Co-teaching in Information Literacy During Work Placements: The Librarian's Role

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Abstract

Introduction
This article presents findings from a development project designed to improve Information Literacy (IL) education by linking it to nursing students' application of evidence-based practice during work placements. The Learning Centre at Oslo University College in Norway aimed to find out, what interactions and conditions influenced the librarian's role in the context of interdisciplinary supervision of nursing students' assignments and the development of a common supervision culture.

Research Design
The librarian involved in the initiative had a dual role as both researcher and practitioner. Besides direct experiences from being a participant in the project, the empirical material consists of observation notes, meeting notes, presentations, guideline in IL, e-mails, an interview, 285 comments from students, nurse educators, nurse supervisors and librarians, through blog and the Wiki Learning Management System (LMS). The evidence on which this article is based involved analysis of both oral and written communication, framed in practice-oriented approaches.

Findings
The conditions influencing the changing position of the librarian from an 'outsider' to becoming a member of the community of practice with common structures for the collaboration and supervision included meetings, a blog and a Wiki. Multidisciplinary, complementary skills in the

supervision teams provided improved quality of supervision and led to a new joint supervision community.

Conclusion
Together with the nurse educators and the nurse supervisors, the librarian was able to be a partner and a catalyst of IL workplace learning. The LMS was a decisive tool in the process. However, to be successful, this changed role for the librarian may require further pedagogical training and expertise in the development of interdisciplinary educational supervision.

Key Words: academic library; university; workplace information literacy; co-teaching

1. Introduction

Nurse educators and librarians at Oslo University College,[1] in Norway, were keen to ensure that students learn information literacy (IL) to be able to use evidence-based practices (EBPs) during their training. This is seen as important for students to stay abreast of current developments and apply them in the workplace. The experiences of the nurse educators and librarians showed that it was a challenge to prepare students for the transition from education to the workplace. In 2009, the Learning Centre[2] was invited to participate in supervising 50 nursing students, in one of the largest work placement initiatives in Oslo. The guidance was to be within the framework of the *Langerud model: a learning model for value and evidence-based nursing in nursing homes providing elderly care* (2009–2012). The Learning Centre established a sub-project of the Langerud model, called *Leeway for information seeking* to try out new forms of guidance in IL. This article focuses on the interactions and conditions that shaped the librarian's role in interdisciplinary supervision of student's workplace assignments and the development of a common supervision culture.

1.1. Some Key Issues Highlighted by the Literature Review

Evidence based practice (EBP) requires that decisions about health care are based on the best available, current, valid and relevant evidence (Dawes et al., 2005; Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). These decisions should be made by those receiving care, informed by the tacit and explicit

knowledge of those providing care, within the context of available resources. The implementation of EBP is a complex process that requires knowledge and skills to ensure practice change is successful and sustainable. IL competencies lay the foundation for EBP (Cheeseman, 2013). IL is defined as a set of abilities requiring individuals to recognise when information is needed and to have the ability to locate, evaluate and use effectively the required information (Association of College and Research Libraries (ACRL), 2000). More recently the ACRL put together IL competency standards specifically designed for nursing (ACRL, 2013). IL competencies are considered as important in the contemporary environment of rapid technological change. In the context of nursing, it is essential for all graduating and practising nurses to base their practices on current, high-quality research evidence (Cheeseman, 2013; Forster, 2013).

In this article, learning IL is considered from a socio-cultural theoretical perspective; where knowledge is seen to develop through situated interaction in authentic contexts. Learning is seen as taking place through communicative interaction between people and tools in the discursive practice of the work placement. In this study, the understanding of IL is tied to the work placement. A socio-cultural perspective has been applied by Limberg and Sundin (2006) to explore IL in educational settings. The sociocultural approach considers IL as a set of abilities to seek and use information in purposeful ways related to the task, situation and context where it happens, in this case, the work placement. It is worth underlining that this view, implying IL as shaped through social interaction and varying between situations and contexts, differs fundamentally from the ACRL standards focussing on general individual competences. Limberg and Sundin (2006) particularly point out the importance of teaching content and context related to user perspectives. The socio-technical practice approach sees the IL movement as being primarily about enabling groups and communities to cultivate existing information strategies and supporting them in their interactions with information technologies (Tuominen, Savolainen, & Talja, 2005). In the article, the interplay between the use of the LMS as a collaborative tool and IL teaching at the work placement is highlighted. Several researchers have applied socio-cultural perspectives in exploring how information seeking is negotiated as part of the workplace learning process (Bonner & Lloyd, 2011; Lloyd, 2013; Sundin, 2003). Lloyd (2013) has investigated nurses' information seeking in their first year in the workplace and presents a 'people-in-practice' approach, shifting away from skills towards social practices. Lloyd identified how information emerges.

Ways of knowing are seen as the collaborative enabling of connection with a range of knowledge and ways of accessing it (pp. 222–223).

Lloyd also highlights the role of co-participation in the community in shaping the production, reproduction and circulation of knowledge, including knowledge about the appropriateness of information skills in relation to the context. She emphasises that: "…without the catalyst of IL, workplace learning cannot occur. The two are entwined in joint enterprise". She raises important issues about the role librarians should play in education in workplace IL and examines how librarians can build information resilient workers, who can deal with rapidly changing information environments. She argues for the need to develop IL pedagogy that takes into account the transition from learning to the realities of the working environment. Sundin's research focuses on how nurses at a hospital shaped their identities through learning and applying information seeking. His findings indicate that nurses want to learn information seeking in their hospital departments, rather than via courses in the library, even if there is a library at the hospital. In the library, information seeking seemed too abstract. The nurses felt that the library and librarians could have a mediating role in supporting them (pp. 196–197).

