

Development of an integrative practice placement model for students in health care



Liisa Koskinen*, Marja Äijö

Savonia University of Applied Sciences, School of Health, Box 1028, 70111 Kuopio, Finland

ARTICLE INFO

Article history:

Accepted 17 October 2012

Keywords:

Expertise in health care
Integrative thinking
Interprofessional learning
Practice placement

ABSTRACT

VireTori, the interprofessional Empowerment Market, is both an easily accessible health service point for citizens and a provider of placements for students. This study describes undergraduate health care students' experiences of learning at VireTori, and explores how the integrative pedagogy model was executed during student placements. The integrative pedagogy model was developed for the educational framework of the placement.

The participants of the study were 42 undergraduate students. The data were collected in 2010 through six focus-group interviews and background questionnaires, and were analysed using inductive content analysis.

The results were categorised into personal, collaborative and organisational learning contexts and reported as the experiences of happy and unhappy students. Third-year students with a five-week or longer placement had more positive experiences than the fourth-year students with a one-week placement. There were great differences between the experiences of happy and unhappy students concerning professional roles, work orientations and scopes of action, and these were not entirely connected with the length of placement.

Health care students can gain expertise through a practice placement in which the principles of integrative pedagogy have been adopted. Critique concerning the model and VireTori framework will be presented.

© 2012 Elsevier Ltd. All rights reserved.

Introduction

The type of professional expertise needed in today's health care has been transformed by economic globalisation, new service provision structures and changes in citizens' lifestyles. This progress and novel models of knowledge production have challenged health care education institutions to develop pedagogical practices that respond to the requirements of a changing working life. The current health care workforce needs expertise in areas such as problem solving, decision making, evidence-based intervention and on-line working (Hawkins et al., 2008). To address this, interprofessional education has been increasingly applied and adapted into health care education in Finland.

According to the literature review conducted by Cooper et al. (2001), interprofessional education improved undergraduate health care students' knowledge, skills, attitudes and beliefs, and their understanding of professional roles and interprofessional

working. Barr et al. (2006, p. 75) define interprofessional education as "occasions when two or more professionals learn with, from and about each other to improve collaboration and the quality of care". The idea of expanded expertise includes interprofessional team working skills, because the interprofessional sharing of knowledge is likely to lead to the client-focused and high-quality care of patients (e.g. Souers et al., 2007; Mann et al., 2009).

The "professional expertise" concept of this study was adapted from Tynjälä (2008) and defined as a composition of integrative thinking that combines four elements of knowing: theoretical, practical, self-regulative and socio-cultural. As they are integrated, the overlapping elements of knowing cannot be separated from one another in real working life situations. The first three areas of knowing concern the area of personal knowledge, and the last one, the area of socio-cultural practices and working methods of a particular working community. Furthermore, professional expertise is characterised by the skills of progressive problem solving (Bereiter and Scardamalia, 1993) and the creation of new practices through the sharing of work culture social practices (Tynjälä, 2010). Integrative pedagogy combines the different knowledge areas and can be defined as those educational

* Corresponding author. Tel.: +358 44 7856463.

E-mail address: liisa.koskinen@savonia.fi (L. Koskinen).

circumstances that support integrative thinking and learning (Kallio, 2011).

Practice placements and working life experiences have always been a significant part of the learning expertise in health care (Hunter, 2010). Creating the partnership between theory and practice has, however, been a challenge (e.g. Corlett et al., 2003). Koskinen et al. (2011) found that favourable learning results occur during a placement in nursing education if students have a feeling of belonging, encouraging mentorship, active involvement in patient care and space for reflection on feelings and emotions. In Tynjälä's (2008) thematic review of recent research, it was found that the practice placements differ greatly with regard to how they support learning. Learning from practice can be both informal and formal in nature. She also noticed that the worlds of education (theory) and work (practice) are moving closer to each other, which should be used in developing the expertise needed in the changing working life.

This research was conducted at the Empowerment Market (VireTori), which is a learning forum for higher education students in health care at Savonia University of Applied Sciences in Finland. Students from all health care programmes practice at the VireTori 1–2 times during their studies. The VireTori concept was developed in the Keys to Enhance the Well-Being of the Population in Northern Savo Project 2008–2010. The project aimed to develop easily-accessible health care services for local citizens at the grass roots level and, consequently, develop a practice placement model that was based on the principles of interprofessional education and integrative pedagogy. The VireTori activities concern a variety of customer service contexts, such as health counselling, social groups, functional ability measurements, blood tests and dental hygiene education. The VireTori exists on the university campus, but the services are brought to homes (e.g. health education; outings for the elderly) and companies (e.g. exercise breaks for office workers; first aid service for public events).

