Indigenous Design: healthcare professional using self-produced video in articulating and developing work practices

The paper discusses a design project at an intensive care unit with the intent to support informal learning that ended in a solution where the staffs produce short movies on work practice procedures that are made available on handheld computers. The making and reviewing of the videos proved to be a valuable tool in indigenously designing new work procedures. The article begins with looking at how the staffs design local routines. We argue that local rather than top-down standardizations are more useful, since they are tailored to the local needs and given meaning through participation. We then take a closer look at three examples of self-produced videos and what kind of collaborative discussions about work procedures they facilitated. With the help of the concept of "framing" the concept of "reification/participation" and "conscription device" we will discuss why the self-produced videos worked well to facilitate continuous learning and could provide "softer" more local and ephemeral standards from the bottom up perspective. We conclude that the staff have adopted a complementary reflective practice building on their tradition of indigenously designing their practice, but now equipped with a visual representation that are akin to engineers and designers way of using drawings as conscription devices.

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INTRODUCTION

In a participatory design project KLIV (Continuous learning in health care) at an Intensive Care Unit at Malmö University hospital premises to enhance continuous learning through self-produced videos made available on handheld computers was developed. Central to the project was to explore how the healthcare staff indigenously could produce their own learning material and thus in what way reification of knowing could make sense. In *Beyond the stable state* Donald Schön pointed out that our society and institutions need to be able to manage continuous processes of transformations by becoming learning systems that can respond continuously to changing situations and a changing world [28]. If organizations are constantly evolving inevitably content or reification used also need to evolve.

Human intelligence or know how can never be captured, mechanized and preserved in any large extent as Dreyfus [10, 11] and Suchman [30] have showed and Benner [2, 3] and Josefson [17, 18, 19] within healthcare have argued. Plans and routines can only function to a certain extent; competent action does not follow scripts for action. These are well-grounded objections to reifications, but there is another side to the coin. Nardi [23] has argued that formalized conducts and formal artefacts for notations have their purpose and are meaningful for human conduct and often used within professional practices. But for them to function well they need to be easily adoptable and tailored to the local needs. Computer systems seldom allow practitioners to locally tailor the programs although such tailoring is often strongly needed. Similarly Henderson and Kyng [15] have argued for the need for tailorable computer programs. Although we have not per se designed computer programs, but rather studied how off-the-shelf products and self-produced content could be tailored to the practice, where we particularly have emphasized the importance for learning material to be open-ended to be more easily integrated into an evolving everyday practice [4].

We will argue that although a climate of increasing forces for top down standardization of procedures in the health care sector, practitioners continuously design and adapt procedures to fit their local contexts. With the help of new technology in the form of handheld computers and DV-cameras self-produced video seems to have some qualities that make it appropriate to function as a tool to enhance locally designed procedures in the daily practice. We will look at some arguments for and against standardization and reification and we will see how practitioners at the ICU design and re-design local routines, guiding documents and work procedures. Then take a closer look at three examples of self-produced videos tracing the discussions about work procedures they facilitated. With the help of the concept of "framing" from Schön [26], the concept of "reification/participation" from Wenger [33] and "conscription device" from Hendersson [14] we will discuss why the self-produced videos worked so well to facilitate continuous learning and could provide "softer" more local and ephemeral standards from the bottom up perspective. All of these concepts stress the importance of externalisation in some

way or another; be it through conversation, text, drawings or other forms of visualizations such as video. Further, all of them stress that their meaning is dependent upon participation. In short it could be said that externalisations, be it temporary framing, reifications, or conscription devices, and participation are mutually dependent upon each other. The externalisations are of little meaning without participation and participation needs externalisations to develop a common ground, to create a shared identity and for communities of practice to move forward and develop. When making the videos the staff, we will argue, have adopted complementary reflective practice building on their tradition of indigenously designing their practice, but now equipped with a visual representation that are akin to engineers and designers way of using drawings as conscription devices.

THE SITE AND THE KLIV-PROJECT

The Intensive care unit (ICU) consists of two units: a general intensive care unit and a post-operation unit that staffs 140 people. The different professions working there are intensive care physicians and anesthesiologists, ICU specialized nurses, nurse's aides, physiotherapists and a social worker. The general intensive care unit has a capability to treat ten patients. An intensive care unit patient is a patient that needs assistance with upholding life-sustaining functions such as circulation and respiration, but the illness that has lead to that condition varies. Most of the rooms room two patients. Normally a nurse with the assistance of two nurse's aides cares for two patients; else if a patient's condition is more critical a nurse cares for one patient with the assistance of a nurse's aide. On a shift three physicians are at the unit, where at least one of them is a senior physician.

