birthing units at six different hospitals in southern Sweden in 2011 to 2012. The students were aged between 28 and 43 years and had worked as registered nurses a mean of 4.5 years before the commencement of their midwifery education.

Data collection

Student midwives were encouraged to write short descriptions of the clinical situations they had experienced during the day and to formulate reflections on the situation based on Gibbs reflection model (Gibbs, 1988). This model is composed of six areas of reflection; *description, feelings, evaluation, analysis, conclusions and action plans*. The student's clinical supervisor also wrote a short comment relating to the student's reflections. The average number of reflections written by the students in the 17-week period was approximately 75 and an approximate total of 1400 reflections were collected by the authors (EKP and ME). The students numbered their delivery reflections in chronological order, starting with the number one for their first delivery. They also wrote reflections on the care they gave to women who did not give birth. In order to group the reflections in periods of time, an arbitrary sample of every fourth reflection

was made and studied. A total of 388 reflections were analysed in this study. Each of the hand-written reflections was between a half and two pages long. After each reflection a space was left for a short comment from the student's personal midwife supervisor. Before analyses could begin the reflections were transcribed to a computer program and all manner of identification of individuals was removed.

Citations are shown with a number depicting how many births the student had attended and a student number; for example birth number 21 and student number 10 is written as B21/S10. The reflections where the woman did not give birth are coded as "none birth" (NB) and the same number as the previous birth the student had attended.

Data analyses

Bloom's taxonomy (Bloom, et al., 1956) and the taxonomy described by Pettersen (2008) were both used to manually analyse and classify the students' texts. Together, the two taxonomies describe levels of complexity from basic to complex, within cognitive and psycho-motor areas of learning. In the analyses, a deductive approach was used to allow a hierarchical classification (Bloom et al., 1956). Analyses of the students' texts were carried out in order to evaluate progression in the reflections seen by changes over time. Each single reflection was classified to one of the six levels of both cognitive and psycho-motor depth of knowledge (Bloom, et al., 1956; Pettersen, 2008). Examples of how the analysis was carried out using both of the taxonomies are shown in Table 1.

Please, insert table 1 here

When analysis by application of the taxonomies was completed, the material was further analysed by dividing the reflections to show the complexity in the described learning situations. This was carried out by grouping the learning situations as "simple situation", for example application of scalp electrode, "intermediate situation", for example managing labour dystocia or "complicated situation", for example total management of the birth. Finally, in order to clarify students' progression the reflections have been grouped together to represent the beginning (birth 1 – 20), the middle (birth 21 – 40) and the end (birth 41 – to the last) of the students' placements.

Benner's levels of competence were first developed to evaluate abilities and knowledge within a profession where a newly qualified professional was seen as a novice and where expertise was found first after several years of working in a profession. A student perspective has been applied to the present work by virtue of the fact that the student new to clinical practice is referred to as a "novice" and the student nearing the end of practice is referred to as an "expert" (Benner, 1984). It is stressed that a newly qualified midwife is not taken to be an "expert" in the manner in which Benner first used the term.

Ethical considerations

The use of daily reflections was an integral part of the midwifery program. Written information about the proposed use of the reflections for a scientific analysis was given to all of the students

and they were asked to give written consent for their texts to be used. Means of identification were removed and the texts were given numbers that were not linked to individuals. No specific ethical dilemma was identified, since the students had already completed their education and was not in any state of dependence on the authors. The perspective of the analyses is pedagogical and therefore has no direct inference to patient care. The authors consider an evaluation of teaching methods to be ethically correct, since the methods we use should be evidence-based. According to Swedish research regulations, ethical approval was not necessary for this study. This evaluation can be beneficial to future students and their teachers.

RESULTS

Progression in learning

The results show progression in the students learning according to levels within both cognitive and psycho-motor areas of learning **and** in complexity of the described learning situations (Figure 1). Progression can be seen from a basic description of facts in simple situations at the beginning of the students' practice (birth 1 -20) to a complex description of complicated situations towards the end of the practice (birth ≥ 41). Figure 1 shows a visualization of progression as seen by the direction of the arrow. However, sometimes reflections can be made at complex cognitive and psycho-motor levels relatively early in the students' education. Adversely, reflections made towards the end of students' education can be at a relatively low

cognitive and psycho-motor level even in complex situations, particularly when the situation is new to the student.