VireTori is open five days a week. In 2009, over 90% of the customers were 65 years or older. A coordinator is present daily, and accounts for the operational flexibility, appointments, service request coordination, information and marketing. The teachers, who send their students to VireTori, are supervisors, supporters and evaluators, but are not physically present (Tiilikainen and Laitinen, 2010).

Background

The development of the VireTori learning forum stemmed from the need to establish a new type of practice placement for health care students. During the research phase of the project, the ideas of integrative pedagogy from Tynjälä (2008), Tynjälä (2010) and Kallio (2011) were adjusted, and the integrative pedagogy model for the VireTori placement was gradually developed (Fig. 1). This model has not been used earlier in health care, and this is the added value of this study. Today, the model is set up in the work of the VireTori.

The model comprises four concentric circles, one of which is the core: learning expertise in health care (Fig. 1). The circle closest to the core in the model represents the student's integrative thinking, which is the most essential skill in learning professional expertise (Kallio, 2011). The integrative thinking concept is close to creativity or creative thinking (Tynjälä, 2010) or transformative learning (Mezirow, 1994). Students who have developed the skill for integrative thinking have an ability to synthesise different elements into their cognition. They can constitute personal opinions based on diverse competing opinions; integrate cognitive, emotive, subjective and objective aspects into their own thinking; and assimilate tacit knowledge as well as theoretical and practical knowledge into their own thinking (Tynjälä, 2010).

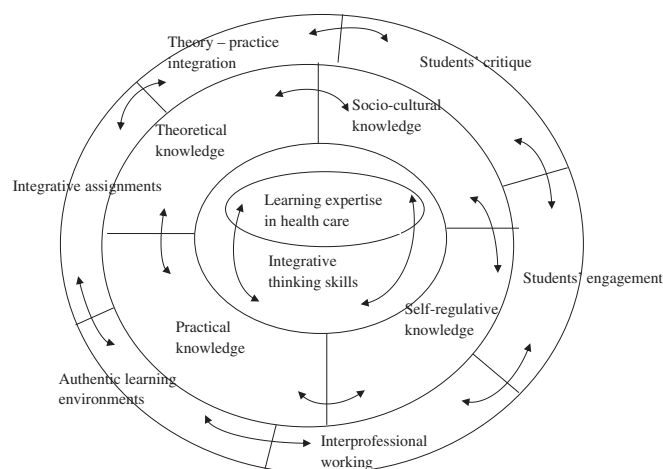


Fig. 1. Integrative pedagogy model for the VireTori placement.

The next circle comprises the four knowledge areas (Tynjälä, 2010) that constitute the ground where health care expertise can be firmly established. Expertise is an integration of different elements of knowing (Fig. 1): theoretical, practical, self-regulative and socio-cultural. During the VireTori placement, students gain theoretical knowledge from textbooks or lectures and integrate it with practical, authentic problem-solving situations with diverse client groups. Self-regulative knowledge means metacognitive ability, which can be developed by critically reflecting upon one's own actions, thinking and learning. Kallio (1998) found that metacognitive reflection (critical reflection on own thinking) was essentially important in supporting university students' in-depth learning. Socio-cultural knowledge consists of the unwritten rules of the work placement, as well as the tools and equipment used (Tynjälä, 2008), and can be practised by participation in the work of the social community at VireTori.

The outer circle includes the six principles of integrative pedagogy, which constitute the conditions for learning at VireTori (Fig. 1). These are as follows: 1) theory and practice should be integrated; 2) integrative assignments combine theoretical, practical and reflective elements of learning and oblige students to apply integrative thinking; 3) authentic learning environments refer to students' participation in authentic working life practices that provide them with natural problem-solving situations; 4) interprofessional working brings together students from different health care programmes and aims to improve client care as suggested by Hammic et al. (2009); 5) the students' engagement in directing their own learning and developing the learning environment are important; and 6) their critique is welcomed, as recommended by Griffiths and Guile (2003).

The arrows within the model symbolise that the model's levels cannot be sharply delineated from each other, and that learning professional expertise in health care is neither a direct, nor a linear process.

