

Assessing Medical Students' Information Literacy Skills in a Problem-Based Setting: Experiences from a Joint Effort between Librarians and Professors/Senior Lecturers.

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Background

This paper provides a brief overview of the collaboration between librarians and professors/senior lecturers at the Faculty of Health Sciences at Linköping University when assessing medical students' information literacy skills. The main focus is how the examination is performed, opinions and feedback from the three participants and our plans for the future.

For many years the Health Sciences Library, a part of Linköping University Library, has been working successfully together with teachers and the student union of the Faculty of Health Sciences. Our mutual goal is to promote information literacy to obtain optimal learning outcomes, ensuring that the students are information literate for their future professional life.

Problem-based learning, PBL, and interprofessional learning, IPL, were introduced in all undergraduate programs in 1986 and the faculty is constantly developing and improving the educational profile. In 2007 the faculty was awarded the "Excellent Learning Environment" prize by the Swedish National Agency for Higher Education.

PBL focuses on the students own ability to seek relevant information. "The main actor is the self-supporting, information-seeking student not the lecturing teacher"(1). Both the library premises, built in 1986, and the professional roles of the librarians at the library are designed to meet the objectives of problem-based learning. In this concept the library is of great importance both as a place (reading/meeting) and a provider of media and information (printed/digital) and the librarian is a pedagogical resource for transferring the important information seeking skills that the students need (2).

PBL is described as follow in the syllabus for the medical program:

Problem-based learning (PBL) as a pedagogical philosophy and method is applied in the medical program. In PBL, the focus is on the student's participation in learning. The student takes responsibility, in theoretical and practical studies, for judging what he/she needs to learn by analyzing and handling situations connected to the medical profession. The student searches for knowledge, sifts, applies and assesses this knowledge and evaluates his/her own learning. The teaching is designed to stimulate and support the student's development of professional competence and independence in learning. Situations linked to the medical profession are used as a basis for processing problems and creating motivation and meaningfulness in the studies. Students work together in small groups, partly to practice cooperation and partly to contribute to each other's

learning. The teacher applies PBL, partly as a facilitator by challenging and following the students' learning and providing feedback, and partly by contributing knowledge in a way that stimulates and complements the students' learning. (3)

Objectives that concern and promote information literacy

Local objectives in the syllabus of the medical program (3)

The student shall:

- with problem-based learning as a pedagogical tool, be able to define problems,
- search for and evaluate knowledge in order to be able to solve problems that arise in the future practice of her profession.

National objectives of the Degree of Master of Science in Medicine (3)

The student shall be able to:

- exhibit an ability to identify own need of additional knowledge and to continuously develop own competence.

In The Swedish Higher Education Act (chapter 1, §8) the following paragraph also concern information literacy:

The student shall develop the ability to:

- seek and evaluate information at a scientific level
- follow the development of knowledge, and exchange information with others, including those without backgrounds in the given field

Consequently, in the strategic plan of the university library it is stated that “the library should contribute to integration of information literacy in all undergraduate program” (4).

The backbone in our education planning is general learning outcomes for information literacy according to the Bologna process. They are adjusted to the discipline and context wherein we librarians work. These learning outcomes are now being updated.

The Examination

Examinations of the medical students' ability to solve various information problems have taken place for more than 20 years and it is compulsory. The initiative to collaborate between teachers and librarians originated from the so called curriculum group that introduced a stronger focus on the scientific and evidence-based approach in the curriculum. Although the examination procedures have changed over time, the collaboration with, and the role of, the library in this process has never been questioned (1).

During the first ten years the examination was held in the fourth semester and was based on real patient cases. The students met patients at different health care centers. After thoroughly interviewing a patient, the student formulated a clinical problem concerning the patient's

problem. Then, the student had to practically run to the library to seek information (at that time few sources were online) and the examination took place the following day (!). This element of real life connection is now ceased because it was too time- and staff consuming.

Today the exam takes place during the second semester. A few weeks prior to the exam, the students in their tutorial groups attend an information literacy class for half a day. This is embedded in the ordinary curriculum. After the last of these sessions, the students get a list of 120 cases to choose from. These cases originate from the real-world cases above.

The term coordinator, who also is the head examiner, compiles the cases and makes them relevant according to the context and knowledge the students have at this stage. The students work individually for about one week with their case before the examination takes place.

The schedule for this event that takes place in the library twice a year is made up by the administrator of the program. When librarians and teachers receive the schedules we know which students to assess and what case they have chosen. This gives us an opportunity to prepare ourselves on the different subjects in the cases. About 80 students, 10-15 professors/senior lecturers and 6 librarians carry out the examination during one and a half day. For each student, every session lasts 25-30 minutes.

