Teachers as Users of New Technology – Experiences of Using Electronic Assessment and Feedback System in Supervision of Clinical Training

Sari Mettiäinen and Anna-Liisa Karjalainen
Tampere University of Applied Sciences,
Kuntokatu 3, Tampere, Finland
Corresponding Author: sari.mettiainen@tamk.fi

ABSTRACT

The paper describes nursing lecturers' attitudes to introduction of new technology and their experiences of using the new electronic assessment tool in supervision of clinical training. In a Finnish university of applied sciences we had a pilot project whose aim was to establish a new supervision method to teaching by using information and communication technology (ICT). We created an operations model for supervision of clinical training using Finnish software called eTaitava which includes both a mobile application and a web-based reporting tool.

During the first year, 9 nursing lecturers used this software as a supervision method when they supervised nursing students' clinical training. They were all interviewed. After the second year, there were three more lecturers who actively used the software. All the 12 lecturers were sent a web-based questionnaire with seven open-ended questions. Eight of them answered. The material was analysed by using thematic analysis and categorization.

The interest towards new teaching methods, desire to develop training supervision, need for new supervision methods, and consent to colleagues' decision were factors that made the teachers use the new supervision tool. The teachers saw clear benefits in using the new supervision tool, it made the student's learning visible and gave structure both to the student's learning process and the assessment situation. The software was found easy to use after short introduction.

Technological tools cannot be defined as good or bad, but their value is defined on the basis of how people can utilise them pedagogically. In introduction of new technology, it is important to consider both pedagogical and technological viewpoints from the beginning of the integration process.

Keyword: e-learning, nursing lecturer, clinical training, supervision

1. Introduction

In this paper we describe the results of our pilot project which started with the support of EU-funding and where we tested the possibility to use ICT, or indeed mobile

technology in nursing education. The project focused on development of teaching and supervision methods. Two reports have already been made on the results, on student experiences of using lecture recordings (Mettiäinen & Karjalainen 2012) and on student experiences of the electronic feedback and assessment tool in training supervision (Mettiäinen & Karjalainen 2011). This report describes the teacher experiences of the supervision tool introduction.

2. Background

Clinical training in hospitals or other health care organizations is an important part of nursing education. Training in universities of applied sciences is always supervised by a senior lecturer and a training supervisor. Supervision is a process that covers the whole training period and aims at supporting the student's learning and professional growth (Salonen 2007). In Finland there are long distances to the clinics and lecturers have limited time resources for supervision. Travelling to the hospitals to meet students, which is the traditional method to supervise students, takes quite a lot of time. Supervising nurses at training places have also found supervision challenging due to lack of time and other work stress (Ball & Pike 2005). The supervising nurses have also found student assessment and provision of feedback difficult (Mosely & Davies 2007).

It has been stated in the Finnish national training development project that training supervision has to be developed and cost-effective models found for it (Salonen 2007). Information and communications technology creates new possibilities for this but its introduction challenges the teachers' knowledge, skills, and attitudes as well as the operational culture in education. The fast and continuing development of technology creates pressures on staff competence, budgeting and purchasing of educational institutions, and re-planning of curricula and implementation methods. (Lemke et al. 2009.) One obstacle to ICT progress has been stated to be the autonomy of teachers (Opetushallitus 2011). If the teacher has no interest in starting to use an ICT application in his/her work, educational institutions have hardly ever intervened.

ICT tools cannot be simply classified as good or bad but it is essential how people can use them. The surrounding learning environments and pedagogical solutions define their value and significance in supporting learning. (Nurmi & Jaakkola 2008, 15.)

Teachers should be at the centre when systems are purchased for education (Kankaanranta 2011) to ensure that the information system purchase is based on the users' needs (Korkeakoulujen kokonaisarkkitehtuurin käsikirja 2009). Li & Bernoff

(2009) describe this with the POST model. When the aim is to integrate technology into education, the starting point has to be the users' or teachers' needs (P=people). The objectives for the technology are mapped (O=objectives), after which the introduction strategy is considered (S=strategy) and finally the technology is selected for the purpose (T=technology). If the implementation order is wrong, a STOP phenomenon may be encountered and it may not be possible to encourage the teachers to use the new technology. (Li & Bernoff 2009, 97 – 99.) Introduction of education technology has often been carried out in such a way that the purchase has been made in accordance with the management's strategy on IT specialists' decision. The equipment and programs have then been brought to the teachers and an enthusiastic welcome has been expected, which has not always been the end result.