The study

Aims

The aims of this study were to describe health care students' experiences of learning at the Empowerment Market (VireTori) and to explore how the integrative pedagogy model was executed during the VireTori placement.

Participants

A sample of 42 undergraduate health care students was recruited by email or telephone. They were students in nursing (2), midwifery (2), occupational therapy (2) and physiotherapy (2), bio analytics (13), dental hygiene (9), and emergency care (12). The students were selected because they had completed the VireTori placement between May and December 2010. There were no exclusion criteria, but 10 invited students did not participate because they were sick or the interview time did not suit them. The VireTori placement was related to courses in the students' respective curricula. There were 28 third-year and 14 fourth-year students. The length of practice varied from one to eight weeks. There were 34 female and 8 male participants and the mean age was 23 years. The length of the study programmes are: 3.5 years (nursing, occupational therapy, bio medical technology, and dental hygiene), 4 years (emergency care), and 4.5 years (midwifery).

Data collection

The data were collected through six thematic focus-group interviews and background questionnaires. The focus-group method is a qualitative semi-structured interview technique to collect data through group interaction on a topic determined by the researcher (Carey, 1994). The discussion is moderated by a group leader and held in an informal setting, with the aim of bringing together a number of different perspectives (Morgan, 1997). The method was chosen due to the unique advantage it provides for collecting experiential data by stimulating group dynamics. The focus group sessions consisted of three stages: introduction, discussion and de-briefing. The discussion section was based around one theme, VireTori as a learning environment, and facilitated by sub-questions on the following areas: clients, learning by doing, health promotion, course objectives, personal objectives, self-regulation, atmosphere and interaction, supervision, practical arrangements, orientation, interprofessional working. The six interviews were done by two researchers at the university and were tape recorded.

All participants completed a one-page background questionnaire of 10 questions: two on demographics, two on education and six regarding their study period at the VireTori.

Ethical considerations

Permission to conduct the study was granted by the principal according to the protocol of the university. Oral consent was received from all the students in the introduction stage of each focus group session. In this stage, the researchers first introduced the participants to the aim of the study, and explained the elements of informed consent and the rules of the group sessions. The researchers were exploring their own work as well as that of colleagues, which was an ethical issue that required special attention. The anonymity/privacy of the participating students and the staff of the research university were carefully ensured by removing any detail enabling the identification of persons.

Quality and truth

The trustworthiness of the research was confirmed by assessing the research process using criteria of credibility, transferability, dependability and conformability (Lincoln and Guba, 1985). The credibility was enhanced by collecting diverse data. The participants represented various health care programmes and were keen to express both positive and negative experiences. These were specified using original quotations from the raw data. Transferability was

achieved through detailed description of the research context, participants and findings, to allow the reader to evaluate the applicability of the results. The researchers controlled the dependability by "bracketing" own positions and personal beliefs throughout the process as they were studying their own work. Bias was avoided by intensive collegial peer debriefing between the two researchers from different professional and research backgrounds. Neutrality and objectivity were controlled in that neither of the researchers had any kind of supervisory role concerning with the participating students. Conformability was achieved by providing the readers with a detailed description of the process of data analysis which reached the point of saturation.

Data analysis

The data were analysed using inductive content analysis adjusted from Miles and Huberman (1994). This was done in three overlapping phases: data reduction, data display and conclusions and verification. The method was chosen because it allows the categorisation of learning experiences. The purpose of the analysis was to classify the data and raise participants' concrete descriptions of learning to a more abstract level. Firstly, the tape-recorded raw data were transcribed into text format. Secondly, the whole text was modified into simplified sentences. Following this, the third phase was categorisation, during which the data were categorised into main and subcategories. Several different categorisations occurred during this phase until the final categories were found. Fig. 2 clarifies the categorisation phase of the analysis.

Throughout the categorisation, students' learning experiences could be seen as a continuum with the most positive experiences at one end and the most negative at the far end. The two extremes that clearly emerged from the data are depicted simply as the experiences of "happy and unhappy students" in terms of the professional role, work orientation and scope for action. Here, happy and unhappy refer to student satisfaction/dissatisfaction with the placement. The results are described using three main categories: personal, collaborative and organisational learning contexts and illustrated with authentic student accounts.

Results

The personal learning context

The personal learning context included learning experiences that were related to the student's self, involving three aspects (Fig. 2): self-regulation, desire to learn and self-awareness. The personal learning context was strongly related to the readiness to take a professional role during the placement, which could vary from novice to expert.