There are several researchers, who have investigated the role of librarians in different IL training collaboration models with faculties of higher education; examining how IL research in workplaces affects the librarian's role (Brasley, 2008; Mounce, 2010; Vassilakaki & Moniarou-Papaconstantinou, 2015). Literature reviews show that there are numerous studies about how librarians and faculty work in the planning phase to integrate IL instruction into the faculties' courses and to prepare librarians to teach students on campus. It is an important part of the process to be integrated into the curriculum, but as highlighted by Shank, Bell and Zabel (2011): "…librarians can and should be integral educational partners as well as a catalyst for students' knowledge, enrichment and inquiry". This is consistent with Lloyd's thinking and also presupposes collaborative teaching partnerships between librarians and academics. Four key points are identified for establishing effective collaboration within a faculty and library; 1) a shared and understood goal, 2) mutual respect, tolerance and trust, 3) competence for the task at hand from each of the partners and 4) ongoing communication (Ivey, 2003). Brasley outlines some interesting examples of collaborative models where the librarians are integral educational partners from the planning stage of the teaching sessions to the completion. One of the studies mentioned, is UCLA's Freshman Clusters,

which uses a learning community approach to introduce students to a specific topic (Lindholm, 2007). Librarians at UCLA's Library were involved as liasons to the clusters in the interdisciplinary courses from the nascent stages of the programme that was initiated already in 1997–1998. Faculty members, teaching fellows and librarians collaborated on the development of content in Web pages, design of IL courses, critical thinking activities, learning outcomes for the students and participated in electronic discussion board conversations between students and faculty. Another relevant model is Sonoma State University, Freshman Year Experience (FYE) IL programme. Discipline and library faculty worked cohesively to integrate information competencies into their English 101 courses. The successful partnership operated under the premise that teams should be flexible and emphasise each person's area of competence. One FYE faculty member stated: "I describe the process of teaching alongside an IL specialist as synergetic—producing end findings that are more than the sum of the teaching parts" (Brodsky & Bower, 2005). Another example mentioned is the Ball State Nursing Programme that had already started to create Web-based modules in a course management system in 2001 (Florea, 2008). It is very similar to the way in which the Learning Management Systems (LMSs) were used in the project *Leeway for information seeking* (Kolstad, 2009). In Florea's study, complementary expertise and sharing knowledge was emphasised as important for both digital and face to face tuition. The common aim was: "to ensure that all nursing students graduated with extensive IL expertise".

Tilley (2011) also emphasises that the librarian should be an integrated partner throughout the programme in a manner of 'co-agency' and 'co-learning'. It is necessary to pool expertise from all the participants to teach information skills for successful engagement. Tilley states that: "Co-agency is based on making connections, about sharing responsibility in the learning environment. The principle of co-learning is based on pedagogically appropriate learning where learners are actively involved in the learning process" (Tilley, 2011, p. 135).

Most of the IL research studies take place on campus or as workplace studies, as mentioned above. There is currently little research about the potential role of the librarian in the transition between the campus and the workplace; for example, participating in joint supervision teams during student's work placements. There is also little research on how a LMS may function as a supportive tool in joint supervision.

1.2. Aim

The aim of the research described in this article was to find out what interactions and conditions shaped the librarian's role in interdisciplinary supervision of student's workplace assignments and the development of a common supervision culture.

The key questions addressed by the project were:

- How did the nurse educators, nurse supervisors and librarians communicate when they supervised the students?
- What were key elements, such as tools and topics, in their communication?
- In what ways did the librarian develop a new pedagogical role by co-teaching in work placements with regard to her position related to nurse educators and nurse supervisors?

The article begins by introducing the study of joint supervision as part of *Leeway for information seeking* and describes the methods used to analyse the findings based on Wenger's understanding of learning in communities of practice (Wenger, 1998). The findings are analysed and presented according to the principles of a shared repertoire, joint enterprise and mutual engagement (Wenger, 1998, p. 95). Finally, the findings are discussed in the context of recent research relating to how the librarian can become a 'partner' during educational work placements.

2. The Study

Leeway for information seeking became a part of the *Langerud model* in 2009, because the Learning Centre was invited by the nursing faculty to participate with a librarian in the project. The project was designed to ensure that students learn IL in order to be able to use EBPs during their training. Joint supervision from nurse educators, nurse supervisors and librarians was set up as a means to reach the goal. In the Langerud model the hypothesis was that interdisciplinary guidance in work placements, together with a stronger focus on the evidence-based framework would provide improved learning outcomes for the students. This was seen as an improved alternative to learning IL inside a classroom on campus. This was a new approach to teaching for the Learning Centre.

2.1. The IL Teaching on Campus

Prior to this project, IL training was performed on campus and consisted of a two hour training session in a classroom in the first year of the nursing Bachelor´s degree. The content was planned in collaboration with the nurse educators and the focus was on the students' tasks. The students were required to use authentic problems in their own tasks and find one academic or research article in the Nordic medical database Svemed+ and the international nursing database CINAHL. The session gave an introduction to information seeking using the PICOT format (Melnyk et al., 2010). Inquiries in this format take into account patient population (P), intervention (I), comparison (C), outcome (O) and time (T). The format provides an efficient framework for information seeking in medical science databases and is a part of the seven steps of evidence-based practice. This is described fully in section 3, because it became a requirement in the *Langerud model*.

2.2. The Project Leeway for Information Seeking

The project manager of *Leeway for information seeking* was a librarian as is the author of this article. She was also one of the supervisors. The whole project was managed through a number of groups with various responsibilities and interests. The *steering* group included the head of the workplace and the head of nursing education. The *reference* group consisted of the eight heads of different nursing departments. The *programme* group consisted of the leader of the Langerud model programme, who was also one of the nurse educators on the supervision team. In addition, it consisted of two or three nurse educators, the project manager of Leeway for information seeking, who was also one of the librarians in the supervision team and one professional development nurse. The development nurse had a coordinating role for nursing supervisors and was responsible for promoting their contribution in the collaborative supervision of the LMS.