The KLIV-project

In the KLIV-project we explored how IT could support informal learning within the Intensive Care Unit (ICU) at the University hospital in Malmö. The project was conducted as a long-term dialogue oriented design process where interaction designers and ICU staff collaborated, drawing upon the tradition of participatory design [12,13]. Our interest in the project was to see if IT-support for learning could be less centered on the sole user studying at a desktop computer. Following the tradition of ubiquitous computing [32,24] we wanted to see if in some way it would be possible to go beyond the desktop and let learning become a more integral part of the day-to-day work. When conducting the initial field study it became apparent how important practical day-to-day situations and problems were for learning. Also it became apparent that the staff was continuously developing their practice; questioning ways of working and developing new routines. The qualities of collegial learning and the positive energy and the satisfaction invested in producing their own material for moving the practice forward inspired us, but also challenged our understanding of how information technology could make sense to their practice. These observations are closely in line with Lave and Wenger's notion of communities of practice as self-organising learning systems where knowing, meaning and identity are negotiated and continuously evolving [22].

A learning resource, drawing upon the well-established traditions for collaboration and mutual assistance among the nurses, and well-developed oral traditions for learning, was developed where the staffs make short instructional videos for each other on certain tasks. The cameraman edits the films on location in the camera (fig. 1). The videos are made available with videos barcode cards that are placed out in the workplace. Video barcode cards are small cards with a still image from the video, a title and a barcode. A collection of these small cards is placed near the handheld computers. The cards have the double function of making the videos present in the milieu as well as easily accessible. When the staffs need to be reminded how a certain task is carried out they pick and scan the desired card and watch the film on a handheld computer (fig. 2). In the movie a colleague shows how a task is carried out integrating guidelines gained from experience. Typically the staff starts by making a draft movie without much preparation where they film a colleague that is considered to be skilled in a specific work procedure. This first shooting works as a sketch, a "framing", of the procedure and immediately reviewed in the display of the DV-camera. If something is missing sequences are re-shot. Then they are collaboratively reviewed by colleagues, to enhance discussion, at a stationary computer and comments made on a pre-printed questionnaire. Finally the movies are reviewed by an expert group and made available on handheld computers.

Two nurses shooting a video

Two nurses using a video available at a handheld computers as support in the daily work

INFORMAL LEARNING AND COMMUNITY SPECIFIC REIFICATIONS AND EXTERNAL STANDARDIZATIONS

Standardizations and informal knowledge

Recent attempts have been made to formalize nursing knowledge. One example is the Nursing Intervention Classification (NIC), which is a classification system that, among other things, directs nurses on which activities to perform in the daily work and is used to select data for research. The main reasons for developing the classification system is to make nursing work comparable across sites and make it possible for nursing as a profession to enter into the

scientific arena. Also, nurse's work has traditionally been invisible and an often-used argument for classifying their work is that classification is needed to make their work visible [6]. However, the classification system has its problematic sides. Regional variations are difficult to account for in the classification system. The system foregrounds certain aspects of the work, while other aspects are played down. Also going from being completely invisible to being too visible is not in the nurses' interest. Important for the nurses' self-image is to be able to uphold a degree of local autonomy where local differences are recognized and procedures are not specified in detail by a non-local actor. Several members of NIC have stated that the classification is maybe too strong. Patricia Benner, in her study of intensive care nurses, has also pointed out how formalization can be problematic; worsening nurses' performance if forced to follow them strictly. She states that variations and exceptions in real clinical work go beyond formal rules and written procedures in textbooks. Treatments are often prescribed without guidelines of how to perform them practically. Benner recommends real examples situated in a context as a better resource for a nurse than context independent rules [2].