Happy students described that it was easy to formulate personal learning objectives for the VireTori placement. These students actively took advantage of their curriculum and course objectives in strengthening the practice. The students provided services, responded to the service requests, and even developed new services. They enjoyed having responsibility and being trusted. These students described how they expanded their role from novice to expert. Responsibility and working independently without too much involvement from the teacher strengthened their self-confidence. The received responsibility reinforced the expert role:

First student: It was a positive and totally new situation without the usual support and security, that is to say, without the teacher. Now I was certainly forced to think and make decisions by myself.

Second student: Yes, in a way I myself was responsible for the

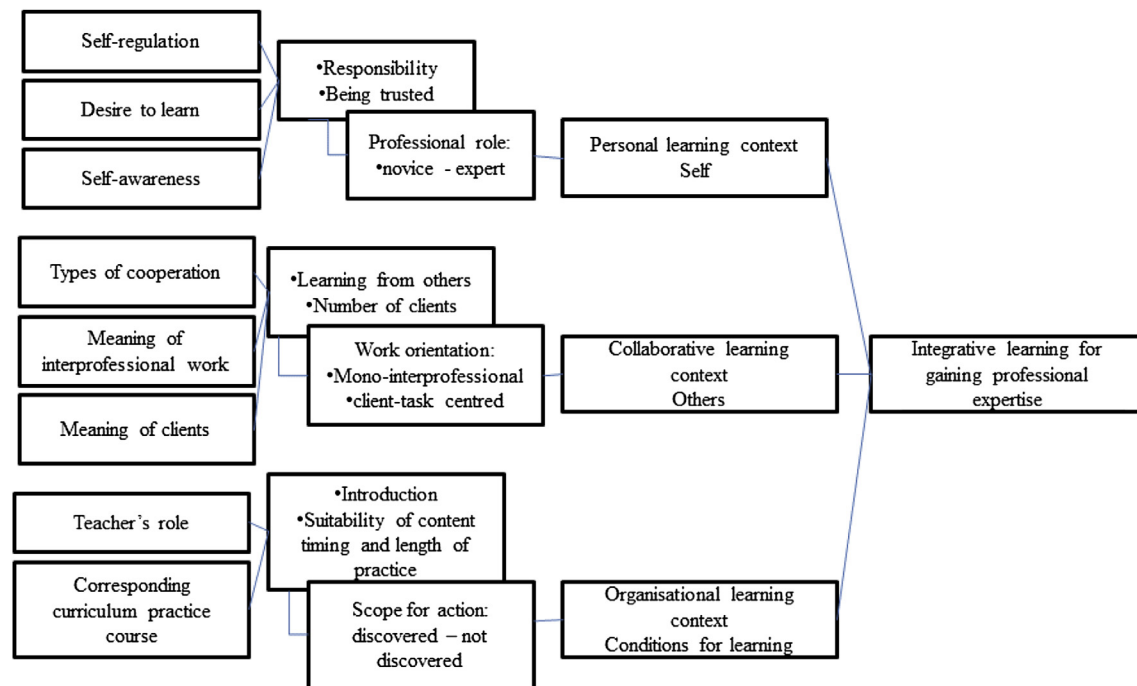


Fig. 2. The data categories of the study.

success of things and all the time I knew what to do. This really prepared me for working life and I definitely received a huge amount of skills for future professional expertise.

The unhappy students did not formulate personal learning objectives for the placement or did not remember them in the interview. They either did not have time (short practice) or selectively chose the existing services (mono-professional orientation). Thus their involvement in the service requests was marginal. Moreover, they were not immersed in learning experiences that required responsibility or trust. These students were stuck in the novice role. They felt that they received too little or too late supervision from the teacher. The unhappy students did not gain significant professional expertise from the VireTori practice:

If you had practised in a real hospital environment, you would have worked to the mandate of a registered nurse. There you would have had the responsibility to counsel and care At the VireTori you worked to the same mandate as any man from the street. ... Your responsibility was based on basic civil rights. Here the responsibility area is very narrow compared with the normal hospital placement. It is okay to offer free services to the citizens, but I don't understand why we have to provide them.

The collaborative learning context

The collaborative learning context included learning experiences connected with the student's relationship with others, and involved three aspects (Fig. 2): types of cooperation, meaning of interprofessional work and meaning of clients. This learning context was related to the student's work orientation and could vary from mono-professional to interprofessional, and from client-centred to task-centred.