The composition of the supervision team varied between one or two librarians, two or four nurse educators and about 50 nurse supervisors. This was slightly different in each practice period, depending on available human resources. The team supervised about 50 nursing undergraduates in each work practice period. There were a total of eight practice periods, which involved about 400 students during the project period. The students were

divided into eight learning groups, one learning group per department. Over a period of eight weeks, tuition took place through the LMS, responding to the students needs and at weekly one hour meetings with the learning group. The librarian particularly participated in the joint supervision sessions with one of the nurse educators and the nurse supervisors in two departments during two practice periods. However, she also supported the other six learning groups when the nurse educators requested her inputs. At the end of their practice period the students were required to give an assignment presentation to the department that required information seeking in scientific databases to find research articles. The teaching team supervised students while they worked on their assignments. Students were asked to write a paper about an issue that was relevant for the department of the work placement and their own studies. They could also choose to write a paper based on a specific group of patients. The joint supervision of the student assignments is illustrated as one of several communities of practice in Figure 1.

Fig. 1: Community of practice: Joint supervision of student assignments.
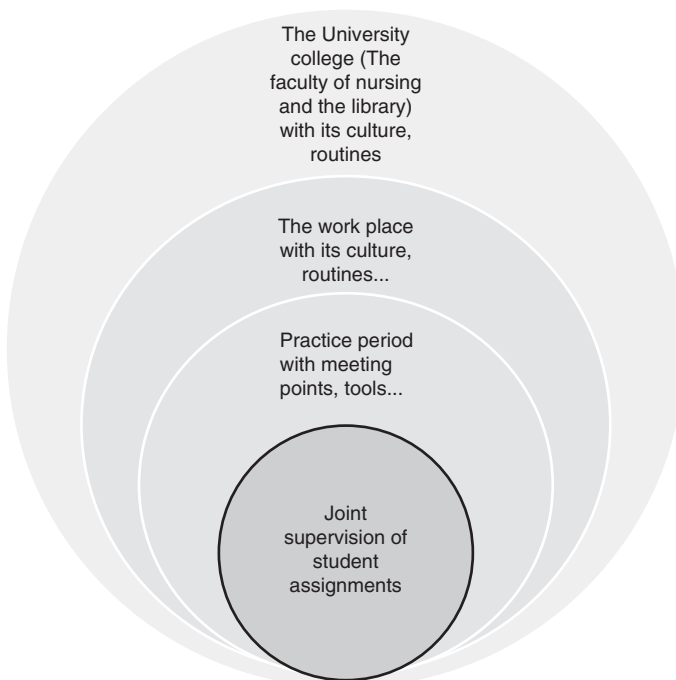
The students were given guidance according to the seven steps of evidence-based practice (Melnyk et al., 2010):

• Step Zero. Cultivate a spirit of inquiry

The students were encouraged to be inquisitive about how practices work and to ask critical questions in the following manner:

• Step 1. Asking clinical questions in the PICOT format

Inquiries in this format take into account patient population (P), intervention (I), comparison (C), outcome (O) and time (T). The format provides an efficient framework for information seeking in medical science databases.

• Step 2. Searching for the best evidence

The search is streamlined when questions are asked in the PICOT format. This helps to identify key words or phrases that, when entered successively and then combined, expedite the location of relevant articles in databases such as MEDLINE or CINAHL.

• Step 3. Critically appraising the evidence

The students were asked to consider whether the findings were valid and if they were relevant for the patient.

• Step 4. Integrating the evidence with clinical expertise and patient preferences and values

At this stage, the students were required to present their assignment to their related department and the nurse educator, nurse supervisor and the librarian. They had to discuss how they searched for the best evidence, their findings and considerations.

The last two steps were not considered, because they were not naturally tasks for the students:

• Step 5. Evaluating the outcomes of the practice decisions or changes, based on evidence

• Step 6. Disseminating EBP findings.

Sundin distinguishes between clinically oriented information seeking and academic oriented information seeking (Sundin, 2003, pp. 173–175). A crossover between these two is the idea behind EBP in the assignment that the

students were required to carry out. Clinically oriented, in the sense that it should be relevant to the workplace and the students should be able to justify it in front of the department in the workplace. It is also an academic exercise where all the procedures should be in accordance with the seven steps, using different kinds of literature. They also had to use up-to-date research and the American Psychological Association style for references (American Psychological Association (APA), 2010).

3. Research Approach and Design of Study

The librarian, who was the project manager of the Leeway for information seeking, had a dual role being both researcher and practitioner simultaneously. The influence was of course subjective, a fact that may have affected the results. By participating in different supervision teams in the workplace, the librarian as a researcher gained insights into the needs of the students and acquired useful experiences and understanding through communication, negotiation and co-teaching with the nurse educators and nurse supervisors. However, she may have also become so involved that it could be difficult to be critical.

3.1. Research Approach

The focus in this article is on how the supervisors used language to support each other with their own competence to give the students the best possible guidance. The sociocultural perspective underlines the importance of interactions and communication with other people in the community for what is being learned and how. Language is at the same time a collective, interactive and individual sociocultural tool (Säljö, 2005, p. 87). By combining a variety of insights and experiences in the teams, supervision aimed at better quality. The comments from supervisors were saved in the LMS and were accessible for all the participants. In this way, knowledge was distributed.

In combination with textual analysis, the empirical data was analysed by using Wenger's three conditions for a community practice: joint enterprise, mutual engagement and a shared repertoire. The analysis aimed to establish whether a new joint community of practice emerged over time via the collaborative student supervision. Wenger defines a community of practice as a group of people, who share a common commitment to something that

they are engaged in and so learn from each other how they could do better through regular interaction. According to Wenger, this process of participating in various communities of practice is linked to the shaping of identity. This involves the process of negotiation in practice and engagement with it. Group identity develops through inclusion, exclusion, commitment, unity, trust, recognition and inspiration.

A shared repertoire gives participants common reference points, recognition and opportunity to reuse the repertoire in new situations (Wenger, 1998, pp. 101–102). This relates to what the community has produced in terms of routines, words, concepts, tools and ways of doing things. It encompasses the discourse that occurs, the manner in which they express forms of membership and identity as members. In the study it was important to find out if a common repertoire was developed, despite the members having different vantage points.

According to Wenger, negotiation of joint enterprise implies ways of working with and solving tasks by participants in the community of practice. He states that multiple memberships and multiple commitments are useful to achieve synergies. Everyone has something to contribute to determine the conditions, resources and requirements that will apply in a community of practice. Participants must find a way to do this together. Objects and focus points are shaped as meaningful negotiations to organise around (Wenger, 1998, p. 84) and common tasks that all are mutually responsible for (Wenger, 1998, pp. 95–96), for example, the programme for the practical period, agreement in how to supervise in information seeking, to use tools such as blog and wiki.