"We decide on an episiotomy but since I have neither seen, nor done one before, I leave the actual episiotomy to my supervisor but I carry out the delivery of a lovely baby boy myself." (B41/S1)

In figure 1, the most commonly classification for birth 1-20 and for birth ≥ 41 is illustrated by triangles. In the middle part of the students' practice (birth 21 – 40) the reflections are mostly intermediate in complexity and are described in an analytical manner. This is, in figure 1, illustrated by the hexagon.

Please, insert figure 1 here.

Levels of complexity within cognitive and psycho-motor areas of learning

The results show changes over time in the complexity of cognitive (knowledge and understanding) and psycho-motor (skills and ability) areas of learning. Examples of levels of complexity are shown in Table 1. The **lowest** levels of both cognitive ("facts") and psycho-motor ("perception") areas are not highly visible in the reflections since the students from the first day of their practice describe situations that can be classified as "understanding" and "application" (cognitive levels 2 and 3) as well as "readiness for action" and "imitation" (psycho-motor levels 2 and 3).

“Been shown how to protect the perineum and practised it with my supervisor.” (B1/S2)

At the beginning of clinical practice (birth 1-20), students mostly described concrete skills and actions taken.

Rubbed the baby down with a towel, gave Vitamin K. Pulled out the placenta and inspected it.
(B1/S2)

In the middle section of their practice (birth 21-40) they wrote equally about skills, knowledge and understanding.

The woman is sitting on a pilates ball and a deep, long deceleration is seen. It doesn't improve when she stands up, so I ring the alarm. It was almost a chock for both the woman and her partner - cried and was very frightened. I think the couple needed us close and needed support after the deceleration because their breathing didn't help and they became frightened.
(NB17/S2)

At the end of clinical practice (birth ≥ 41) the reflections contained mostly descriptions of their cognitive activities and the reflections show that the students are more and more able to synthesise and appraise their own knowledge and to gain increasingly complex skills.

“Been thinking about tears. Both of these women gave birth very slowly with good perineal protection. Despite this, large tears in the pelvic floor for both of them. It must be the shoulders that tear up the pelvic floor. Externally not so big – just a “nick”. If you deliver the shoulders more slowly – sort of grip the baby under the armpits and lift it earlier – maybe that would help.” (B42/S9)

When analysis showed a high level of progression early in the students' practice the text was usually about communication with the woman and her partner and about judging the woman's and family's situation. The students used terms that expressed their ability to analyse, evaluate and appraise.

"Breathing nicely. I think this woman knows herself well and that she has an inner sense of security." (B5/S7)

At some stage between birth 15 and 25 the students began to use the word "independently" for the first time in their reflections. Working independently can be interpreted as ability to analyse (cognitive level 4) and to act routinely (psycho-motor level 4).

"Feel quite independent about the normal stuff, feels good. Can identify the sutures, found the spines. Keep on training this – looking at the doll. Feels good that you (supervisor) let go of me more and more. I like that." (NB21/S16)

A parallel connection and development between psycho-motor and cognitive learning areas became apparent. It appeared that high levels of psycho-motor learning did not exist without high levels of cognitive learning. This inter-dependence and integration was apparent in the reflections and developed over time.

"I got my gloves on in time. Everything went well. I went in a couple of times during 1 to

1.5 hours to palpate the uterus. Some bleeding but the last time there were some bigger clots. After that I palpated again and it felt good. I wanted her to urinate and she sits on the edge of the bed and goes all dizzy and pale. She lies down and looks like she's fainted. I call for help.....INSTRUCTIVE. Respect for bleeding, this was very unexpected. And I think I've become hard-handed when I palpate the uterus now and I shall remember this and squeeze even harder." (B41/S8)

Increased complexity in the description of learning situations

Early in practice, the students wrote more detail about facts and were more concerned with simple situations such as carrying out technical procedures, for example application of scalp electrodes and connecting CTG. Towards the end of practice the texts generally became more overarching and succinct, and included complicated situations. In this way, the progression is visible not only by the fact that the reflections change their cognitive and psycho-motor level (1–6), but also by the fact that the students describe ever-more complicated situations. This is illustrated by the following two citations made at different periods during practice:

Simple situation: Birth 1

"I learn how to prep for section with catheter, IV-cannula, op-clothes etc." (B1/S5).