3. ICT-based software eTaitava

Software called eTaitava has been developed in Finland. It is a multimedia reflection and feedback tool on mobile phones and personal computers. It connects learners, teachers and workplace mentors in on-the-job training environments. Its strength lies in its capability to provide all parties involved with continuous and immediate feedback on the learning progress of trainees (eTaitava 2007, Pirttiaho 2010.)

The teacher constructs questions through the eTaitava web-based user interface to map the student's learning experiences and learning progress. The questions are saved and set to be sent on certain days. The daily questions can be either open-ended questions or statements formulated e.g. as follows: "I have the basic knowledge of medical diseases" and the student can answer the questions e.g. on the scale of 1-5 (fully disagree – fully agree) or "I have practised giving medical injections" and the answering scale could be 1-5 (not at all - very much). Students can answer the questions using either a computer or a mobile phone.

The teacher can construct diverse series of questions for training periods to form a learning environment which supports learning during the training. The teachers' pedagogical and substance competence are connected to how well the question series support the student's learning at each phase of the studies.

The answers are saved to the database of the eTaitava program, where the teacher can easily see the individual answers and group-specific summaries by means of graphs. The teacher can in real time follow students' learning during the clinical training (eTaitava 2007.) Pirttiaho et al (2010) have described in more details the technical features of the program in their paper.

According to the survey for students (N=96), eTaitava was considered clear, simple to use and useful for students' learning process. The significance of the continuous ICT-based supervision tool for learning during clinical training is that it can supervise students in setting better learning objectives and in their daily training activities. It helped students in self-assessment and inspired students' cognitive learning process. (Mettiäinen & Karjalainen 2011.)

4. Aims of the study

The purpose of the empirical study was to find out nursing lecturers' attitudes to introduction of new technology and their experiences of using the electronic assessment tool in supervision of clinical training.

The study questions were:

1. What factors made teachers use the new eTaitava software?
2. How did teachers utilise the software in their work?
3. How did teachers experience the technical support of the software and the received support?
4. What do teachers consider important in introduction of new technology?

5. Research data and method

All The eTaitava software was introduced at Tampere University of Applied Sciences on the initiative of three nursing teachers. They had seen the program in a national conference and considered it beneficial for development of training supervision. The eTaitava software was presented to all nursing teachers (N=70) and all who wanted could start using the software. A fifth of the teachers (N=12) learnt to use the program and used it in their own work. It has been in use during surgical, medical, preoperative, public health nursing and basic nursing training periods. The training periods consist of 3–7 weeks depending on the substance area.

After the first year, nine lecturers who had used the software were interviewed. After the second year, there were three more lecturers who had actively used the software. All the 12 lecturers were sent a web-based questionnaire with seven open-ended questions. Eight of them answered.

Qualitative data of the open ended questions and interviews was analysed by using thematic analysis and categorization. The analysis was conducted according to a three-step inductive process based on the data (Miles & Huberman 1994.) The data

was reduced by identification. After that, similar data was categorised.

6. Findings

6.1 Factors motivating introduction of new technology

At the interviews and the questionnaire, the teachers were asked what factors contributed to testing the new electronic tool in supervision of clinical training. The contributing factors can be classified into four categories: 1) general interest in new methods, 2) desire to develop training supervision, 3) need for new supervision methods and 4) compliance with others' decision.

Some teachers have genuine interest in new teaching methods. When the software was presented to them at the health care teachers' meeting, it was experienced inspiring and interesting. As the teachers were offered the possibility to use the new tool, the use was started due to pure interest or desire to develop one's own professional competence, which becomes possible along with new methods.

The teachers also had the desire to develop training supervision and they considered this a suitable tool. They wanted means to support the student's learning process and self-assessment better than earlier. The teachers experienced that new structure was needed for training supervision. eTaitava was seen as a tool enabling closer contact with the student. The software also makes it possible to improve the professional and target-oriented interaction between the student, supervising nurse, and supervising teacher and thus improve the quality of training supervision and support the uniform quality of supervision.

Teachers also stated that there is an acute need for new methods. Students complete their clinical training around the region and regular visits to the students' training places are not possible due to lack of time. It is impossible for the teacher to see the students weekly in these cases. During the brief visits it is not always possible to have enough deep discussions to support the student's learning, especially if the teacher and student do not know each other in advance.