Mutual commitment defines a community (Wenger, 1998). This assumes that the community can communicate and collaborate. In the workplace, one can facilitate the engagement of more people with further or different expertise if required. In this study, engagement of different expertise was facilitated by the structure of various meetings and the use of the LMS. The value of different factors facilitating mutual engagement comes out in the presentation of findings.

3.2. Design of Study

As already mentioned, the author of this article was involved as an active participant in the project studied. This means that the empirical material

was gradually collected both formally and informally through participation during the whole project period 2009–2012. The material thus consists of the author's experiences as a participant, combined with observation notes, meeting notes, course presentations, e-mail communications, written guideline in IL instruction in for the supervisors, statements about the use of the LMS, which were made during IL training, an interview with the project manager of the Langerud model and a total of 285 comments from students, nurses, nurse educators and librarians (see section 2.2).

Source quotations are coded as PM for project manager, NE1-4/5 for nurse educators, NS1-15/50 for nurse supervisors and L1-3/3 for librarians and the practical periods are coded as S2010(2), S2011(1), S2011(2), S2012(1), A2010, A2011for practical period in spring(S)/autumn(A) and year.

This material was analysed to investigate and identify communicative patterns to find main tendencies in how the supervisors "spoke" when they answered the students and how they engaged with each others' supervision. A particular focus was directed at the position of the librarian in the communicative patterns. The material on which this article is based combines qualitative text analysis of oral communication in the learning groups and written communications from the LMS. Elements of conversation analysis seemed useful for both purposes and ideas to do linguistic text analysis were picked from Rapley (2007).

The expressions were analysed to find categorised in the following way:

- Personal and uninhibited communication
- A culture of sharing
- Towards a common vocabulary
- Acknowledgement of each others competences
- Support to the students

Owing to insufficient documentation, observation notes of communications in meetings are not as complete and thorough as the analysis of the comments on the LMS. There is therefore a strong emphasis on the findings of the analysis of the text on the LMS. Notes, e-mails, presentations and observations are nevertheless analysed, in order to get a richer picture of the context surrounding the discussions.

4. Results

The findings are presented in such a way as to give an overview of the inter-actions and conditions that appear to have had implications for the librarian's role as a partner in joint collaborative supervision. The findings are analysed and presented according to the principles of a shared repertoire, joint enter-prise and mutual engagement (Wenger, 1998, p. 95).

4.1. A Shared Repertoire

This section highlights examples from conversation analysis of sequences in the LMS and the student departmental presentations, to illustrate how the supervisors used their expertise. This will be discussed in terms of the seven steps of evidence-based practice (Melnyk et al., 2010), described in Section 2.

4.1.1. Issues Discussed
4.1.1.1. The Relevance of the Issues   The nurse supervisors engaged mostly with the issue of relevance of the problem formulation, responding to students with comments such as:

"I see that you really have brought up a central approach by choosing an issue such as interactions with people with cognitive impairment" (comment in LMS, NS6, S2012)

"Diabetes is about giving responsibility to the patient" (comment in LMS, NS1, S2010).

The nurse supervisors naturally related the issues presented to their rele-vance in the workplace. They wanted the students to be critical of practices and suggest what they could further focus on in their daily work. Relating this process to the steps in EBP, one can say that this corresponded to step '0'.

The nurse educators did not get very involved when students wanted advice on the relevance of the problem they had chosen or planned to choose. For example students stated: "We have decided on the theme of type 2 diabe-tes in nursing homes, with a focus on nutrition and interdisciplinary coop-eration" or "We have not quite reached any concrete problem and welcome

any tips about this" (comments in LMS, NS2, S2010). The educators left such questions to the nursing supervisors, who were best placed to supervise on such areas.

4.1.1.2. Clarification of an Issue   The librarian did not get involved with the relevance of the students' problems, only on the refinement of them, which corresponded to step 1 of the EBP practice. She got involved in terms of whether it was easy to find research-based information on an issue or not; coming with comments such as: "I think that it will be easier with the first topic/problem". The supervisor asked students to be more specific, for example, by recommending that they decide whether they would search for diabetes 1 or 2. The nurse educator engaged by adding: "Could this be further sharpened?" (comments in LMS, L1, NS2, NE4, S2010).

4.1.1.3. The Subject Terms and the Information Seeking Process   When it came to choosing subject terms and the information seeking process, it was clearly the librarian, who took the greatest initiative to get students to reflect on what terms and sources they would choose to do the information seeking (comments in LMS, L1, S2010, A2010, S2011(1), S2011(2)), but the nurse educators were also very active (comments in LMS, NE1, S2012). The nurse supervisor did not get involved here and these questions were left to the librarian and the nurse educators. Step 1 and 2 must be considered together in this case, since it was about how to sort a student's research problem into a PICOT format and to perform the search in a certain way. The librarian was able to provide feedback such as: "Think about what words you would choose to apply and what databases you want to use before the session (in the learning group) next week" (comments in LMS, by L1, L2, L3 in S2010–S2012). "I perceive that you are stuck, because of the term you have chosen" (comment in LMS, L1, S2010). The nurse educator supported by saying that it must be structured and systematic searching and that students must demonstrate the application process (comment in LMS, L1, S2012).

4.1.1.4. Literature Selection   Nurse educators engaged with the selection of literature and sources. They emphasised the importance of formalities, such as attaching a bibliography, also that the focus should be on how the research was important for practice. They reminded the students that they had to find recent research. This was commented several times (NE1-4, S2010–S2012).

4.1.1.5 How to integrate research findings into practice in the workplace Discussion focused on whether the students' findings were valid, important, if they would help the patient and if they could be integrated into the workplace practices (step 3–4). In some cases, the students gave the department tips about how practices could be developed. For example, one student group gave tips on how the department could provide a better sensory garden for the patients and the nurses welcomed the recommendations (presentation of the assignment, S2011). Another student group tried to give recommendations to their department based on urinary tract infection research from 1992 and this caused reactions and discussions in the department (presentation of the assignment, S2010). The librarian and the nurse educator also had the opportunity to contribute in the discussions.