Reification and participation

An interesting approach to how communities of practice maintain and evolve their knowing and a possible explanation of why documents, routines and procedures need to be produced continuously and locally is elaborated by Etienne Wenger [33] with the help of the terms reification and participation. Wenger defines reification as when a certain understanding is given form or "thingness", an object or point of focus around which the negotiations of meaning becomes organized. However, according to Wenger, these objects are only the tip of an iceberg and they indicate a larger context of meaning that is embedded in human practices. Quite a lot of the qualities of reification; its succinctness, its portability, its potential physical persistence and its focusing effect- can as well be its weakness. It can easily become a substitute for a deeper understanding where 'procedures for example can hide broader meanings in blind sequences of operations.' Wenger emphasize that reification is tightly connected to and only makes sense in a duality with participation. The processes can be woven together so tightly that the distinction between them seems almost blurred. 'Participation makes up for the inherent limitations of reification.' Reification as a constituent of meaning is 'always incomplete, ongoing, potentially enriching, and potentially misleading.' 'Participation is essential to repairing the potential misalignments inherent in reification' [33].

Developing local routines at the ICU

Standards have also grown strong in Sweden which affects the ICU unit we are collaborating with, one example is the electronically available national handbook (http://www.infomedica.se/handboken/default.asp), which purpose is to give an overall guidance on how to carry out work procedures conducted within Swedish health care. The national handbook being an overall guide every clinic has to decide if the guidelines will be implemented. However, certain guidelines have to be complemented with local guidelines and instructions. The statute for instance states that the clinic has to develop local routines concerning the administration of medicine: which medicine can be kept outside the pharmaceutical storage room, who should have keys to the room, how medical waste is handled and how locally tailored diluting schemas are made. The ICU has over one hundred local routines. Receiving patients from other units, the ICU also uses other clinics' local routines such as the routines from the Transplantation clinic on how kidney transplant patients should be cared for.

Local routines can come about for different reasons: because the statute states that a routine should be made, a staff member has needed but not found a routine when confronted with a task, because of an incident or because the nurses question the current way of carrying out a procedure. In all the cases a request for the development of a new routine or that an amendment should be made to an existing routine is submitted to the nurse in charge of the local routines. She in turn delegates a staff member to collect data that becomes the basis for writing the new routine. Some local routines demand that a study, in some instance involving all the different profession, is conducted while others are authored after having gathered data from other clinics, books and articles. Before publishing the local routine staff members are asked to comment upon them and finally the senior physician examines it and if found sufficient signs it. In more or lesser degree the different ways of developing a local routine is opportunity to enquiry closer into how a procedure is currently conducted, how other clinics carry out the procedure, and what has been written about it. The developing of local routines are therefore not only a study and sharing of knowledge across competences within the clinic, but also knowledge sharing across clinics.

Amending the local routine on lung thromboses

The intensive care unit, as stated earlier, applies other clinics' local routines, since they can come to treat their patients if they are judged to be intensive care patients. Patients treated for lung thromboses are Vascular Clinic patients, but are sometimes treated at the ICU because the medicine that loosen up the thrombus dilutes the blood and the risk for bleeding is high. The intensive care unit follows the Vascular Clinic's routines when preparing the patient for treatment. The routine states that a catheter to the urinary bladder is to be set on all patients. Several nurses questioned the necessity of this since the treatment carried out at the intensive care unit only lasts two hours. If a local routine is repeatedly being question, then the purpose of it looses it meaning and demands that an enquiry into why it is needed or if it can be changed is judged necessary. The enquiries lead the nurse in charge of local routines to contact the head of the Vascular Clinic that had authored the routine to find out why all patients needed urinary bladder catheter. She explained that it was a general routine for all thromboses treatments, and that some thromboses treatments are done over a long time span. This lead the ICU nurse to contact the Cardiology clinic, because she knew that they give their heart patients a short and intensive thromboses treatment similar to the one given at the ICU. It turned out that none of their patients are given a catheter. Upon hearing this and judging from the similarity of treatments the Vascular Clinic decided to amend their routine writing that in cases of short and intensive treatments catheter to the urinary bladder is not needed.

