Analysing two team working scenarios in the context of SECI, Ba and the transference of knowledge

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Abstract. In this paper we will describe through SECI and Ba the concepts brought forth by Nonaka and Toyama. We also explore the aspects from Sveiby's transfer of knowledge view. The purpose is to interpret the different dynamics of knowledge creation and transfer between and among working groups. We have chosen two distinctly different group working modes for this article, because it allows the possibility to show variety and extent of knowledge transfer that is possible. We also attempt to delineate the differences between cases 1 and 2.

Case 1: during the Green Thinking course of the Oulu University of Applied Sciences the Finnish and international student groups were mixed in several classrooms, after which smaller groups were made for team working. Those groups were supposed to have people from many nationalities, and people who did not know each other. The task was to find solutions for commissioner companies for being greener, so it demanded discussion and team work. For the start companies informed students how they worked at the time and what they had already done.

Case 2: is chosen from professional working group; peer-learning in the nursing profession. This was selected for its uniqueness and learning value. Registered nurses working in Intensive Care Unit at the Oulu University Hospital are the focus group. The nurses have different levels of working experience and backgrounds. The purpose of the quality teams is to build on knowledge and transfer knowledge and skills so that all involved in patient care will have a sturdier foundation of knowledge and skills competencies to practice nursing in the intensive care setting.

Keywords: Knowledge transfer, Team work, Group work, SECI, Ba

1 Selected group work cases

Two very different group work cases were selected for this case study. The reason for these different selections is to show a variance between the different types of group working styles and content.

Case 1: Green thinking student group work - Oulu University of Applied Sciences

Case 2: Peer learning workplace case - Oulu University Hospital

1.1 Green thinking student group work

The main characteristics are primarily teamwork with specific time margins, different people with different strengths and weaknesses, exchanging ideas in an open environment. There were students from different nationalities and study groups. The exchange of knowledge and learning to work with different people was the main reason for this sort of arrangement.

For this specific student group work the international students were divided into small groups having 4 - 6 students in each group. Those groups were supposed to have people from many nationalities, and people who did not know each other.

The commissioner company for the small group in question was Taitonetti Ltd, an Oulu based SME company engaged in retail of computers, other IT equipment and software as well as the maintenance of personal computers. The aim of the group work was to enhance the environmentally friendly processes of the company. In other words: to help the company to be "greener". At the beginning of the project the entrepreneur informed the student group about the present practices and processes in the company. Based on this company specific knowledge, the student group innovated improvements for the company.

1.2 Peer learning workplace case

The system for Intensive Care Unit (ICU) teams at the Oulu University Hospital works as follows. There are 15-17 different teams that have between 3 to 5 members in each team. Every team has their own subject area of specialty. An example team is Cardiac patient care team. We will use this team as an example case from now on. The task of the team is to gather information and documentation, plan a learning and training session then disseminate to a bigger group as an expert panel as well as answer to questions and provide further information where needed. Therefore, case 2 is somewhat different from case 1. It involves two tiers of groups, one expert group and then an expert "panel". Figures 1 and 2 depict the images of the type of group work in question for case 2.



Fig. 1. Quality Assurance teamwork planning phase

Figure 1 shows that in the workplace the quality assurance team first works separately as a small expert team during their planning phase. They are able to contact other colleagues for information at any point in time. The

work time allocated for the small expert team to plan is 4-6 hours of content planning and reviewing own knowledge base including preparing for the presentation. Then 1.5 to 2 hours of dissemination and panel work is allocated. Altogether this takes one shift consisting of 8 hours; in practice, it takes an entire morning shift. The larger group consists of colleagues and peers who are listeners and peer experts in the dissemination event; during this time listeners are also active participants. Listeners can pose questions and the panel or other colleagues present will respond. This process takes place 2 -3 times in one year per quality assurance team.