4.1.2. Communication Patterns

The way the supervision sequences evolved with regard to how the supervisors related to each other is described below.

4.1.2.1 Personal and uninhibited communication The nature of the dialogue between supervisors and students was personal and uninhibited. To give a few examples: "I agree with X", "Have you [X] got any tips?", "I'm struggling to find…", "Is that how you think it should be set up?..", "Hey X, I've searched for research on Z pages and found some good tips. Is this a reliable source?", "I'm, going very slowly here…." (comments by students in LMS, S2010–S2012).

4.1.2.2. A Culture of Sharing The LMS in itself was a tool for sharing, but the willingness to demonstrate a culture of sharing was also evident in the texts. The students described how they shared their knowledge of information seeking with the supervisors several times during the practical period (comments in LMS, S2010–S2012). The librarian took on the role of highlighting good examples of approaching a problem or searching for literature. One example was posting a link to a document in which one of the groups had documented the entire searching process (comments in LMS, L1, S2010). In this way the students also had access to all the feedback from the supervisors. Another example was when the librarian encouraged nurse educators to share their knowledge at the same time sharing some of

her own expertise on information searching: "What do the nurse educators find important when looking for literature?" (comment in LMS, L1,S2011). The lecturer urged students to show what they had written in the LMS to the nursing supervisors and asked them to give feedback. The librarian shared her arguments about the benefits of searching for information in scientific databases: "I see that you wrote that you have searched on Google. Searching on Google can work when …. However, if you want an overview of research in an area, you should search in scientific databases … if you want a selection of Nordic research, you can search …" (comments in LMS, L1, S2010).

4.1.2.3. Towards a Common Vocabulary   The vocabulary in the guidance changed underway as supervisors adopted each other's perspectives and used words and concepts they had learned from others. All supervisors helped to recommend search terms or to emphasise that the search should be done in a systematic and not a random way (comments in LMS, S2012). It can be assumed that the nurse educator and nurse supervisors had learnt this from the librarian. There was a trend for the nurse educator to use the same concepts as the librarian or change to the vocabulary. The term 'subject issue' was modified to 'search term', for example. In contrast, the nursing supervisor was giving tips for search terms, while also giving views on the issue and recommended literature on where the measures are described. The librarian entered the nurse educator's and the nursing supervisor's subject areas and commented that she thought students should be encouraged to think more about the issues and their formulation for themselves (comments in LMS, S2012). Often the nurse educator and nursing supervisor agreed. They could supplement later with how restructuring the students problem could happen by referring to what students should be familiar with in nursing practice (Comments in LMS, NE2, S2011).

It seems that the supervisors had an agreed way to respond to the students. Although the librarians were not consistently thorough in how to do the supervising they usually avoided giving students a recipee, but rather asked the students to reflect. The nurse supervisor asked questions such as: "What do you think is most important to focus on?", "I would like you to point out things that are not working well and what's functioning OK?", "What do we need to focus further on in our daily work?", "Is it diabetes 1 or 2, diet, certain complications…?" (comments in LMS, NS2, S2010). The nurse educator asked questions and came with comments, such as: "Are you going

to limit the topic?", "All three problems are about effect…". The librarian gave inputs such as: "I think you guys need to think a little bit more about the research question and rephrasing it", "I'm going to give feedback when you've worked a little further with the issue", "Now you have even come with a research question…", "I'm thinking that it will be easier with the first research question", "What do you want to focus on?", "That's a great topic with music to help!" (comments in LMS, L3, S2011), The nurse educator also supported the student's in choosing the topic of music (comments in LMS, NS4, NS5). Other comments from the librarian were: "I can't wait to see the problem framed", "Think of the words you want to choose to search with and which databases you want go through before our session next week"(comments in LMS, L1, S2010), "I notice that it is as if you're being blocked by the terms you have chosen", "I want the argumentation for the choice of databases" (commented several times in LMS, S2010–S2012). Although the librarian tried to encourage the students to reflect on subjects as the nurse educators did, she also gave the students, more or less, a recipe for how it could be done. For example: "You can start by translating your search words into English, check with Svemed +…" (comment in LMS, L2, A2011, L3, S2012). In this case, the students received the recipe, rather than having to find the way forward themselves and so receive supervision in the next session.

4.1.2.4. Acknowledgement of Each Other's Competences Recognition of each other and other's expertise was mentioned several times. A nurse educator supported the librarian and that way gave her recognition as a partner: "I support X [the librarian], it's our task as educators to sensitise students in the work of collecting articles and the like. That's why we devote resources to education…" (comments in LMS, NE4, S2010).

Other examples of recognition of the librarian's inputs by the nurse educator included: "I agree that the problem is still too broad and that you can be more precise …", "My suggestion is that you start searching through research together with the Learning Center", "Check the blog to see how you can get help from the Learning Centre", "Also read how to conduct clever searches in Wiki" (comments in LMS, S2012).

The librarian often referred to the nurse educator and made it clear that the nurse educator had more authority and knowledge to decide.

A nurse educator recommended that students benefited from expertise outside the community of practice, "I can recommend a researcher in nursing and ….. Her name is X and you will meet her during your nursing training. If you want, I can ask her if she would comment on questions from you via the blog", "The doctors at Y are also a good source ask" (comments in LMS, NE1/PM, S2010, S2011(1)).

4.1.2.5. Support to the Students   An important part of the repertoire of the trainers was student encouragement. All three groups of supervisors gave the students a lot of support and praise. Examples included highlighting that students had made good progress, a nurse educator writing that she is looking forward to the next step with a specific learning group and stating that something is "wonderful" or "looks promising". Other examples included encouraging words from the librarian such as: "That worked well!", "Great! You are very clever!". These comments appeared several times in LMS by all the supervisors, S2010–S2012.

4.2. Negotiation for a Joint Enterprise

This section describes the framework and measures that were present or were implemented that facilitated the librarian in becoming an integral partner in the supervision team.