The development of routines, as stated earlier, are not only made because the statute demands it, but because the dynamics of the workplace practice demands an ongoing change of routines or in other words a re-articulation and redevelopment of work procedures. The same goes for other types of documents as well such as shortened versions of instruction manuals on medical technical equipment or how to mix pharmaceuticals that are tailored for the daily use. These tailored manuals are most often placed in close proximity to the work carried out. For instance the instruction folder for mixing pharmaceuticals is next to the table in a small room adjacent to the patient room where the medicine is typically mixed. Other documents that are indigenously created and recreated are documentation documents. At the ICU the patient monitoring sheet was internally created to fit their unit's way of working and under constant revision. There are also more fleeting and on-the-spot solutions frequently made up when treating patients in the form of explicatory messages such as:

"Obs! The strength" or "Morphine," taped on the medical technical equipment. These seemingly mundane communication artefacts are important features when configuring the often technically dense surroundings of the patient. All in all the staff use a lot of contextual information such as labels, short instructions, reminders, and binders that are strategically placed where most needed. These activities are reminiscent of design activities and perhaps not so far from the issues of designing information ecologies or places for action and reflection.

INDIGENOUS DESIGN MATERIAL, CONSCRIPTION DEVICES, REIFICATION, AND FRAMING

Developing local routines at the ICU

We will soon look at how indigenously produced videos work as design material, but we will start by discussing practitioners role as designers and the concepts of conscription device and framing as design tools as well as videos role in research and design.

Although the primary concern for the staff at ICU is to treat patients they are as we have seen involved in an always ongoing re-design of their work practice. Seeing practitioners as designers is not far fetched and has also been proposed by Schön and Argyris [1]. Practitioners are not designers in the same sense as their professional counterpart but they make things under conditions of complexity and uncertainty. In line with the authors we have seen that practitioners repertoire of design includes products, services and day-to-day strategies for actions. People working more explicitly with design often use tools to enhance the design process such as sketches and drawings and the importance of such visuals in design processes has been emphasized by Kathryn Hendersson (1999) [14] in her study of engineering design. According to her, most of the engineers design work circulates around sketches and drawings, which are used to organize knowledge and works as social glue among different members in the community. She introduces the concept of conscription device to explain how drawings or sketches can be used in collaboration. They serve simultaneously as inscription devices in the way that they can capture and keep essential parts of information intact throughout transformations [21] and as boundary objects in the way that they are both plastic enough to adapt to local needs, yet robust enough to maintain a common identity across sites [29]. The focus is however more on process, than in the case of boundary objects. Conscription devices create space for negotiation, function as a point of reference in discussions and allow members of different groups with different perspectives to work towards a common goal although they don't necessary have the same understanding of the object [14]. It is unclear to us what kind of explicit design enhancing tools the staff normally has as resources to develop their practice (if any) but we will soon see how the self-produced movies can act as conscription devices and provide a visual support for their ongoing design of work procedures.

Video and work practice

Researchers and designers have for a long time used video as documentation of work practices. The video is used as a source in the discussion about how work practices could be changed by the design of new IT artifacts [8, 16, 31]. Video of work practice also works in an evocative way for the workers concerning their own practice and at the same time mirror the daily work [20]. Suchman and Trigg use the method of video-based interaction analysis of work practice to reveal the interaction among practitioners and their artefacts. The method helps to uncover, not only what people talk about, but also their body positions, gestures, etc. In the collaborative process of watching videos together with practitioners and designers Suchman and Trigg propose three perspectives: the practice, the research and the design perspective. The idea is that the practitioners not only look at the video from the perspective of practice, rather that they can use the perspective of research to reflect on their current practice and from a design perspective to envision future work practices and new technologies. Video-based interaction analysis is a valuable but time consuming and labour intensive method demanding detailed transcripts and repeated reviewing [31].

Video as a way to frame problems

Video is often used to provide accountability for results and make possible a higher level of scrutiny where the video material is studied closely in detail as a kind of "hard data". Buur et al [9] instead suggest the possibility to view video as design material where its meaning is co-authored. They take help from Donald Schön and his concept of problem framing. According to Schön designers have a strategy when dealing with complicated problems. To create coherence in a problematic situation a designer imposes an order, makes a design move, towards the situation and the situation "talks back" or responds to the move [26]. Even if Schön's concept derives from how architects draw on paper Buur et al think that it translates well into how they uses video material in design processes. Typically they start by following and video recording a worker throughout an ordinary day. From this material they construct video portraits of the workers. When they within a few weeks organize an informal meeting to show the videos to the workers it functions as their first design move; a way of framing an ordinary work situation. From there they go on refining the material with the purpose to 'leap from "what is" to "what could be" without loosing an anchoring in a reality we know of'. An important quality they emphasise is the open-endedness of video that enables them to manage ambiguities and gently approach the yet unknown [9]. We have already seen how the first shooting of a movie can act as a "framing" of a work procedure. This is also the case when there are no established procedures where the movie becomes a concrete framing to "work from" where the staff when reviewing it can leap from "what is" to "what could be".