Complicated situation: Birth 45.

"I didn't get any report but found out the important facts about the woman. The course of events went very quickly (multipara) and a boy who was quite vital, Apgar 9-9-10, was born. Lost points for colour. Since the night staff had come I went out to finish off a job with another mother." (B45/S12)

In the complicated situation described above, the student manages well to extemporize, which shows that she has reached complex or developed competency. The situation is described succinctly without details regarding for example vaginal examinations. The student evaluates and masters the situation, showing ability to prioritise and plan. The student can also manage two labouring women simultaneously.

DISCUSSION

Progression in professional development is shown in students' reflections regarding both complexity in levels of cognitive and psycho-motor learning areas and in the descriptions of learning situations. Reflective practice is an important part of professional development and use of a model such as that described by Gibb (1988) promotes effective learning (Doughty et al., 2007; Davies, 2012). Both verbal and written reflection are pathways to knowledge, the learning of skills, and professional development (Mann et al., 2009; Yardley et al., 2012; Jasper et al., 2013) and reflection is essential in midwifery practice (Nakielski, 2005). Schön (1995) describes two kinds of reflection: reflection-in-action or reflection-on-action. Reflections in the present study are "on action" which means that the students can retrospectively reflect over what actually

happened and what might have been carried out differently. This appears relevant to the acute nature of a birthing unit.

Thinking and acting develop through reflection and actions become more conscious. Reflections create a link between earlier experiences and the present situation and represent therefore a pedagogical strategy to incorporate theory and clinical practice (Boud & Walker, 1998; Mann et al., 2009). Dewey (1933) wrote that “*learning from experience is that of reflection*”. Students’ reflections can be structured by encouraging them to keep a diary during clinical practice. In this way, clinical reasoning and analytical and evaluative abilities are encouraged (University of Ulster, Project Number 174/02).

It is vital that progress in learning occurs within a course of education. The results from the present study show that the contents of students’ reflections change form as the education progresses. A change in content from description and evaluation of relatively simple situations to description and evaluation of complicated situations was clearly seen. The students’ own reactions and insights changed in complexity during practice. This is in line with the model suggested by Dreyfus and Dreyfus (1980) in which the highest aim was for “mastery”. It is also in agreement with Benner’s (1984) description of development from novice to expert. Through the use of written daily reflections the student is directed in a structured way towards the goal. An initial atomistic repetition of facts is gradually replaced by a more holistic description of situations towards the end of practice. This suggests that analysis of situations has occurred and that a complex understanding of associations and meanings has developed which falls in line with the description of surface and deep learning (Marton et al., 1977). According to Davies (2012) a benefit of reflection is that it promotes deep rather than superficial learning.

The students used considerably more psycho-motor concepts at the beginning of practice than at the end. Towards the end, reflections contained texts of a more cognitive nature and it appears that cognitive ability to evaluate is a pre-requisite for the development of psycho-motor ability. In order to attain developed ability, the student must be able to not only carry out tasks independently but also have the ability to plan, improvise and develop. This is the essence of the art of midwifery and of professional competence. It is questionable whether it is possible to separate knowledge and practical competence. Quite early in practice, it was possible to discern complex cognitive and psycho-motor levels in simple situations. Elmgren and Henriksson (2010) state that although situations should generally be basic at the beginning of education, in order for good progress to occur, it is important to direct progression by including course aims at a high level of complexity even at the start of education programs.

