Developing the Simulator Instructor's Pedagogical Competence

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ABSTRACT

The full benefits of investment in simulator-based training are achieved only when development of the simulator instructor's pedagogical competence accompanies the acquisition of advanced technology. In spite of this, the instructor's pedagogical competence often is not well developed. Courses for simulator instructors that address their experiential instructional skills and their understanding of adult participants' learning processes are rare. Lessons learned about the instructor's role that focus on the relationship between instruction and learning are seldom reported. Simulator instructors' pedagogical competence appears to be an area afforded insufficient attention from the simulation community.

Based on lessons learned from our four-day pedagogical course for naval simulator instructors in the Danish armed forces, this paper presents a framework for instructors' pedagogical competence development. It explains why the subjects of the course are 1) the instructor's various feedback tasks, 2) knowledge about how to ask questions, 3) the likelihood of conflicts and how they can be managed and 4) cooperation between the learners and the instructor as a leader and facilitator of learning. The paper addresses how this course – based on the particularly experiential nature of simulator-based training – differs from general courses on teaching and instruction. The participants' reactions are reported and discussed and finally, possible adjustments and perspectives for the future of the course are outlined.

The purpose of this paper is to make those teachers and leaders responsible for simulator-based training aware of the value of pedagogical competence development and to provide inspiration for how a course can be planned in their academies and organizations.

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INTRODUCTION

"We have received 8 part task bridge simulators this summer, can you help us implement them with regards to the pedagogy we should use?" This was the opening question posed by the Danish Home Guard School to the Royal Danish Defense College late in 2012. The Defence College had been recommended since we had previously provided consultancy services and research within the field of pedagogics in simulation in the Danish Armed Forces. This was a valuable opportunity for us to develop a new course for simulator instructors with the aim of facilitating their pedagogical competence. The development process started immediately and in the spring of 2013 the course was ready to be launched. The course was a great success and in January 2014 a second updated course was delivered, this time with instructors and leaders from the Royal Danish Naval Academy.

This paper reports the outcome of the pedagogical course for simulator instructors. First, the background is reported and the references to research on the topic are laid out. Then, the subject of the course is presented and I argue why these subjects were chosen. Then the participants' reactions are reported and the method of collecting data is laid forth. Lastly, the future of the course is discussed and possible adjustments are proposed.

Very little research dedicated to simulator instructors' pedagogical competence has been published. However, some information is available from other texts even though instructor competence is not the focus. In the following section I will start by delineating the classic mechanistic approach to the instructors' tasks and competencies. Then, I will report on an alternative naturalistic approach. Finally, I will outline the humanist approach that influences the course.

A Mechanistic Approach to Instructor Competencies

If we consult the classic text *Handbook of Simulator-Based Training* (Farmer, et al. 1999) we can get some guidance as to what the instructor competencies should be in connection with the design of instruction (Farmer, et al. 1999, p125). In the handbook the principle and purpose of instruction is reported to be "to facilitate the learning process" (Farmer, et al. 1999, p125) and this should be done by "providing a corrective loop between the knowledge and skills of trainees and their performance" (Farmer, et al. 1999, p125). The *Handbook's* general recommendation is that instructors should challenge the learners but not overwhelm and frustrate them. The instructor should stay in the background so that instruction does not add to the learners task load. This prevents the learner from becoming dependent on the instructor.

Briefing, tutoring and debriefing are identified as three tasks the instructor should carry out. Briefing is providing the learner with information on the task before performing the task and debriefing is in general an evaluation of the learners' performance conducted after the task. The briefing and debriefing constitute the beginning and end of the training. Quite interestingly, the *Handbook* states that "There has been little or no research on the effects of briefings and debriefings" (Farmer, et al. 1999, p130). The attitude in the *Handbook* on briefing and debriefing is somewhat mechanistic. The issue of cooperation between the instructor and learner is not addressed and the emotional aspect of giving and receiving feedback on a task is not mentioned. The idea of involving the learner as an active subject in the briefing and debriefing is not considered. The learner is a passive receptor of information on the training design and his own performance. This critique does not only concern the *Handbook* but is stated because I regard this as a general problem in training literature, with few exceptions that I will return to shortly.

Tutoring is the instructional process that is carried out real time as the training activities are going on. The issue here is how to deal with mistakes made by the learner. The *Handbook* states that this is a dilemma since corrective interventions by the instructor can add to the stress the learner is suffering, and that the intervention can do more

harm than good. It recommends that corrective interventions are only conducted when there is a risk of error propagation and/or the progress of training could be compromised.