How to humidify; a collection of knowledge resources

We will soon take a closer look at a movie review process, but first we will see how some of the knowledge that ended up in the movie took shape. Some treatments have been used at intervals at the ICU. Several years ago it was popular to use a humidifier mask that makes it easier for the patients to cough. Some years later the medical community stopped using it and recently it became popular again. In 1999 a new senior physician re-introduced the treatment at the ICU and as a consequence new humidifying equipment named Fisher Paykel was acquired. To perform the procedure the Fisher Paykel is connected to a ventilator from another manufacturer. According to the staff at the ICU, most manufacturers say that their machines can get connected to other ones, but they seldom tell how. The physiotherapist and a nurse responsible for medical technology became responsible to teach the staff how to handle the Fisher & Paykel and how it is connected to the ventilator so as to humidify in a correct manner. (In some instances a salesman comes to the unit and teaches the staff how to handle new medical equipment. In this case no teaching was provided for, because the unit only bought a few machines and because the combining of the two is beyond the company's responsibility). First they had to figure out for themselves how to proceed which they did by reading the manuals and through trial and error. Sometimes it did not work as they planned and in those cases they phoned the manufacturer for explanation. Sometimes the performance of the equipment still surprised and tricked them; a filter got quite humid and someone had heard that colleagues at the nearby hospital changed it twice as often. This was confirmed and their own procedure was

changed. In this way diverse sources formed what became the unit's procedure of humidifying patients. As a part of the KLIV-project a nurse later on filmed the physiotherapist when she showed how she performed the procedure of humidifying. Below follows a short transcript of a part of the movie:

"This is how it's connected to adults. You start by placing the heat aggregate in the holder; it should be placed below the patient's head to avoid that potential moisture flows into the patient. After that I change the expiration valve to an expiration valve with a water container, and what you can think about then is that under here there is a small lid that you can rotate. There is a hole there and there. If they are opposite to each other it will leak a lot of air. I place the expiration valve and you can hear a click and then I move the flow sensor. I you later will detect leakage when performing the function control sometimes it can help to slightly pull back and forth the expiration valve."

Reviewing how to humidify; Collaborative articulation of work procedures

An expert group consisting of different competencies later reviewed the movie. The main reason for reviewing the videos is to avoid the spreading of erroneous information. Participating in the reviewing is normally those that make the video (but not in this case of unclear reasons), the senior physician and nurses in charge of different specialties or considered important or highly skilled (fig. 5 and 6). Besides certifying that the videos are correct the reviewing process has proven fruitful in supporting a dialog about how certain procedures are carried out. After watching the movie following dialog takes place:

Marie: I want to question that we have to control that it's not leaking when we are changing (tubes). It's a really hard work doing that. If you simply change the tubes and ventilate by hand…

Catarina: But you also need to clean the expiration valve, not only the tubes, and if you change the expiration valve you have to perform a new control.

Marie: Why do you need to change that one then?

Margareta: Because there is moisture in that one as well.

Marie: Is there?

Margareta: More germs will grow when it's humid. More germs will grow when there is humidity.

Catarina: I think that's a recommendation from the manufacture.

Margareta: It's not in the manual, we have to test it ourselves then.

Birgitta: It's a typical environment where they can grow.

Margareta: Yes and that's probably the reason you change the whole set after three days because germs grows at that temperature. If they grow there they can grow down there as well.

Einar: This can be an explanation why you have to do it in such a complicated way.

Some of the procedures are questioned by one of the nurses. She thinks it is too cumbersome to do the procedure the way they do it and suggests another solution, which is to ventilate by hand. The others disagree and the arguments take shape during the discussion. "It gets humid in that one as well"; "If there is humidity at that temperature they grow"; "If they grow there they will grow down there as well." The discussion ends with the chief physician concluding that the increased risk for the growth of bacteria, brought up by one of the nurses, probably explains why they should go on doing the procedure in a complicated manner.