Some teachers also participated in using the software as an obligation. Other teachers of the same course had agreed on introducing the software and the teacher thus complied with their decision. For some, a contributing factor was that the superior had reserved hours for learning this new program in their working hour plan.

6.2 Benefit of using the new tool

The teachers were asked how they experienced the benefit of using the eTaitava software in training supervision. The benefits of using the software can be classified into four categories: 1) it made the student's learning process visible for the teacher, 2) structured the student's learning process, 3) provided information for the teacher on allocation of supervision resources and 4) structured the student's assessment discussion.

As the students have answered the questions sent by eTaitava daily, the teachers experienced that they have received almost real-time information on how the students' clinical training is going on, if they have a supervisor in the training place, and if they have been able to participate in work duties. The software offers the possibility to follow the student's learning and competence development during the training weeks, which gives the teacher a deeper picture on the student's learning. The teachers experienced that before introduction of the eTaitava software the students were a bit like thrown to the wolves in the training places.

The teachers found that responding to the software questions helps students in setting better learning objectives for themselves and concentrating their learning on the essential. Responding forces the student to think about the learnt issues and thus structures learning.

The software provided the teachers with a tool to consider how often to visit each student and thus the teacher can allocate resources in a new way, more to students who need more face-to-face meetings. By means of the software, the teacher was informed earlier if the student had difficulties in the training place and was able to intervene in the situation in time.

The reports in the software have structured the final assessment as now the teacher has data on which to base the assessment discussion and assess the achievement of the student's objectives. In eTaitava, questions can also be made for supervisors to help them in assessment of the student's learning. eTaitava has been found to be at its best when the supervisors have also used it. This is a new way for the supervisors to give feedback and assess the student's competence, which have been found difficult in face-to-face contact (Mosely & Davies 2007).

As a whole, the software has been experienced very informative. The teachers used to the software consider that they could not handle supervision of several students

without eTaitava. It has been experienced a necessary tool which they want to use also in future. The value of the software rises especially when the students' training places are far away and the teacher has no possibility to meet them.

The only negative feature from the teachers' viewpoint was the workload as it takes quite a lot of time to go through the answers. However, along with experience the teachers learnt to see the reports more effectively and in a selected manner and thus find the essential information faster.

6.3 Experiences of technical usability and support services

The software was experienced very easy to use after learning the basics. It took about a 20-minute introduction to learn the basic use. After an hour of introduction, the teachers were able to program questionnaires for training periods. A four-hour introduction was organized for some teachers to teach them to make question series to support learning.

The teachers experienced that they had received enough help and support from their colleagues. If necessary, help was also available from a technical support person of the software.

6.4 Factors to consider in introduction of new education technology

The teachers hoped that they would be heard in introduction of new technology in order to make the technology to support education. New technology should be introduced gradually as it requires time and resources. New solutions should be first piloted with smaller user groups and if the results are good, the use can be expanded later. Eagerness to use new technology is limited by the fact that the teacher may even have difficulties in coping with the current work challenges. On the other hand, many uses are seen for new technology in education.

Support services should be offered in such a manner that they support the teacher's starting points. Teachers hope that they are helped in introduction of technology and production of material. Teachers consider it important that support services are available when they are needed by telephone, email and face to face.

Support persons are expected to be genuinely interested in developing teachers' ideas. It is easier to integrate new solutions into education if they are based on the needs of the degree programme. The development partner should be an IT specialist who is committed to developing the matter and willing to help. The IT specialist can consider

matters from different viewpoints than the teacher who is not necessarily interested in complicated technological issues.

7. Conclusion

The pilot partly succeeded to follow the POST model in introduction of new technology (Li & Bernoff 2009). The software was introduced on the nursing teachers' initiative (people). They had the need to develop training supervision (objectives). The strategy on how to introduce the new electronic tool could have been better. Now only 20 % (N=12) of the teachers started using the new tool. Teachers' autonomy has also earlier been found a factor that slows down introduction of new technology in the school environment (Opetushallitus 2011). Teachers' tight schedules may hinder the development eagerness. If the management had presented a more forceful definition of policy on extensive testing of the new tool, more teachers had joined. In future, introduction of ICT should be planned with the management more comprehensively as the phenomenon also challenges the management's competence (Lemke et al. 2009).