The lowest levels of both cognitive and psycho-motor areas (facts and perception respectively) are not clearly visible in the results of the analysis. It is possible that this can be explained by the fact that the students appear to be “thrown in at the deep end” on the first day of practice. Already at the start, students show understanding and actively imitate their supervisors (levels 2 and 3). This may be explained by the fact that in Sweden, students of midwifery are all registered nurses, often with several years of clinical experience. They are therefore well equipped to actively partake in practical care situations. At the institution where the present study was carried out, clinical practice is preceded by theoretical teaching which incorporates CASE-pedagogy. This trains students in understanding complicated situations and in problem solving (Egidius, 2009). It is possible that this also is an integral part of why the analysis showed that these students were well advanced in their learning already at the beginning of practice.

One of the goals of reflection as a learning tool is the development of independence (Jasper, 2003). It was evident to the authors when the students started to use the term “independently”. Generally this occurred somewhere between births 15 and 25. This use may not in truth represent working independently, but may be an expression of the freedom of action experienced by the students. Being given responsibility and allowing independence are factors which facilitate learning in clinical practice which contribute to professional development and self-confidence (Löfmark and Wikblad 2001). One student used the word “independently” in her reflection on her ninth birth. This should probably not be interpreted as meaning that the student carried out tasks without supervision but rather that she was given feelings of “self” by her supervisor which the student experienced as independence. It is possible that teachers should be aware of absence of the word “independently” in a student’s written reflections, as it might indicate a need for extra support for the individual student.

When students reflected on their learning, communication and evaluation of the woman’s situation, the texts exhibited high levels of knowledge early in practice: synthesis and evaluation (cognitive levels 5 & 6). This may be interpreted as indicating that students focus on what they already know and abilities they carry forth from their nursing experience. In an international perspective, it must be recognised that many midwifery courses do not recruit trained nurses but have direct entry to midwifery education (ICM, 2010) and it is therefore possible that the learning process for those students will take longer.

It is possible to follow students’ learning and professional development through use of written reflections. However, it is not possible to determine whether the actual writing of the reflections has a pedagogical value for progression or whether reflections are merely a documentation of the

progress the student makes. In order to evaluate the role of writing the reflections, further studies are required, for example, interview studies with midwifery students and their clinical supervisors, to illuminate their experiences of written reflection within midwifery education. Although the reflections analysed in this study were written during clinical practice at birthing units, results may be applicable to other areas of midwifery education and even to other programs where clinical practice is integrated. It may be an indication of students' general progression in learning, when they indicate, in their writing, a progression from presentation of facts to an evaluation of situations. Reflections can help clinical supervisors and teachers to understand how students think, which provides increased possibilities to support student learning.

Study limitations

The daily written reflections were an obligatory part of the midwifery students' clinical education and were analysed post-hoc. All three of the authors have experience of both clinical work as midwives and of teaching midwifery students. These experiences can be both a help and a hindrance during analysis of the material. The authors also had prior knowledge of at what point the students were in their clinical practice by virtue of the numbers appointed to each birth. It is possible that these experiences and prior knowledge have affected the analysis work in this study. The authors have been aware of the problem of "knowing" what the students mean rather than carrying out a naive analysis and have checked each other for this potential pitfall during the

process of analysis through working together to reach consensus on the interpretation of the texts.

Neither of the two taxonomies (Bloom et al., 1956; Pettersen, 2008) applied in this study were specifically developed for use in midwifery education or for the particular context of health care. The taxonomies are however well known and well used in pedagogical research and were seen to work well for the analysis in this study. To enhance transparency of the analysis process and decisions on levels of complexity, the authors have provided examples of the work in Table 1.

CONCLUSIONS

Progression in the professional development of midwifery students can be seen in their written reflections on practice, both through levels of complexity in cognitive and psycho-motor learning areas and also in the described situations of learning. Written daily reflections appear to be a suitable method to help students to reflect in a structured way, thereby helping their professional development. Reflections can help clinical supervisors to understand the needs of the individual student and to support their knowledge accrue. Cognitive and psycho-motor knowledge development go hand-in-hand during midwifery education. In higher levels of knowledge development, it appears that psycho-motor ability is dependent on cognitive knowledge. Daily written reflections on clinical practice can be of use in other health education programs.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

REFERENCES

Asselin, ME., Fain, JA. 2013. Effect of reflective practice education on self-reflection, insight, and reflective thinking among experienced nurses: a pilot study. *Journal for Nurses in Professional Development* 29(3), 111-119. doi: 10.1097/NND.0b013e318291c0cc.