In this case the video review did not help to develop their practice, but to shape and strengthen their arguments how to perform a certain procedure. You could say that the video review supports a kind of collaborative articulation of work procedures. We later on talked to two of the nurses including the one questioning the procedure. She said that when watching the movie she started to think about the procedure and even if they still had to go on the cumbersome way, it's helpful with these kinds of discussions because a lot of other staff members will question the same thing and then she will have arguments ready. The people that are participating in the review sessions are typically considered to be resource persons and their colleagues will often consult them on such matters. If they have the same arguments all people will hear the same thing and that is better for the unit.

The reviewing is not done with the same amount of scrutiny as in video-based interaction analysis but still it evokes questions and provides for a common ground for reflecting upon their practice. We can see similarities with experiences from other groups' collaboration with practitioners during video reviews. Buur et al have observed that during video review sessions the viewers get a common frame for reflection even though they may not experience the same thing and it gives them insight into each other's skills. Further it has given a deeper understanding of what they are doing on an individual level as well as on a group level [9]. Karasti brings some possible explanations of why collaborative video of work practice works well to facilitate reflection. According to her when reviewing the videos the staffs are not engaged in carrying out the task. Being disconnected from the task creates an analytical distance to the routine of performing it. But at the same time the videos helps them to revive their experiences of

performing the work. According to Karasti this distanced revitalization enables aspect that are taken for granted to be seen in a new light [20]. Schön [26] takes breakdowns of workflow (which creates an element of surprise for the practitioner) as the starting point for reflection. Thus the establishing of distanced revitalization by watching video of their own work practice seams to facilitate reflection even of well-established workflows.

Involving the whole ward in reviewing and developing practice

The unit has established organizational routines to ensure that as many as possible can give feedback on the movies so that the unit as a whole can gain from the different experiences. To enhance the reviewing the staff members are asked to collaboratively watch the new movies and fill out a film review feedback form. The reviewers are asked to answer if they want to add or change anything in the video, if they find anything that is not in line with the manuals, and so on. The reviewers also write their names so that they can be contacted if clarifications are needed. The review of a movie on the pleura suction device, (a device for removing phlegm from the lungs), resulted in comments such as: How do you use it when transporting patients? What happens if it falls? At what elevation should it be positioned? The expert review group evaluates the questions and judging which ones they should take into consideration. If something turns out to be completely wrong a new movie has to be made. In the case of the pleura suction movie they judged it sufficient to make a supplement movie where it is explained that the device should be positioned below the heart, how it works during transportation and lastly that if the device falls down one should ensure that there is water in the water lock. Sometimes the expert group can answer these questions but sometimes as with other routines they have to push the question further to the manufacturer or elsewhere. Inviting the whole unit in the reviewing opens up the possibility that the movies can function as conscription devices allowing for different persons agendas to influence the content of the movies.

Using video for exploring future changes in the practice

In many of the cases the review sessions became not only sessions where the quality of the video was discussed, but also an opportunity to question current ways of carrying out a task being reviewed. Preceding a film presentation one of the unit's physiotherapists had voiced the need to buy a different machine for running a CPAP, (Continuous Positive Airwave Pressure) treatment, without getting much response from the senior physician. She had voiced the need because the other model was less complicated to use. The senior physician, having seen the video, recognizes how complicated it is to handle the CPAP. He wonders if there are not easier machines and if it would not be simpler to run the CPAP treatment on the ventilator. The physiotherapist agrees that certain procedures are more easily done on the ventilator pointing out that changing the resistance is more easily regulated on the ventilator since you can increase and decrease the resistance by pushing buttons rather than having to toggle. The nurse in charge of security issues concerning infection wonders if such "home made constructions" are really allowed in these time of regulations coming from the European Union that forbid home made constructions. Thereafter physiotherapist takes the opportunity to present the possibility to switch to a VPAP that has only a tube and a mask and the resistance is regulated with buttons rather than by toggling a control. This leads the nurse in charge of the medical technical equipment to enquire how connecting a humidifier works with it and how it connects to the ventilator. The physiotherapist answers that the currently used brand of humidifier, (Fisher and Paykel), works with it, but a different brand gives more correct results: leakage is monitored, and so forth. She is, however, unsure how it fits to the VPAP. The senior physician states that it would be good to explore and that the CPAP is so complicated and therefore an invitation to accidents if not used often. The senior physician then asks the nurse in charge of medical technical equipment what she thinks. She explains that the machine is cumbersome for most of them even though many have become better at handling the machine. The problem is that there still are too many loose parts The pre-packaged sets with the heater has made it a little easier because the parts are all in one place. Before it was even worse when they had to get all the parts from all over the place. However people are still unsure about if the mask should be re-used, and about the PEEP and how certain part are connected. These last comments surprise the physiotherapist, but the nurse in charge of the medical technical rounds off by stating that the mounting of the tubes is easier now and there is a lesser risk of connecting the wrong tubes to the ventilator.