Happy students worked independently, in pairs and in inter-professional teams. They experienced that this placement provided more interprofessional focus than any earlier placement. They learnt from each other, and the learning was five-fold: learning

occurred by modelling, asking questions, reflecting, critically evaluating and feedback. Happy students modelled their peers' ways of practice and enriched their own work orientation. When they encountered problems, they sought solutions together with peers by asking advice, reflection, and critically evaluating the limits of their knowledge. They experienced that the feedback from the other student encouraged them in their own practice.

The client work was experienced positively by all the students, but the number of encountered clients per day was a watershed. Happy students had no problem with the number of clients they had during a day. If they had fewer clients, they spent more quality time caring for them. Happy students had a client-centred work orientation:

It is a bonus if we work together with the occupational therapist that can do gymnastics ... Once we had a client who wanted to have health tests done. The occupational therapist student who came with us did facial gymnastics with the client in between the tests. ... Such an interprofessional working style gives so much more to the client than working only from the nursing perspective.

The unhappy students worked either alone or accompanied by their own classmates. They did not perceive the idea of interprofessional working and client-focused care mainly because of their strong mono-professional work orientation and the perception that one student cannot guide the other. Thus, the meaningfulness of the placement was lost, and they found it a waste of time. They also found that there were too few suitable clients per day. The unhappy students had a task-centred work orientation and mono-professional perspective:

First student: It was the first obligatory emergency care duty. We were supposed to behave as if we weren't there However, if somebody had died in the room, our resuscitation task would have started in that very room. The rest found us a necessary evil: get lost if possible. Second student: The interdisciplinary work sounds great all round and is a good objective for the school Many of us may be students in physiotherapy or paramedics with a non-holistic picture or experience of our future profession.

What is the interprofessionalism they can practice together? ... They should invest government money and employ registered professional mentorship. The interprofessional growth does not take place if two third year students hesitantly tell one another about their own profession.

The organisational learning context

The organisational learning context included learning experiences that were connected with the student's learning conditions, and involved two aspects (Fig. 2): the teacher's role and corresponding curriculum practice course. It was also strongly related to the scope for action during the placement, which either came to light or remained undiscovered.

The organisational learning context included experiences that overlapped between the happy and unhappy students. VireTori was a new type of placement, and consequently, the students would have needed an especially in-depth introduction. Both happy and unhappy students first felt that the introduction given by the teacher was missing, confusing and inadequate. Therefore, they were susceptible to negative hearsay from earlier VireTori students.

The initial negative opinion of the happy students changed during the practice. They realised that the new scope of action enabled a kind of learning of expertise that had not been possible in the traditional placement. They experienced that the content of the curriculum practice course was well-suited to the VireTori environment. The happy students (mostly third-year students) practised five weeks or longer and thus, had enough time to engage with the clients, plan the service packages and conduct them in interdisciplinary teams:

"You two go to VireTori," said the teacher. It was like we had been pushed to go there. There was no proper introduction of what to expect. Of course, at first this made our hair stand on end even more. What is this case? ... home health care at the VireTori? However, as I have said several times, finally I feel that the practice period was very rich and good.

The unhappy students (mostly the fourth-year students) practised some days at the VireTori. They felt that the scope of practice at VireTori did not match the aims of the initial curriculum practice course. They thought that they would have learnt more professional expertise if they had been placed in the traditional placements:

I have few positive thoughts to put into words. Firstly, the timing was very bad from the perspective of our other placements. It's away from our important practice course. Being forced to learn something completely useless instead of a placement where you would have been learning a lot. ... So I have pretty frustrating feelings.

Discussion

Summary of findings

This study explored the experiences of students in health care while practising at the Empowerment Market (VireTori). There were students who significantly increased their professional expertise during the VireTori placement, and students who were stuck in the novice role. Student satisfaction varied greatly and was described through the experiences of happy and unhappy students at the extremes of the continuum. The happy students had self-regulation, a desire to learn and self-awareness. They took responsibility, enjoyed being trusted and worked independently without expecting constant external guidance and teacher support. Bereiter and

Scardamalia (1993) have noted that working at the extreme limits of expertise may assist learners to surpass themselves. It seems that, here, the happy students increased their integrative thinking skills by repeatedly surpassing themselves, and overcoming the obstacles of the placement. This could lead to the tentative hypothesis that the learning process of happy students included several elements of the integrative pedagogy model introduced in this study.