4.2.1. Participation in the Whole Process from the Planning Phase, to Implementation, to Evaluation
What influenced the development of joint supervision practice in IL was communication in meetings about how to organise the practice periods. The head of the workplace, professional development nurses, nurse supervisors, nurse educators and the librarians all participated in the planning phase of the project. The participation took place in steering group meetings, reference group meetings and at meetings of the working group (for example meeting notes in January, October, November and December 2010).

One of the specific issues discussed and that all had mutual responsibility for was the design of a programme for each practice period (the programme for the practice period in LMS, S2010–S2012). The schedule, types of supervision activities and responsibilities were defined collaboratively. The programme

was uploaded onto the LMS, so that everyone could have access to an up-dated version of the document.

The project manager commented that: "Through trial and weekly exchange of experiences, adjustments and improvements appear to happen much faster and more easily" (Interview, PM, November 8, A2011).

4.2.2. Openness for Establishing an LMS for Better Continuity in the Supervision

The idea of adopting a LMS came from the librarian in the spring 2010, because the Learning Centre experienced the need to be available outside physical meetings (meeting notes, February 16, S2010). One of the arguments was also that every participant could support the supervision together in LMS as a supplement to supervision in physical meetings. The project man-ager of the Langerud model responded positively to the idea, before she knew what a blog was. She immediately saw the potential of the LMS for achieving greater continuity of supervision and having digital access and sharing of experiences in writing. Institutional Management was also imme-diately positive to trying out this new way of communicating, as a supple-ment to the supervision in the meetings of learning groups (presentation at the steering group meeting, February 16, S2010). This idea of providing supervision through the LMS turned out to require a greater effort from the nursing supervisors, since there were differing opinions on its purpose and because some would not share their expertise and experience there. Some were daunted about sharing on the LMS.

It was considered that the workplace should encourage their employees to participate in the LMS alongside their participation in direct supervision. Resistance was expressed by several nurse supervisors, because they did not think they had got enough information and training: "Just one of us has been in (the blog) and read a little, but didn't dare to write anything" (comment in LMS, May 31, S2010). Several courses in how to use the LMS were held by the librarian (for example courses, A2010, S2011). At the end of the project period in 2012, 15 of about 50 nursing supervisors had written in the LMS.

4.2.3. Seeing the Need for Greater Competence in IL and EBP

On the initiative of the the librarian and project manager for the Langerud model, an interdiciplinary group was established, which could focus on

postgraduate education in EBP (note, June 8, S2010). This was easy to achieve, because it was agreed to by all of the participants. After the interdisciplinary group had completed the postgraduate education in the autumn 2010, a resource group in EBP was established (note, February 11, S2011(1)). This group also put in place new measures and fixed the days for classes in information searching at the beginning of each practice period (for example, a meeting note from January 2012). These courses were primarily arranged for the nurse supervisors, but nurse educators and students were also permitted to participate (course, S2011, S2012).

4.2.4. Agreement and Disagreement about the Aim to do the Information Seeking in a Certain Way

Most agreed that the aim of the supervision should be that the students use recent research for their assignments. However, not everyone agreed on how students should conduct this (meeting notes and e-mail, A2010). Not all agreed with the proposal to use the seven steps to apply a system and improve the quality of outputs. The librarian had to spend some time generating understanding in the project group that the quality of search results is dependent on taking a systematic approach to searching in scientific databases, as opposed to doing random searches in the same databases, or doing searches in Google. The manager of the Langerud model stressed that the requirement had been that students should do systematic information seeking and use research articles for their assignments, throughout the project period (guideline in IL instruction in for the supervisors, LMS, S2010). Despite this, there were some, who did not see the importance of it for first year Bachelor's degree students. One nurse educator thought it was sufficient to search on websites for health services and on Google. In this case, the librarian justified the importance of having a relevant amount of terms and doing the search on scientific databases.

The nurse educator had greater authority than the librarian and gave her own guidance about how the students should conduct searches. In one learning group meeting, the importance of the nurse educator's authority was emphasised and, as a result, the students did not deliver assignments based on up-to-date research (S2010). Consensus was, however, achieved on this student requirement in the next training period (meeting notes, S2011). A reason for this could be that the participants had become more familiar with each other's competences. They had also learned a lot about informaton searching during the implementation of joint courses and interdisciplinary supervision.

4.2.5. Agreement on Supervision for Reflective Thinking

Students were trained to reflect about: 'why we do what we do?' and come with positive criticism to the practice (guideline in IL instruction for the supervisors, LMS, S2010-S2012). In this way, they developed their interest and commitment to find up-to-date research to improve practice, or confirm that current practices were correct. Students were required to identify issues and follow the seven steps of evidence-based practice to examine them. The institutional head of the work placements, the project manager for the Langerud model and the librarian were all present at most of the introduction sessions. From day one, the students were encouraged to start reflective thinking in the *Langerud model*. The training format was brought into meetings with the learning group and the students. In this way, the assignment was linked more closely to practice and tied to student's clinical experiences.

4.3. Mutual Engagement

Mutual engagement did affect the joint supervision and the findings are presented below.

4.4.1. Diverse Backgrounds, Experiences and Roles

Opinions of participants differed as to what makes a community of practice possible and productive. Diverse backgrounds and experiences did allow one not only to use one's own skills, but also to appreciate the expertise of others. This was expressed especially by the project manager, who was also a nurse educator as presented below (interview, PM, November 8, A2011).

Once participants have more equal roles, contributions can overlap. This was the case in this study. For example, the project manager and nurse educator commented: "as far as I see it, collaboration is important both in the project group meetings and in meetings with the learning groups. Developing a programme together with different opinions, strengthens the practice approach … one can share experiences, which can help nurse educators become more coherent". Co-teaching, developing something together and sharing experiences were important to generate interest. The project manager stated: "It's important to create learning on the basis of the situation one is in. I'm not the one, who has the solution, we have the solution together". The librarian tailored supervision based on what the others commented. One nurse educator stated that: "Competence is greatly expanded by having several professions.