A typical case can be as follows: “Why do women get brittle bones more easily than men?” To pass the student has to prove his/her capability to make the case his/her own by interpreting it in order to make a sound search strategy, choosing relevant sources. Last but not least the student also has to show a reflective and critical attitude towards the search process itself and to the information found. During the exam both the librarian and the teacher will comment and ask for explanations, especially if there is a suspicion of lack of understanding and/or poor information seeking abilities.

The student has to:

- Have a well-reasoned strategy
- Find basic information about the area –terminology, encyclopedias, textbooks
- Know how to make a relevant subject search in a book catalogue and PubMed
- Understand the difference between text words and subject words (MeSH)
- Know how to sift and refine the search results
- Critically evaluate the search results
- Use several information resources and several search strategies
- Deliver a tentative answer to the problems within the case

Immediate feedback and response is given but not the grading and the result is officially listed after two days. Weak students will be offered complementary training and a new examination is given after a few weeks.

About 5-10% of the students fail every time. The main reason is that the students lack a serious approach to the search process itself and a creative and reflective way of thinking. The student may think that finding information is easy. But the difficult thing is to find qualitative

information with scientific value. We believe that the main purpose of this examination is to transfer this knowledge and approach.

The intention is to keep the examination in a positive and relaxed atmosphere so that everyone involved also will find this event a learning opportunity, with some aha-experiences and discoveries and not only as an assessment.

Opinions on the examination

Students

We always ask for feedback at the end of the examination session regarding both the information literacy class and the examination concept itself. Furthermore, the students evaluate all episodes in the curriculum by weekly reports to the term coordinator and administrator.

Some reflective comments from the students:

- A good exercise for the future
- A creative and positive experience
- A frustrating and nervous experience
- Uncertainty about how much I should search and how much I should read
- Fun!
- Gives useful knowledge for both studies and professional life
- Good to be forced to do this
- Pleasant and instructive
- Now we know everything!
- Uncertainty about the criteria used in the evaluation
- Unfair variations in degree of difficulty in the cases.
- Some of the cases seem irrelevant

Professors/senior lecturers

It seems like the teachers enjoy this event because most of them participate year after year. All of them are teaching at the medical program but only a few have met the students at this early stage. Approximately 90% are professors.

Librarians need help from those who produce and consume the information and literature we want the students to find and use. The professors/senior lecturers are for instance authors, referees, editors, opponents, advisors, tutors and last but not least specialists in different medical areas. They have the expert knowledge and experiences that we librarians lack. The participation of teachers will for the students bring a more comprehensive and a more real-world picture than we librarians can deliver. We are two professions with two different perspectives who work together at this event for the same goal.

Often the teachers mention that they learn from both students (!) and librarians about both search techniques and new sources. The teachers are well experienced information seekers but they need to be updated now and then, on for example new interfaces and this is a good opportunity.

The different cases also give a learning opportunity. As one of the professors puts it:

- It is fascinating to follow the results of the student's searching and finding scientific literature in a specified scientific area. It is a moment in the examination that also contains a substantial learning activity, not only for the student but also for the teacher.

Librarians

The teachers give us priceless expertise knowledge about the discipline as well as insight and knowledge from their comprehensive experiences and their understanding of the whole scientific communication concept. The students give us valuable insight in "non-librarian" ways to tackle information seeking problems. (They are not necessarily wrong ...)

The exam also provides us good feedback on our education practice. The librarians who work with this examination are liaison librarians to the undergraduate programs at the Faculty of Health Sciences. Two of them work with the medical program and the positive feedback is of course due mainly to their teaching.

When the students use all the different library resources in their efforts before the exam they also give us valuable feedback on the library collections and homepage. For example, do we really have an accurate book about osteoporosis so that the students can find all the

background information that they need, or, do we have good e-books so that they can find information even though it's not on the shelves?

We also think that we are looked upon with higher status when participating in this context as experts. The students discover that information literacy and librarian knowledge is serious and crucial business, for both their studies and future professional life.

To sum up; we really enjoy this examination and this collaboration.

Conclusions and future directions

All three participants are positive to this examination and consider it both an excellent assessment method and an excellent learning and win-win opportunity.

Learning assessment in this context constitute a meeting with three individuals, which makes it difficult to standardize. The assessment depends on good communications skills and there are seldom any obvious rights or wrongs. However, we strive to evaluate all students equally.

A critical feedback is crucial for progress. To give a good feedback we need to keep good records and notes during the exam process, especially if we suspect a weak performance. We think it is an important task for the future to together with the teachers, develop a better way of exercising this record-keeping.

In January 2007, the Education Board Committee at the faculty approved a proposal from the library and the student union (Consensus) in which we declared the need to assess students in information literacy skills at *all* of the undergraduate programs at the faculty. This is now being integrated in different ways and it is exciting to see what the collaboration with teachers from other programs might lead to.

References

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