The learning experiences of the unhappy students and the impressions given by them were the opposite of the happy students, and only included some elements of the integrative pedagogy model. They had difficulties adjusting to the VireTori learning culture and longed for the traditional hospital setting with a clear working model and constant guidance from teachers or preceptors. This provides data that should lead to improvements in the role of the health care teacher as a one-to-one supporter of student learning at VireTori. In order to increase student satisfaction, the number of meetings between a student and teacher must be increased. Furthermore, e-mailing, a virtual learning environment and texting could be taken into use, as recommended by Saarikoski et al. (2009).

Evidence has shown that students' stereotypical images of occupations can act as barriers to the interprofessional working model (Hudson, 2002; Hind et al., 2003), and that both interprofessional theory (Chan et al., 2010; Ateah et al., 2011) and clinical courses (Jacobsen et al., 2009; Ponzer et al., 2004) can provide students with an opportunity to develop their own professional roles and functions as team members. The research results of Katz et al. (2001) provide evidence that when students of physiotherapy and occupational therapy had shared curricular courses (25%), the interdisciplinary model fostered positive attitudes among them.

In the present study, the happy students worked flexibly in interprofessional groups and their work orientations were client centred. Conversely, the work orientations of the unhappy students were mono-professional and task-centred. They were anxious because the placement did not offer them experiences that trained them accurately in the special skills of their own discipline. The satisfaction of the students could be connected with the quality of supervision and students' perceptions of their professional role during the placements as shown by Ponzer et al. (2004). Earlier experiences and incomplete knowledge, along with the minimal supervision at VireTori did not provide the unhappy students with a clear model for interprofessional team working and its importance in health care.

The match of activities and the length of the placement were important factors that caused differences in VireTori student satisfaction. The unhappiest students spent only one week there, and most of them came from the cohort of fourth-year students. Levett-Jones et al. (2008) have shown that the length of the practice has an impact on students' experiences, as during the short practice period, the students have insufficient time to develop their skills and adapt to the socio-cultural working environment of the placement. Warne et al. (2010) found that the most satisfied students have a seven-week clinical placement stay. Conversely, Edmond (2001) showed that the learning experiences are more important than the length of the practice. It seems that more attention must be focused on the match of activities of the future student cohorts at VireTori in order to increase student satisfaction. It will also be imperative that the placement times be extended from one week to several weeks.

Evaluation of the integrative pedagogy model

Westra and Rodgers (1991) first launched the "concept of integration" into nursing science and connected it with the effectiveness of nursing care. Since then, the term has mainly been used in education sciences. The integrative pedagogy model (Fig. 1) was the

framework of this research. It was adapted from the studies related to knowledge creation in adult education by Tynjälä (2008, 2010) and Kallio (2011). The model was based on the expectation that the presence of the chosen elements would best support the development of students' integrative thinking and expertise during their VireTori placement. The study showed that VireTori was a placement that provided the students with good authentic and interprofessional learning opportunities. The students were actively engaged in the development of the services as well as the culture of VireTori, and their critiques of the circumstances were heard.

According to the students' experiences, however, components such as the presence of theoretical knowledge, theory–practice integration or integrative assignments were poorly introduced. According to Bereiter and Scardamalia (1993), an expert has practical experience and is able to make judgements in complex, contradictory situations based on tacit knowledge. There were many third-year students who were on the way towards that expertise, and many fourth-year students who were stuck in the role of novice. It seems that the improved identification of “unhappy students” will be essential in order to support their learning. As Kallio (2011) noted, integrative thinking is a form of adult cognitive development and is psychological in nature. Similarly, Westra and Rodgers (1991, p. 277) found that “integration is a useful evaluation of reconciliation of past and present identities and altered role relationships with the environment”.

In order to learn expertise, students should be supported more effectively in theory–practice integration, for instance, by connecting reflective theory workshops and assignments with the practice period. Students who had particular difficulties in the area of “the personal learning context” and weaknesses in self-regulation, desire to learn and self-awareness would have benefitted from such a collaborative theory–practice integration. As Kallio (2011) stated, the more one is a novice, the more dependent one is on external, learnt theoretical knowledge. Consequently, the more one has expertise, the more theoretical knowledge becomes integrated with pragmatic silent experience.