Something happens across them". The librarian pointed out that there must be mutual transparency for collaboration to function. She thought that everyone should have the opportunity to contribute supervision in their own way and at the correct moment in the training. "Students sat up when you [the librarian] spoke", one of the nurse educators noted (observation notes, S2010). She expanded saying: "professionalism is contagious…we can get wider and deeper expertise together".

The reflection of the nurse educator, who was also the project manager and collaborated most with the librarian, implies that this happened: "What made it strong was synergy, it's double, we see it from different angles. Then we all get dragged in. It became the motivating force". The nursing educator led the meetings with the learning groups, but she supervised together with the nursing supervisor and the librarian. The librarian did not have a specific time slot in the two learning groups, she specifically engaged with, but attended all the meetings with these learning groups. The librarian was more engaged by being able to participate and input as an equal with the nurse educator, rather than having an allotted time for providing input. With a time limited input, the librarian would only contribute a portion of relevant expertise and would need to choose what to emphasise. In the integrated teaching format, she had a chance to engage in the supervision when it suited best throughout the entire training session. In this way, the different supervisors were able to complement each other (observation notes, S2010-S2012).

4.4.2. Becoming a Valued Member

One of the nurse educators pointed out that one became a part of the community through trial and weekly experience. The project manager of the Langerud model sometimes said to the librarian: "either you're present, or you're not" (Interview, PM, November 8, A2011). The librarian's experience was that it was important to be present to participate in communication with the others, otherwise you could miss something and did not capture what lay 'between the lines', the unspoken. In addition to participating in various weekly experience exchange meetings, it was also possible to keep up-to-date by reading the students' work, tutoring sessions and also provide supervision inputs through the LMS. As the project manager of the Langerud model said: "this is where it's happening". The LMS was used as a common place to share information. It actually generated such a degree of engagement that the head of the workplace wanted the LMS to keep running also after the project

period ended (note, October 11, S2012). She wanted the librarian to continue to have responsibility for the LMS and supervise through it.

4.4.3. Relationships and Mutual Commitment

Mutual engagement creates relationships between people and mutual commitment to what is going to be produced. Mutual commitment is reflected in doing things together and this in turn maintains a community. The Langerud project manager articulated this: "We [all the participants in the study] together created a need to do information seeking" (Interview, PM, November 8, A2011). It was felt that the students and nurse supervisors would see the same need during the course of the project. The commitment created by building on students' own experiences of practice was also seen as vital for contributing to the supervisors' motivation. One of the factors which generated respect was the attitude of the nurse educators to students. The project manager verbalised this approach: "Every contribution from students must be met with respect". Students were encouraged to be critical and to reflect on practices. They could debate why things worked as they did. Taking this approach the supervisors developed and reviewed the course with the students. One of the nurse educators stated: "We are helping to support the departments' improved quality. We are part of something important" (Interview, PM, November 8, A2011). In several meetings, it emerged that nurse educators may also have a role in encouraging nursing supervisors to use the LMS as a tool. It was evident, through inputs in the LMS training sessions that the nurse educators were already committed to using the LMS. This was in contrast to the lower participation of the nurse supervisors (see Table 1). Nurse educators commented a total of 85 times, whereas nursing supervisors only contributed 26 times. The librarian dominated with 115

Table 1: Who communicates in the LMSs? (LMSs, S2010–S2012).

Who communicates?	Number of comments
Students	59
Nurse educators	85
Librarians	115
Nurse supervisors	26
Total	285

comments. This was perhaps natural, since most of the questions were about the information seeking process. To use LMS was an initiative of the librarian for trying cross-collaborative supervision, so maybe the librarian felt a strong responsibility to make it function.

The supervisors were motivated by having support from other supervisors. Commitment to getting more people to supervise through the LMS was motivated by one of the nurse educators: "Do the nurse supervisors have any comments on this issue?" (comments in LMS, NE1, S2011). The librarian was also endorsed by a nurse educator: "I support the librarian, it's our responsibility as educators to sensitise students in their work when they do the information seeking" (comments in LMS, NE4, S2010). This illustrated that there was a commitment to teach students to find research, but also an acknowlegement of the librarian's expertise. The supportive expressions came several times during the project period, so these are just a few examples.

4.4.4. New Identity
The project manager of the Langerud model stressed the importance of several professions collaborating and supplying complementary and overlapping competences. Each individual provided expertise and knowledge, which were expanded by the expertise and knowledge of others. In this way, each member reshaped his or her identity in the new community. The librarian's contribution was summed up by the manager: "You have helped to build up an expertise that means that we now have a totally different way of talking about searching, you have helped to build up competence that also enables us to integrate this into our work" (Interview, PM, November 8, S2012). This statement also conveys something about the changed role of the librarian in the community.

5. Discussion

Until this project started, the librarians at Oslo University College[1] had only taught students on campus. By participating in collaborative supervision during the students' work placement, the librarian's role was changed and challenged by several factors. The findings are discussed with a focus on how a librarian can become a teaching partner during work placements.

5.1. Communicative Interaction among Supervisors

The co-supervisors had three different vantage points; education, the workplace and the library; each with their own operating practices. The professional identity of individual practitioners lies behind and manifests itself in current practice (Gleerup, 2011, p. 14). It involves frames placed around the professional practices, such as values, patterns, roles, communication messages and attitudes. The concept emphasises the potential of the work to develop relationships and continuity between profession and education (Heggen & Damsgaard, 2010, p. 86). Professional identity is also extensively shaped by habits and truisms and becomes part of what we do without being so conscious of why. Participants found their place and acquired a new identity. Identities joined and connected via mutual engagement for teaching content in contexts related to students' perspectives. The importance of a close relationship between content and context was emphasised by Limberg and Sundin (2006). When the three groups of professionals met, there were often discussions and questions about the 'why', because they each had different angles of interpretation. Another reason could be that the meetings did not take the format each party was used to, but focused on the, so far, unknown or unformulated issues in the context of the inter-institutional or cross-professional initiative. Suddenly, new frames and new ways of speaking developed; one could see and touch each other's perspectives. The supervisors had to release their own 'language room' to get to know a new language and become part of a new space. In the new space, professions met with their assumptions, attitudes, expertise and ways of asking. The diverse supervisors approached each other in a new way of talking together. Gradually, they created a common repertoire that made them both understand each other better and guide the students collaboratively. The way in which the supervisors engaged with each other's fields was evident in the written inputs on the LMS. It was useful to have both different and similar roles in a community of practice to synergise effects in the supervision (Wenger, 1998, pp. 93–94). There was also a natural division of responsibility linked to who answered the students' questions. Supervisors developed a unified way of talking to encourage greater reflection from the students. The dialogues showed recognition and respect for each other and each other's contributions. Statements such as: "I'm not the one who has the solution, we have the solution together", showed that there was a development in the attitudes about how to learn together and share knowledge (interview, PM, November 8, A2011). These experiences can be seen as positive, but they also indicate that the supervisors had learnt to