Australian Council of Professions, 1997. <http://www.professions.com.au/Homepage.html> (accessed 11.03.14).

Benner, P., 1984. From novice to expert: Excellence and power in clinical nursing practice. Addison-Wesley, Menlo Park, CA.

Bloom, B.S., Engelhart, M.D., Furst, E.J., Hill, W.H., Krathwohl, D.R., 1956. Taxonomy of educational objectives: the classification of educational goals; Handbook I: Cognitive Domain. Longmans Green, New York.

Boud, D., Walker, D., 1998. Promoting Reflections in Professional Course: the challenge of context. *Studies in Higher Education* 23(2), 191-206.

Cruess, S.R., Johnston, S., Cruess, R.L., 2004. Profession: A Working Definition for Medical Educators. *Teaching and Learning in Medicine: An International Journal* 16(1), 74-76. DOI:10.1207/s15328015tlm1601_15.

Davies, Samantha., 2012. "Embracing reflective practice". Education for Primary Care 23, 9–12.

Dewey, J., 1933. How We Think, Revised Edition, 1997. D.C Health, Boston.

Doughty, R., Harris, T., McLean, M., 2007. Tripartite assessment of learners during practice placements in midwifery pre-registration programmes. Education & Training 49 (3), 227-235. doi 10.1108/00400910710749369.

Dreyfus, S.E., Dreyfus, H.L., 1980. A five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition. Storming Media. Washington DC (accessed 27.03.14)

<http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA084551&Location=U2&doc=GetTRDoc.pdf>

Dreyfus, S.E., 1982. Formal models vs. human situational understanding: inherent limitations on the modelling of business expertise. Information Technology & People 1 (2/3), 133-155.

Egidius, H., 2009. Pedagogik inför 2000-talet. (Pedagogics for the 21st century). Natur och Kultur, Stockholm.

Elmgren, M., Henriksson, A.S., 2010. Universitetspedagogik. (University pedagogics). Nordstedts, Stockholm.

Gibbs, G., 1988. Learning by Doing; a guide to teaching and learning methods. Blackwell Scientific, Oxford.

ICM., 2008. International Confederation of Midwives. Ethical Code for Midwives. (Adopted at Glasgow Council meeting). (accessed 27.03.14)

http://www.internationalmidwives.org/assets/uploads/documents/CoreDocuments/CD2008_001%20ENG%20Code%20of%20Ethics%20for%20Midwives.pdf .

ICM., 2010. Amended 2013. International Confederation of Midwives. Global Standards for Midwifery Education. (accessed 27.03.14)

http://www.internationalmidwives.org/assets/uploads/documents/CoreDocuments/ICM%20Standards%20Guidelines_ammended2013.pdf.

Jasper, M., 2003. Beginning reflective practice. Nelson Thornes Ltd, United Kingdom.

Jasper, M., Rossner, M., Mooney, G., 2013. Professional development, reflection and decision making in Nursing Health Care: Wiley-Blackwell, Oxford.

Joyce-McCoach, JT., Parrish, DR., Andersen, PR., Wall, N. 2013. Unlocking reflective practice for nurses: innovations in working with master of nursing students in Hong Kong. Nurse Education in Practice 13(5), 388-392. doi: 10.1016/j.nepr.2012.11.002.

Levett-Jones, TL. 2007. Facilitating reflective practice and self-assessment of competence through the use of narratives. Nurse Education in Practice 7(2), 112-119.

Löfmark, A., Wikblad, K., 2001. Facilitating and obstructing factors for development of learning in clinical practice: a student perspective. Journal of Advanced Nursing 34(1), 43-80.

Mann, K., Gordon, J., MacLeod, A. 2009. Reflection and reflective practice in health professions education: a systematic review. Advances in Health Sciences Education 14, 595–621. doi 10.1007/s10459-007-9090-2.

Marton, F., Dahlgren, L., Svensson, L., Säljö, R., 1977. Inlärnin g och omvärldsuppfattning. (Learning and conception of reality). Almqvist & Wiksell, Stockholm.