Fig. 2. Quality Assurance teamwork dissemination phase

Figure 2 depicts the dissemination phase for the expert team. At this phase the expert panel spends 1.5 -2 hours disseminating specific topic for the listeners (consisting of 20-30 up to 50

participants) who are nurses with varied work experience and expertise (they can be nurses who just arrived from the school bench or those that have been working for over 30 years). There is freedom to ask and pose questions and discuss difficult issues in retrospect or clarify previously unclear concepts or practices. There is usually active participation and new information is disseminated along with established ones.

2 Analysis of the group work cases

For the analysis of knowledge creation and transfer, we chose to describe the aspects with SECI and Ba by Nonaka and Toyama, and Nonaka and Konno; where knowledge creation is deemed as a synthesizing process that require strategy and organisation. SECI is also a spiral process that is ongoing and ever-developing. [1], [2]

The processes occurring in the ICU setting is also in agreement with the concepts of direct and indirect transfer of knowledge as introduced by Sveiby. [3]

2.1 Analysis of the green thinking student group work

Socialization

All students have some kind of experience from former group projects, whom all have gained different tacit knowledge. Every individual had their own task within the group, but first the case was discussed together between all group members. In this phase students shared experiences from which they had learnt and shared them to help the group achieve its purpose; helping Taitonetti Ltd with green solutions.

Externalization

The group work was shared in Google docs environment where everyone wrote down their own ideas, after which they were circulated between the group members. Different members could therefore read what their fellow group members had in mind. Ideas as well as knowledge were articulated.

Combination

After the group members have shared the information via Google docs, they met again to evaluate and sort out which was the most ideal solution for the company. The meeting included finalizing the outline of the project work and combining ideas. The group visited the case company and learnt what measures they had undertaken to keep the environment green. This helped them in coming up with concrete ideas of helping the company achieve better green goals and not to repeat ideas which were already done. The students combined this information with what research they had done before; checking out green solutions and their practicality from various sources; internet journals, articles, etc.

Internalization

When the finalized project is presented to the company, the group members have gained new knowledge and experience. This will help in future work situations and the knowledge has already been transformed into tacit knowledge.

2.2 Analysis of the peer learning workplace case

Nursing work at the Oulu University Hospital is always based on team working—your team is the shift you work with, and multidisciplinary cooperation—apart from nurses; there are doctors, physiotherapists, pharmacologists, expert consultants, social workers, lab technicians, equipment technicians and ancillary staff. Every registered nurse employed at ICU must have completed a minimum of 3.5 years of nursing studies and have a bachelor's degree in nursing from University of Applied Sciences or parallel institution. Before practicing nursing however, S/he must have a permit to practice the profession. Therefore, a nurse has to have a degree in nursing as well as a corresponding licence to practice. The above serves as a foundation for what comes next.

Strategy and knowledge creation

Nonaka et al reiterated the importance of strategies for positioning to gain competitive advantage as Porter's model proposes. Organisations such as Oulu University Hospital also have to assess internal strengths and weaknesses as well as understand external forces affecting them such as the opportunities and threats.

This SWOT analysis and comprehension of the results form the basis for strategies to improve on an organisation's internal knowledge creation and transfer. The skill and adeptness at doing this will improve the organisation's competitive advantage. However, in nursing, it is the available, retained and trained human resources that can be the basis for competitive advantage in addition to non-human resources. How the organisation's management is adept at making use and keeping valuable resources through continued training and exchange of tacit and explicit knowledge among workers, is the key to success or stagnated development.

Knowledge synthesising –SECI: peer learning at ICU

Socialisation

Experiences from daily routines and working practices in the ward which happens while nurses work together in close proximity on several patients at a time are discussed and views are exchanged. At the planning phase, nurses reflect together on the guideline documentations on patient care and the practice carried out in the ICU based on them. Then active discussion is carried out on whether the guideline and practice (observation and bedside nursing practices) match. If they do, then discussion is carried out on how and why. If they do not match, further discussion is also carried out on what, how and why there are discrepancies between the guideline literature and the practice.