develop solutions together. This is consistent with Wenger's statement that diversity allows us to see other's expertise. Such experience was also confirmed in the study at Sonoma State University, where cooperation with an IL specialist was described as: "synergic—producing end findings that are more than the sum of the teaching-parts" (Brodsky & Bower, 2005). The Ball State Nursing Programme also demonstrated similar findings with the valuing of complementary expertise and sharing of knowledge (Florea, 2008).

The fact that the librarian had the opportunity to participate in the entire process, from the planning stage to the implementation of supervision and evaluation, was influential in her becoming a valued member of the teaching team. This process contrasted greatly to how the collaboration with the faculty worked on campus, when the librarian only collaborated in the planning phase and taught alone (Mounce, 2010). Wenger (1998) states that to become a valued member of a community of practice, it is not enough to know and understand the latest professional work. One also needs to become part of the social community. The importance of being a part of a process is pointed out in previous research. Lloyd (2013) emphasised co-participation in the shaping, negotiation and renegotiation of the community as crucial. Shank et al. (2011) highlighted the importance of being an integral, educational partner and in UCLA's Freshman Clusters, the librarian collaborated with the faculty on everything; from content in web sites to supervising in discussion for a (Lindholm, 2007). Through participating in the whole process, the librarian acquired increased insight into how she could contribute with her own competences and customise them to other's expertise. She found that there was a need for competence raising measures and new methods for better interaction; such as using LMS for learning and communication.

The librarian's proposals for information training courses and the establishment of the LMS were accepted and implemented. This was needed in order to shape a better starting point for the supervision of students and have the ability to supervise the students throughout their practice period. The communication patterns and the common vocabulary that emerged were made possible by the common supervision platform. The LMS strengthened the learning and communication. The proposal to set up an LMS was approved despite the fact that several participants did not initially know what a 'blog' was. The findings from this study and from Florea's research (2008) show that collaboration through LMS strengthened the collective responsibility for

students' learning. By the end of the study, the institution leader saw this as indispensable. The Langerud model project manager's statement that the librarian had helped develop an expertise that led to a new way of talking about information seeking and integrating it into practice, confirmed that the librarian had been integrated, accepted and was respected as part of the joint supervision community. Confidence is also emphasised as one of several important prerequisites for collaborative teaching partnerships (Ivey, 2003). The fact that the librarian was shown great trust was a reflection of the confidence developed amongst co-supervisors.

5.2. Towards Co-teaching

The librarian's new collaborative constellations with faculty are described in several ways in recent research. Terms such as 'embedded librarianship', 'embedded library instruction' and co-teaching have been discussed (Tilley, 2011; Vassilakaki & Moniarou-Papaconstantinou, 2015).

Tilley introduces the term co-agency as a prerequisite to increase the good quality of co-teaching. Co-agency is about developing good relationships in a learning community. Co-teaching is all about bringing together different expertise and developing a product for the benefit of the target group. Co-teaching differs from the more traditional way of doing teaching, which involves faculty and library staff planning lessons and content in advance of the librarian's teaching, but not teaching together.

In this study, as described above, a common repertoire in the supervision setting was developed. Wenger mentions the importance of enhancing already existing knowledge, so that colleagues can be acknowledged and their skills can be used in interacting with others. These skills can often be invisible for the colleagues otherwise. This was highlighted several times between the supervisors, both in meetings and through the LMS. New knowledge was created by utilising the distributed knowledge. Wenger (1998) sees difference as a resource for creating mutual commitment. This can be particularly apparent when participants have different roles, backgrounds and knowledge. The reciprocal commitment can then lead to complementary contributions. The support of students, while they are doing clinically oriented information seeking and academic oriented information seeking (Sundin, 2003, pp. 173–175), can promote collaboration between education and the workplace.

The findings indicate that the structured way of doing supervision both in meetings and through the LMS strengthened the 'sharing culture' and the collective responsibility for students' learning. This is in line with Wenger's claim that adapted structures, in this example the LMS, will only be effective if participants integrate them into their communities.

A natural sharing of themes among the supervisors developed. All the supervisors had one common place to find all the information and keep up-to-date themselves. The LMS can particularly support students in the process of becoming information resilient workers (Florea, 2008; Tuominen et al., 2005).

The positive personal relationship between the researcher/participant observer and informants may have influenced the positive results. The researcher may empathise with her informants and vice versa. It was easy to gain support for ideas and implement them.

6. Conclusion

If the librarian is to be a partner and a catalyst of IL workplace learning, together with nurse educators and nurse supervisors, there is a need to establish both interdisciplinary co-agency and co-teaching. The combined willingness and ability to collaborate and use complementary competencies to provide better quality instruction was a key to success. The mediating tools had an important role in this process. The LMS stimulated joint supervision culture by being a 'meeting place' for learning and communication. The need for improved capacities in IL and EBP was addressed in this study. However, if librarians are to engage with interdisciplinary supervision on an ongoing basis, it is relevant to ask whether they need further pedagogical training. Alongside this, there may be a need to focus on technological tools that are suitable for supervising and that can support purposive pedagogical and didactic approaches.

Acknowledgements

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Notes

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[1] Changed name in 2011: Oslo and Akershus University College of Applied Sciences.

[2] Changed name in 2011: The Learning Centre and Library.