Very interestingly, the handbook discusses the issue of instructors' intuition and states:

> *Most tutoring activities are based on the intuition of instructors. It is clear that such an approach offers much flexibility, It also enables one to take into account aspects that may only be assessed by direct observation (e.g. attitude, amount of effort required). A drawback is that this approach capitalizes on the didactic expertise and the vigilance of the instructors. Another drawback is that instructors may be biased and may use widely divergent tutoring approaches.* (Farmer, et al. 1999, p133)

Our course is an answer to this challenge since our aim is to develop the didactic competence of the instructor and to negotiate the divergent tutoring approaches. The reward is exactly the development of the instructors' intuitive flexibility and ability to facilitate learning.

A Naturalistic Approach to Instructor Competencies

An approach which differs from the mechanistic approach to the instructors' work described in the *Handbook* can be found in two papers from the I/ITSEC conference proceedings. In 2005 at the I/ITSEC Conference, Maud Stehouwer, Michael Serné and Chris Niekel wrote the paper "A Tactical Trainer for Air Defence Platoon Commanders" (Stehouwer, Serné, & Niekel 2005). In this paper they introduce the concept of joboriented training (JOT) that is a challenge to what they call "(The) implicit idea of knowledge transfer" (Stehouwer, Serné, & Niekel 2005, p4).

Instead of knowledge transfer from the instructor to the learner, their approach is to let the learners explore and experience on the basis of the simulation without any previous theory and without any debriefing done by the instructor, allegedly teaching the learner what he or she has learned. I call this a naturalistic approach to training. This is also supported by the explicit references by the JOT approach to naturalistic decision making as described by Gary Klein (1998).

It is clearly stated that the instructor should act as an expert. He should guard the standards and engage in discussions with the learners, but he should under no circumstances lecture or tell the learners what they should learn or what they have learned. There is no guidance as to what pedagogical competencies the instructor should have or how they could be developed. I visited the JOT center in Holland to get a better understanding of the training method. I was told the instructor was essential to the success, but the competencies required could not be taught. The instructors were naturals who were carefully selected.

The JOT approach to training was developed further, and in 2008 Anja van der Hulst presented the paper "Bloody Serious Training – Experiences with Job Oriented Training" at the I/ITSEC Conference (van der Hulst et al. 2008). In this paper the JOT principles are clearly stated. In this paper, the instructor role is taken a little bit further. It states that he or she must be more of a coach than a teacher and that his or her main objective is to guide and to guard the quality of the learning processes in class. The instructor should engage in discussions as a peer of the learners, but he or she should under no circumstances try to impart wisdom to the learners. The paper does not report much on what competencies the instructor needs, but two areas are identified. The first competence is that the instructor should be self-confident. The second competence is that he must be an experienced domain expert.

The reason why JOT does not report much on the instructor and his competencies could be that the whole mission and philosophy of JOT is to shift the focus from the instructor and what he or she should do to teach, to a focus on the learner and what he or she should do to learn. This is a very useful and important approach. However, a possible pitfall could be that the instructor is not taken into consideration and receives no assistance in the development of his or her competencies. If we believe that instructors are naturals who either have the right attitude or not, then this approach where the instructors' competencies are not facilitated can be the logical choice. I find no evidence that supports this approach. As a result, we set out to develop a course that would facilitate the competence development of instructors who were to function in a learner-centered training environment.

A Gestalt, Humanist and Experiential Approach to Instructor Competencies
The framework for understanding the instructors' competencies as presented in this paper developed from the idea of dividing simulator-based training into three phases: briefing, tutoring and debriefing. From there the framework evolves based on the naturalistic skepticism of knowledge transfer. This has the effect that the course focuses on the participants' independent development of expertise. What we add and what serves as the basis for our development of the instructors' competencies is the inclusion of the interwoven theory of gestalt, humanist and experiential learning. Classic scholars such as Lewin, Dewey, Rogers and Kolb have contributed to this approach. I will not plunge deeper into this here but in presenting our developed course and its subject, I will draw on and present the research and literature that serve as its basis.

COURSE PRINCIPLES AND STRUCTURE

This section first describes the course's general pedagogical principles and approach to learning. Then the chosen topics and structure for the course are laid out and discussed in relation to the intended learning outcome.

General Principles

The overall important goal is to create deep, personalized learning. The course is not a presentation of knowledge, it is an opportunity to learn. This leads to the following principles.

The most important principle is a "unit of work" (Nevis 2005). This means that all activity initiated by the instructor should be planned with a view to continuing it to the end, where the participants feel they have reached a satisfactory closure of the subject as individuals and as a group. Furthermore, conflict should be investigated and clarified for the purpose of the learning potential and in order to ease frustration that could stand in the way of further learning. This means that the amount of theory and information presented is modest and that the focus of attention is reflection on the particular experiences connected to the learning by the participants.