What from the start was meant to be a film review concerning the adequacy of the video as an instruction turned out to be more importantly an opportunity to discuss the current state of giving CPAP treatment at the clinic and how this might be done differently. The setting, with a physiotherapist, the senior physician, and the nurses with their individual area of expertise, allowed for different framings to meet. The physiotherapist with her expertise of the usage of the machine has seen the need for and enquired into the possibility of buying another sort. The nurse in charge of the medical technical equipment bringing up the issue of how the new equipment fits in with other equipment at the unit. She also seems to be most knowledgeable about what problems the staff still have when handling the equipment. When she explains that the staff still are unsure if the mask is a single patient mask or not and about PEEP, and so forth the physiotherapist seems to be unaware of these problems. The nurse in charge of security issues concerning infection frames the problem slightly differently viewing the CPAP as an advanced home made constructions that might have some legal implication. The session lead to that a VPAP was tested, but the unit ended up with running the CPAP on the ventilator and stopped using the CPAP machine.

The question that for us as designers needs to be raised is what role the video had? Does using video in any significant way differ from other documents? Would the discussion have been the same if they had met to discuss a written instruction on how to handle the CPAP? An obvious difference is of course that the video shows how the procedure is conducted and making it observable how complicated it is to mount and handle, while a written instructions would be an idealized description of how the procedure is to be carried out. Argyris and Schön [1] discuss the difference between what they call espoused theory and theory-in-use where the former is the idealized version of a work procedure which practitioners often refer to when asked what they do and the latter is the often partly tacit version of what they actually do. Getting these two views connected creates a dynamics for reflection and dialog, as Smith [28] has pointed out and the self-produced videos catch and bring some of the staff members theories-in-use to the surface which make them more easily comparable to the units espoused theories.

CONCLUSION

Health care staffs design their own practice to a certain degree but normally they are not equipped with instruments supporting design such as sketches that can work as conscription devices. In the project KLIV we have seen that the self-produced movies are useful reifications that function as points of reference supporting negotiations of best practices

and allowing for different perspectives to come forward. They give different competences meaning in slightly different ways and at the same time helps them work towards common goals and points to focus the communication around. Inviting all of the staff in the reviewing take advantages of the collaborative potential of collecting the whole units diverse experiences and different agendas that can be articulated into new knowledge in the re-filming and re-framing of their procedures. What we have seen is that the even after the collaboration with the practitioner has ended the practitioners has adopted the "perspective of the researcher" and the "perspective of the designer" [31] when they during reviews of movies of their practice reflect and think about possible developments. They don't perform the reviews with the same amount of scrutiny as most researchers but the movies still helps to distance them from the ordinary work and evoking questions. The self-produced movies have the potential to support development and articulation of their work practices. According to the staff the movie production also facilitate more discussions out in the corridors of important issues than before the KLIV-project started. In the movies understanding about certain procedures is given a "form" or "thingness" similar to how Wenger defines the term reification [33]. As reifications they are portable and persistent. However as with reifications they also need a close context and participation to reveal their meaning. The movies will never be "complete" or function as an independent package of knowledge rather they will always be incomplete and be a part of an always ongoing living reification participation process where they will provide "softer" and more local standardizations from a bottom up perspective than the Nursing Intervention Classification standard. A key quality of the movies is their ephemeral and open character where they are considered meaningful only for a limited period of time and in a particular context where they balances between more rigid standards and an actual situated performance of community members.

ACKNOWLEDGMENTS

We would like to thank all the staff at the Intensive Care Unit at the University Hospital in Malmö. A special thank you goes to Sue Harden and Else-Maj Rosenlöf for initiating, supporting and providing means to accomplish the research project and to Ansti, Anna and Marie for taking the time to assist us in our inquiry into local routines. Thanks also go to Thomas Binder for helpful advice and valuable discussions. Last, but not least thanks goes out to professor Pelle Ehn and Jeanette Blomberg for commenting on earlier drafts of the manuscript.

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