At this stage nurses reflect upon a pool of experience that they have. Younger members have less experience and those who have been there longer, have more and are able to give more precise explanations of differences and changes. At this phase, tacit knowledge is being shared through discussion of experiences.

Externalisation

At the planning phase the small group also writes up the day's presentation material and contents. This includes updating the information on the presentation slides to incorporate new information. However, before new information can be disseminated, they must be reviewed and acknowledged by the director of the ICU to ensure that they align with the principles of conduct of Oulu University Hospital. Here the questions that rise about the differences in theory and practice or other discrepancies are addressed by the planning team. This includes the previous questions posed by peers on a previous peer learning session.

After all the required information is compiled and acknowledged by authority, the presentation is then compiled. During the dissemination phase: nurses in the expert panel present their discussed findings to the larger peer group about the day's topics. They deliver the presentation while allowing discussion and answer to questions that arise or anticipate the questions that might arise. Explanations for the different procedures and practices are given here.

Both novice nurses and experienced ones sit side by side in the lecture hall and everyone can question or express own opinion during the dissemination phase. At this point, those who need to confirm their information

or knowledge will be able to get them. Experienced peers are able to provide explanations on what, how or why certain activities are carried out on patients or the different practices in patient care that assist in the patient's healing and ambulation. Young fresh nurses learn from their experienced peers and the experienced peers learn from the novices who have learnt fresh new techniques from the school or other places. Exchange of learning and knowledge actively take place at this stage. Passive learning also takes place as well as updating own knowledge during the presentation during which, tacit knowledge is made explicit.

Combination

After the dissemination phase, the planning group goes back to the computer and inputs the new information onto the documents. These are then filed forward to the authorised staff to view and accept into practice for future use. The quality team tries to ensure that there is consensus in the ICU about the practices discussed and that they are beneficial in the care of the patient. These documents are edited and updated, then forwarded upstream to ICU management who will review them and give a go light to saving them into the nurses' intranet for referential use in future. When the go-light is received, the documents are uploaded into the ICU online handbook of nursing and serves as referential material for all the ICU staff. This way the knowledge of the staff is maintained and kept up-to-date and skills can be improved.

Internalisation

At this stage the nurses in the ward make use of the new knowledge while practicing patient care in the ICU. Here they discern through reflection and practice, whether the peer learning that took place has been useful or beneficial in improving their knowledge and skills. They can use the intranet resources to guide them in their practice and also review amongst themselves how the changes that were made have been good improvements. Furthermore, they can ask their peers and workmates for assistance or guidance at any time during the shift. The explicit knowledge is then turned to tacit knowledge. If nurses discover that there is more that needs to be done, they inform the quality assurance team concerned and they will in turn, address the issue in their next planning and presentation phases. Nurses also have an obligation to give 6 month guidance to new nurses or staff members. They are assigned a senior staff nurse to mentor them.

Hence, SECI in ICU is a cyclic spiral of tacit and explicit knowledge movement that continuously evolves and changes according to the change in time, technology, cultural practices, knowledge and experiences for best practice.

Place for knowledge creation—Ba—ICU peer learning

The ICU is a limited environment in terms of surface area. The ward is a physical place for all the medical and nursing staff of ICU to meet, work and exchange knowledge and information. All nurses have access to patient monitoring data and patient medical history to understand the patient's need for care. Equipment in the ICU is available for nurses to use whenever their patient needs them. There is internet access although this is limited during the work-shift but the Intranet and all the available nursing practice guidelines and instructions are

available at each nurses' workstations bedside. Furthermore, many wards have on-call doctors and nursing staff with whom ICU staff can speak with on the phone or via email if necessary.

Hence, in terms of a place for knowledge creation—Ba, there is a ready platform in the ICU that is constantly in use 24 hours a day and 7 days a week. The ICU alone is a rich environment for the creation, sharing and transfer of knowledge on best practices in providing care for the ICU patient.