As new ICT solutions are integrated into education, both pedagogical and technological experts should participate in the process from the beginning, in creation, planning, introduction, and staff training. In this project, a senior lecturer in nursing and an IT designer participated in the selection of technology. In the selection of technology the emphasis was on appropriateness and easiness of use from the technical viewpoint. Technical use of the tool may not take too much time or attention in order for the technical challenges not to surpass the pedagogical benefits. As the software is easy to use for the end-users, less support services are needed.

The teachers who participated in the pilot found that use of the software has had pedagogical benefits. By means of eTaitava, the student's learning can be supported and the learning process made visible for the teacher. At the same time, it can be used to uniform the supervision and it offers the means to structure the assessment of learning during clinical training. eTaitava cannot be defined as a good or bad tool (Nurmi & Jaakkola 2008), as its value and meaning for learning depends on the use of the software. The software enables an institution-specific way of programming the contents and in principle every teacher can utilise it as he/she considers best. Introduction of a new method always requires persistence to learn a new way of working, in this case a new way of supervising students. This is a good and efficient alternative to supervise training.

REFERENCES

Ball, J., Pike, J., 2005. Managing to Work Differently. Results from the RCN Employment Survey, RCN, London.

eTaitava. Ao Jyväskylä Vocational Institute. http://www.peda.net/img/portal/664066/eTaitava_en.swf?cs=1164287053. Read 6.6.2012.

Kankaanranta, M. 2011. Opetusteknologia koulun arjessa. Jyväskylän yliopisto, Koulutuksen tutkimuslaitos. Jyväskylä. http://www.cicero.fi/documents/Opetusteknologia_koulun_arjessa_ensitulokset.pdf.

Korkeakoulujen kokonaisarkkitehtuurin käsikirja. 2009. Toiminnan ja tietohallinnon kokonaisvaltainen kehittäminen. Helsingin yliopisto, Tietotekniikkaosasto, tietohallinto. Helsinki. www.helsinki.fi/julkaisut/aineisto/hallinnon_julkaisuja_65_2009.pdf.

Lemke, C., Coughlin, E., Reifsneider, D. 2009. Technology in Schools: What the Research Says. An Update. Cisco, Culver City. http://tinyurl.com/yczj9hp.

Li, C., Bernoff, J. 2008. Winning in a world transformed by social technologies. Harvard Business Press. (Translated 2009. Verkkovalta – Voittaminen sosiaalisten teknologioiden maailmassa. Helsinki: Tietosanoma).

Mettiäinen, S., Karjalainen, A-L. 2011. ICT-Based Software as a Supervision Tool in Nursing Students' Clinical Training. AICT2011, The Seventh Advanced International Conference on Telecommunications. http://www.thinkmind.org/index.php?view=article&articleid=aict_2011_4_10_10017.

Mettiäinen S., Karjalainen A-L. 2012. Summaries of Lecture Recordings as a Learning Material in Blended Learning, LMPCNA 2012, The Fourth International Workshop on Learning Methodologies and Platforms Used in the Cisco Networking Academy. http://www.thinkmind.org/index.php?view=article&articleid=icns_2012_8_10_91010.

Miles, M.B. and Huberman, A.H. 1994. Qualitative data analysis (2nd edition), Sage, California.

Mosely, L.G., Davies, M. 2007. What do mentors find difficult? Journal of Clinical Nursing 17(12),1627-1634.

Nurmi, S., Jaakkola, T. 2008. Auttavatko oppimisaihiot oppimaan? In Ilomäki, L. (ed.) Sähköä opetukseen! Digitaaliset oppimateriaalit osana oppimisympäristöä. Opetushallitus: Helsinki. 8-15.

Opetushallitus 2011. Tieto- ja viestintätekniikka opetuskäytössä. Välineet. Vaikuttavuus ja hyödyt. Tilannekatsaus toukokuu 2011. Muistiot 2011:2. http://www.oph.fi/download/132877_Tieto-_ja_viestintatekniikka_opetuskaytossa.pdf.

Pirttiaho, P, Holm, J.-M., Paalanen, H., Thorström, T. eTaitava – Mobile Tool for On-the-Job-Learning. 2007. http://www.iadis.net/dl/final_uploads/200706C036.pdf. Read 6.6.2012.

Salonen, P. 2007. Harjoittelusta amk-opintojen kuningas. Harjoittelun kehittämishankkeen 2004-2006 loppuraportti. Keski-Pohjanmaan ammattikorkeakoulu. Kokkola.