Naber, J.L., Hall, J., Schadler, C.M. 2014. Narrative thematic analysis of baccalaureate nursing students' reflections: critical thinking in the clinical education context. *The Journal of Nurse Education* 6, 1-7. doi: 10.3928/01484834-20140806-06.

Nakielski, K., 2005. The reflective practitioner; In Raynor, M., Marshall, J., Sullivan, A. (Eds), *Decision making in Midwifery Practice*. Elsevier, London.

Pettersen, R., 2008. *Kvalitetslärande i högre utbildning. (Learning quality in higher education)*. Studentlitteratur, Lund.

Schön, D.A., 1995. *Reflective Practitioner: how professionals think in action*. Arena, Aldershot.

Socialstyrelsen. 2006. *Kompetensbeskrivning för legitimerad barnmorska. (Competencies for a registered midwife)*.

Artikelnummer 2006-105-1 (accessed 27.03.14)

http://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/9431/2006-105-1_20061051.pdf.

Swedish Higher Education Act. 1992:1434, Chapter 1 § 9 (accessed 28.03.14)

http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Hogskolelag-19921434_sfs-1992-1434/?bet=1992:1434

Syllabus, SBMP 18, barnmorskeprogrammet, Lunds universitet

(accessed 09.03.14) <http://kursplaner.lu.se/svenska/SBMP18.pdf> SBMN 18 Complicated

Labour/Delivery, In-Depth Course, Clinical placement, Second cycle, 7,5 ECTS, autumn 2013.

Yardley, S., Teunissen, P.W., Dornan, T., 2012. Experimental learning: AMEE guide No.63. Medical Teacher 34, e102-e115.

Swedish National Agency for Higher Education, 1993:100 [Högskoleverket].

(accessed 11.03.14) http://www.icde.org/Swedish+National+Agency+for+Higher+Education+-+H%C3%B6gskoleverket+i+Sverige.b7C_wtfMZL.ips.

University of Ulster, Project Number 174/02. Reflection on Practice. Making Practice Based Learning Work project. (accessed 14.03.14)

http://cw.routledge.com/textbooks/9780415537902/data/learning/8_Reflection%20in%20Practice.pdf.

Figure 1. A schematic description of progress in the midwifery students' daily reflections on their practice at birthing units during three distinct periods (birth 1 -20, birth 21-40 and birth 41 and continuing). Each citation has been classified to one of the six levels of cognitive and psycho-motor areas of learning and three different types of situation (simple, intermediate and complex). Progress is shown in the direction of the arrows.