Originating Ba

Staff meets face to face at the ICU on a daily basis. There are 3 shifts that staff the ICU every day so that there are always nursing and medical personnel in the ICU. Here exchanges take place any time of day and every day of the week. Hospital staff is bound by strict confidentiality rules and so the closed environment of the ICU allows them to talk more freely on matters concerning patient care. At this interface, the staff can discuss even serious and sensitive matters with their peers as it is the professional working environment as everyone has the same outward responsibility for confidentiality.

Interacting Ba

During the planning meeting and dissemination meetings of quality teams as well as staff meetings. Nurses are able to meet and discuss in a more specialised manner and turn tacit knowledge into explicit knowledge. This meeting can happen face to face or also via phone conferences. Testing and implementation of new software or equipment are also given attention by devoting special time to them. This is facilitated by the ICU management staff who make sure that everyone has a chance to get to know of the product, software or equipment during their shifts and receive some training as needed.

Cyber Ba

Using the Intranet platform, nurses are able to use the documentation and libraries of the University hospital as a source for learning and knowledge acquisition. Email is also used by nurses when requesting information or consultancy on patient care matters. They can go to the Internet to find information and knowledge as well. Although they can browse the internet and see many new processes and protocols for practice by different hospitals and ICU or critical care settings, nurses are primarily bound to practice within the framework of the University hospital's own working principles. New knowledge implementation needs to be acknowledged and approved by the proper-in-house authority.

Changes in practices, protocols, procedures and technology for example are disseminated downstream to the staff by management via e-mail, intranet, announcements, and flyers or pamphlets or booklets left on the staff desks for referencing.

Exercising Ba

Is seen in most prominently at the patients' bedside in the ICU where nurses work together and the more experienced nurse mentors the younger, less experienced nurse while conducting hands on nursing at the same time. The nurse explains step-by-step different procedures and their rationale based on the nursing process and use nursing principles to guide the nursing work.

At the dissemination phase of the peer learning, exercising Ba is seen as the setting when nurses sit side by side and talk with and among each other about current matters in patient care and sharing of knowledge takes place.

The knowledge base of the entire ICU ward is gathered in this way and new knowledge created is also disseminated in a cycle so that eventually everyone gets the same information. At the planning and dissemination phases of the meetings quality team nurses ensure that all receive the same information and knowledge is disseminated with explanations and if necessary using demonstrations and equipment where possible.

Transferring knowledge within the profession

Intensive and critical care nursing is such a specialised area of nursing that requires from nurses various skills to protect the life of their patient. These specialised skills are not easily transferred from one profession to another. It is also not easy to transfer between nursing levels and types. Knowledge and skills in acute nursing are also not-readily transferable to other professions as it takes time to learn and its measurability is hard to determine in an alternative scenario. The complexity is compounded further by the fact that patients are individuals and as individuals they present unique situations for care as well. So nurses have to specialise, evolve and continuously be able to modify their actions depending on the patient type and needs.

Transfer of knowledge within the profession here is best achieved when nurses can spend time in the ICU. Intensive care nursing experience-based knowledge is unique to the critical care setting and palliative care settings have their own. That is also why nurses on exchange within the hospital wards take up to 6 months so that they can learn the job. Short-term exchanges are possible between intensive care units but for other wards, the exchange duration is 6 months to 1 year. This is what the organisation determines the time needed for nurses to adjust, learn and become competent in the new setting.

Therefore, this acknowledges what Sveiby expressed that knowledge transfers best through tradition and social interaction among people. The ICU setting brings forward the fact that tacit knowledge underlies the actions of nurses and becomes explicit when called upon to express reasoning for different actions. Nurses sometimes wonder why peers seem to instinctively know what to give the patient at certain situations and how quickly to react to something. The novice will take time to do while the experienced nurse will do very briskly, especially during a life threatening event. Explaining why is harder than explaining how and what.

The availability and sharing of knowledge at the University hospital: The intranet in the hospital is a medium that permeates throughout the hospital. Even non-nursing staff in the hospital can access the different quality and care handbooks articles and guides for nurses and doctors. Staff in the hospital can learn about all published activities within the hospital itself.