VireTori was a novel placement during the study period. It was a non-expert community with a minimal amount of established community culture. According to Tynjälä (2010), gaining professional expertise is collective and social in nature, and therefore, participation in the activities of the expert communities are imperative in order to gain integrative thinking skills. For this reason, the entire school community must take steps towards fostering the development of VireTori as an expert cultural community, and this calls for further research.

Study limitations

The researchers were teachers at the university. Although they were not involved with the practice in question and their prior contacts with the research students were minimal, it is possible that the students wanted to be as good informants as possible. They may even expect the researchers to act as their advocates in improving VireTori as a placement for future students. The process of data collection can be criticised for at least two reasons. The number of students per focus group varied from four to ten. In the large group, there may have been silent voices that remained unheard. Not all of the invited students participated. It can be questioned whether the experiences of these students would have extended the data.

Conclusion

The integrative pedagogy model is a worthwhile learning framework during a non-traditional VireTori placement.

Nevertheless, there are elements that should be more clearly emphasised in the further development of the framework. Students in health care can learn integrative thinking at VireTori, but there are concerns about how students' theoretical, practical, self-regulative and socio-cultural knowledge (Fig. 1) creation can be improved.

VireTori calls for self-regulation skills and compels students to design their practice activities in an interdisciplinary group without any support from preceptors and with minimal face-to-face contact with teachers. Therefore, gaining theoretical knowledge and the independent integration of this into authentic client encounters becomes imperative in order to complete the placement day. The availability and role of the supervising teacher as a supporter calls for specification so that students can combine theory and practice to make decisions in the care situations. The presence of a preceptor would also be advantageous so that students would have a professional role model and expert to reflect with and share emotions at VireTori. Furthermore, the preceptor might be a key person in strengthening the development of socio-cultural knowledge at VireTori together with students.

References

- Ateah, C., Snow, W., Wener, P., MacDonald, L., Metge, C., Davis, P., Fricke, M., Ludwig, S., Anderson, J., 2011. Stereotyping as a barrier to collaboration: does interprofessional education make a difference? *Nurse Education Today* 31 (2), 208–213.
- Barr, H., Freeth, D., Hammic, M., Koppel, I., Reeves, S., 2006. The evidence base and recommendations for interprofessional education in health and social care. *Journal of Interprofessional Care* 20 (1), 75–78.
- Bereiter, C., Scardamalia, M., 1993. *Surpassing Ourselves. An Inquiry into the Nature of Expertise*. Open Court, Chicago.
- Carey, M., 1994. The group effect in focus groups: planning, implementing, and interpreting focus group research. In: Morse, J.M. (Ed.), *Critical Issues in Qualitative Research Methods*. Sage, Thousand Oaks, pp. 225–261.
- Chan, E., Chi, S., Ching, S., Lam, S., 2010. Interprofessional education: the interface of nursing and social work. *Journal of Clinical Nursing* 19 (1–2), 168–176.
- Cooper, H., Carlisle, C., Gibbs, T., Watkins, C., 2001. Developing an evidence base for interdisciplinary learning: a systematic review. *Journal of Advanced Nursing* 35 (2), 228–237.
- Corlett, J., Palfreyman, J., Staines, H., Marr, H., 2003. Factors influencing theoretical knowledge and practical skill acquisition in student nurses: an empirical experiment. *Nurse Education Today* 23 (1), 183–190.
- Edmond, C., 2001. A new paradigm for practice education. *Nurse Education Today* 21 (4), 251–259.
- Griffiths, T., Guile, D., 2003. A connected model of teaching the implementations of work process knowledge. *European Educational Research Journal* 2 (1), 56–73.
- Hammic, M., Olckers, L., Campion-Smith, C., 2009. Learning in interprofessional teams: AMEE Guide no 38. *Medical Teacher* 31 (1), 1–12.
- Hawkins, R., Kroeger, S., Musti-Rao, S., Barnett, D., Ward, J., 2008. Perspective training in response to intervention: learning by doing and interdisciplinary field experience. *Psychology in the Schools* 45 (8), 745–762.
- Hind, M., Norman, I., Cooper, S., Gill, E., Hilton, R., Judd, P., Jones, S., 2003. Interprofessional perceptions of health care students. *Journal of Interprofessional Care* 17 (1), 21–33.
- Hudson, B., 2002. Interprofessionalism in health and social care: the Achilles' heel of partnership? *Journal of Interprofessional Care* 16 (1), 7–17.
- Hunter, D., 2010. How clinical practice placement affect professional development. *Emergency Nurse* 18 (5), 30–34.
- Jacobsen, F., Fink, A., Marcussen, V., Larsen, K., Hansen, T., 2009. Interprofessional undergraduate clinical learning: results from a three year project in a Danish Interprofessional Training Unit. *Journal of Interprofessional Care* 23 (1), 30–40.
- Kallio, E., 1998. *Training of Students' Scientific Reasoning Skills*. Doctoral thesis, Jyväskylä Studies in Education, Psychology and Social Research, 139. Retrieved from: <https://jyx.jyu.fi/dspace/bitstream/handle/123456789/13385/9513912922.pdf?sequence=1> (assessed 04.12.11.).
- Kallio, E., 2011. Integrative thinking is the key: an evaluation of current research into the development of thinking in adults. *Theory & Psychology* 21 (6), 785–801.
- Katz, J., Titiloye, V., Bologun, J., 2001. Physical and occupational therapy undergraduates' stereotypes of one another. *Perceptual and Motor Skills* 92 (3), 843–851.
- Koskinen, L., Mikkonen, I., Jokinen, P., 2011. Learning from the world of mental health care: nursing students' narratives. *Journal of Psychiatric and Mental Health Nursing* 18 (7), 622–628.
- Levet-Jones, T., Lathlean, J., Higgins, I., McMillan, M., 2008. The duration of clinical placements: a key influence on nursing students' experience of belongingness. *Australian Journal of Advanced Nursing* 26 (2), 8–16.