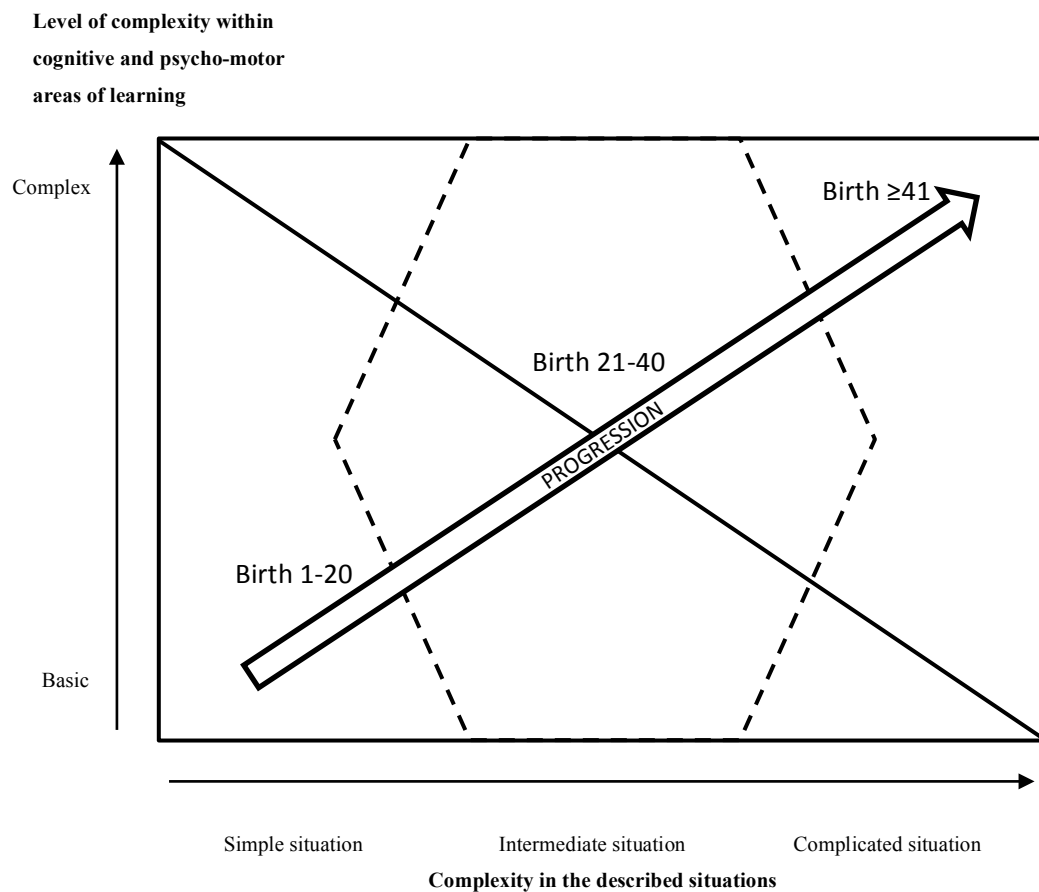


Table 1. Hierarchical classification of cognitive and psycho-motor levels as described by Bloom (1956) and Pettersen (2008). Citations are included to illustrate the process of analysis.

Level	Cognitive taxonomy <i>(Bloom, et al., 1956)</i>	Quotation	Psycho-motor taxonomy <i>(Pettersen, 2008)</i>	Quotation
6	Evaluation	<p>I go in to the mother to check on things. She's panting – the pains are stronger but she's not very affected. Decide on a vaginal exam. She thinks it's starting to push down.</p> <p>VE: The occiput has rotated and has reached the pelvic floor. Press the call button and say to her that she can start to push (B51/S13)</p>	Developed competencies	<p>A complicated birth: induction because of large baby. Look after most of the stuff myself, drip etc. Cord round the neck, quite hard but now I dare to pull properly and it worked really well! (B58/S18)</p>
5	Synthesis	<p>Irregular contractions.</p> <p>Difficult to judge because she takes the contractions well- isn't too affected by them. I don't want to do a vaginal exam because I judge that she's not in active labour.</p> <p>After a while I finally decide on a VE and find the cervix effaced and open 5 cm!</p> <p>Surprised. (B45/S4)</p>	Complex competencies	<p>I'm in the room on my own with the woman quite a lot because my supervisor is at a cesarean and there are a lot of mothers in labour. I do some vaginal examinations and external palpations on my own, it feels good. When I feel that she is fully dilated and the head is almost at the level of the spines I ask another midwife to do a vaginal examination – so that I've felt correctly – and she felt the same as me. (B38/S14)</p>

4	Analysis	Not really on the pelvic floor and I start to push with her too early. Of course, with no effect. (B41/S13)	Routine actions	Because of poor registration of external CTG my plan is to do a VE, amniotomy and put on a scalp electrode. (B41/S6)
3	Application	Difficulty mainly in palpating the presentation or in other words, feeling the sutures and fontanel. (B13/S3)	Imitation	I delivered the baby. Supervisor had her hands on mine to steer me a bit. Felt safe and good so that I could register the feeling. Not so easy to know when to hold back the baby's head or when to let go.... difficult to know, want to get a feeling for that. (B5/S8)
2	Understanding	When we heard that the breathing had changed from breathing through the contraction to a more pushing breathing – a breathing that was more audible – we understood that it was close. (B9/S7)	Readiness for action	I felt ready to go from being an observer to becoming more active. (B1/S12)
1	Facts	The active phase started about 8 o'clock and she was then open 4-5 cm. Contractions came more and more regularly and at 9 o'clock my supervisor did an amniotomy. (B1/S10)	Perception	Supervisor did the suturing; I had no idea about it. (B1/S11)