Transferring knowledge within the ICU is extremely important because of the ever-changing environment of acute nursing care. The change in generations where experienced workers are retiring and new ones enter to take their place require systematic handling of the processes for knowledge creation sharing and transfer in the ICU setting. By forming quality assurance teams, The ICU tries to ensure that nurses and peers take responsibility for improving and keeping up on their knowledge and skills as well as share them so that a solid foundational base for practice is achieved.

3 Results and conclusions

We believe that there are similarities and differences in the way expert groups or student groups function and how knowledge is acquired, retained, developed and transferred among the different groups.

3.1 Main similarities of the two types of group working

There are some similar features in the two types of group working methods that extend to group gathering, processing and discussion. Groups make use of Internet and –like media. There is the consensus building part and decision making that they have in-common. Beyond this, there is a world of difference.

3.2 Main differences found between the two types of group working methods

There are several differences that can be found between the two working methods. Firstly, the student working group consists of students with different experiences and backgrounds whose approach to the task also vary due to their cultural and working backgrounds. The nurse group however share a common foundational basis; namely their nursing education. They also share the same workplace and working environment where there is also a common working culture.

Secondly, the student group working technique showed that their task oriented approach is based on individual inputs that are then collated and put together to yield result which is a compilation. The nurse group however work based on shared experiences and tight-knit discussion of problems. There is mentoring and peer learning on a daily basis.

Thirdly, the student group may be randomly put together, therefore they have to go through the processes of forming, storming, norming before performing. Meanwhile the nurse peer group consists of people who know each other and work with each other for varied lengths of time. They skip through the forming, storming and norming phases and can go directly to the performing phase. This allows for more in-depth learning and dissemination of knowledge. Therefore the outcome of such group working would also be very different. Besides, student works may be one-off projects while professional quality assurance and management is an ongoing process.

A difference between the use of platform or space for learning can be seen between the two types of work as students use the Internet media more than the physical one as an exchange medium for knowledge flow. Meanwhile the nurse group rely more on the physical place of working; namely the ICU as Ba for learning.

SECI and Ba is apparent in both types of working groups. Albeit the differences in the targets and outcomes of the different group works, clear elements of Nonaka's SECI and Ba are identified in both group working methods. By applying SECI and Ba to analyse the creation, sharing and transfer of knowledge in the two different group working types, we discover that there can be differences in the outcomes of the quality of knowledge produced depending on the type of human resource inputs involved. When professionals meet, the outcome is different as when students meet. Most often this is the case.

We also discovered that the tacit and explicit knowledge acquisition and transfer happens most where there is exchange between new workers and older experienced workers. The same may apply to student groups. There may be those who have done many types of group works before and those who have not. The outcome of such groups will also vary. Contact will also vary between direct and indirect. In any case; Knowledge is transferred.

This work does not however discuss how deep the knowledge is and what the quality of that knowledge is in terms of value. From an organisational point of view, peer learning like this for the ICU helps strengthen the working practices of the ward. Competitive advantage, however, cannot be measured by viewing through the peer learning. It must be measured through the practices and outcomes of the nursing work carried out by the staff in comparison with other university hospitals in Finland.

Literature

- 1. Nonaka. I., Noboru. K., 1998. The Concept of "Ba" Building a foundation for knowledge creation. *California Management Review Vol 40, No.3. Spring*. P. 40 54. ABI/INFORM Global. Pdf document.
- 2. Nonaka. I., Toyama. R., 2003. The knowledge-creating theory revisited: Knowledge creation as asynthesising process. *Knowledge Management Research and Practice1*. P.2-10. Palgrave-Macmillan Ltd. www.palgrave-journals.com/kmrp. Pdf document.
- 3. Sveiby. K-E., 1996. Transfer of Knowledge and the Information Processing Professions. *European Management Journal Vol. 14, No.4. Elsevier Science Ltd.* GB. P. 379-388. Pdf document.

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