- Lincoln, Y., Guba, E., 1985. *Naturalistic Inquiry*. Sage, Newbury Park.
- Mann, K., McFetridge-Durdle, J., Martin-Misener, R., Clovis, J., Rowe, R., Beanlands, H., Sarria, M., 2009. Interprofessional education for students in the health professions: the "Seamless Care" model. *Journal of Interprofessional Care* 23 (3), 224–233.
- Mezirow, J., 1994. Understanding transformation theory. *Adult Education Quarterly* 44 (4), 222–232.
- Miles, M., Huberman, M., 1994. *Qualitative Data Analysis. An Expanded Sourcebook*. Sage, Newbury Park.
- Morgan, D., 1997. Focus Group as Qualitative Research. In: *Qualitative Research Methods Series*, second ed., vol. 16. Sage, Thousand Oaks.
- Ponzer, S., Hylin, U., Kusoffsky, A., Laufts, M., Lonka, K., Mattiasson, A.-C., Nordström, G., 2004. Interprofessional training in the context of clinical practice: goals and students' perceptions on clinical education wards. *Medical Education* 38 (7), 727–736.
- Saarikoski, M., Warne, T., Kaila, P., Leino-Kilpi, H., 2009. The role of the nurse teacher in clinical practice: an empirical study of Finnish student nurse experiences. *Nurse Education Today* 29 (6), 595–600.
- Souers, C., Kauffman, L., McManus, C., Parker, V., 2007. Collaborative learning: a focused partnership. *Nurse Education in Practice* 7 (6), 392–398.
- Tiilikainen, P., Laitinen, M., 2010. *VireTori Activity – Keys to Enhance the Well-Being of the Population in Northern Savo Project. Final Report 1.3.2008–31.5.2010*. The publication series of Savonia University of Applied Sciences D4/6/2010 (in Finnish).
- Tynjälä, P., 2008. Perspectives into learning at the workplace. *Educational Research Review* 3 (2), 130–154.
- Tynjälä, P., 2010. Pedagogy for professional expertise development. In: Collin, K., Paloniemi, S., Rasku-Puttonen, H., Tynjälä, P. (Eds.), *Creativity, Learning and Professional Expertise: the Perspectives of Education and Working Life*. WSOY, Helsinki, pp. 79–95 (in Finnish).
- Warne, T., Johansson, U.-B., Papastavrou, E., Tichelaar, E., Tomietto, M., Van den Bossche, K., Flores Vizcaya Moreno, M., Saarikoski, M., 2010. An exploration of the clinical learning experience of nursing students in nine European countries. *Nurse Education Today* 30 (8), 809–815.
- Westra, B., Rodgers, B., 1991. The concept of integration: a foundation for evaluating outcomes of nursing care. *Journal of Professional Nursing* 7 (5), 277–282.