We rely on the paradoxical theory of change (Beisser 1970). This theory states that although theory will be present and although the pedagogical intentions of the course are clear, change can only come from the participant themselves – they should not be pushed or persuaded to change. The course should reflect and pay respect to the current knowledge and attitude of the participants. When they have full contact and knowledge about where they stand with regard to their approach to training they will change if they want to. So the course has a focus on who the participants are as instructors more than who they should be in the future.

This goal is facilitated by the course instructor through a continuous effort to help the participants make contact with each other and the instructor to develop as a group and create the learning environment necessary to try out opinions, receive feedback and engage in dialogue and expression of feelings (Kepner 2008).

Feedback

The first topic of the course is the instructors' various feedback tasks. We chose this as the first topic because the single most important issue in simulator-based training is feedback (Sjoestedt & Huglstad 2006, Mikkelsen, Knoester, & Sjoestedt 2009). This is why we use simulation. We want to give the learners the opportunity to act and experiment and we want them to learn from their actions. The key to this is feedback and the reflection on the relationship between action and feedback.

The instructor must be aware of various opportunities and pitfalls. Feedback is not just corrective comments from the instructor to the learner, as one might believe in a mechanistic view of learning. Feedback involves a range of different actions covering the whole circle of learning as described by Kolb as experiential learning (Kolb 1984). Kolb draws explicitly on the work of Kurt Lewin, John Dewey and Jean Piaget who also present experiential approaches to learning. Based on Kolb's model of experiential learning and this framework, I shall point out the various feedback tasks the instructor should carry out. The experiential approach to learning states that learning is a process where action and reflection have a cyclical relationship.

In the theory there is no starting or finishing point since the model is cyclic. To make it simple, in figure 1 the four phases are numbered from 1 to 4. For simulator-based training, the first phase is active experimentation. Here the learner performs his or her task in the simulated scenario. The second phase is concrete experience. This is the learners' perception of action and reaction. It is the unfiltered and non-reflected sensory feedback of all kinds that the learner receives in the scenario. In the phase of reflective observation the learner connects action and feedback from the system he or she is engaged in, and draws his or her conclusion about how action and reaction is connected. He or she answers the question about what happened and what the explanations could be. The last phase, abstract conceptualization, is where the learner reflects on and concludes what he or she has learned from the experience. This can either be transferred to the next training session or to the real world.

In these four phases the instructor has different feedback tasks. In the first phase, where the learner performs his duties, the instructor's primary feedback function is to initiate activities in a scenario that result in direct feedback from the system. In the second phase, where the learner receives the feedback, the instructor's feedback task is to enhance or make feedback visible that has been hidden or ignored by the learner. In these two phases the instructor often gives feedback through roleplaying the surrounding environment. The third phase is where the learner draws his immediate conclusions. In this phase the instructor can help the learner examine his conclusions by asking questions or reading the learner's conclusions back to him. The instructor can also offer alternative explanations about why things happened. The last phase is where the learner reflects on his learning and on what conclusions can be transferred to new situations. The instructor again helps by listening, asking questions and acknowledging the learner's conclusions.

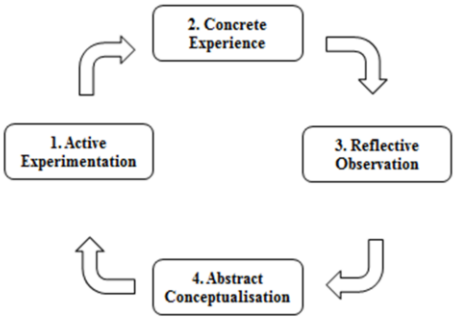

Figure 1. The Structural Dimensions Underlying Experiential Learning (Adapted from Kolb).
This figure illustrates the cyclical nature of experiential learning.

What I have described above is the structure and the task the instructor must carry out. Another question is how and in what manner the feedback should be given. Rosenberg's (2003) theory of non-violent language says that feedback should be neutral and fact-oriented. Feedback should never be judgmental, or in Rosenberg's' terminology, violent. In connection with the above, some participants have argued that they also represent a system where judgments are expected as a part of the corporate culture. To behave in a realistic way they have to stick to the corporate culture and give feedback that is judgmental and sometimes intimidating. In theory this can be supported if we define two different functions for the instructor to perform: 1) The instructor can role-play the culture and give judgmental feedback as somebody might do on a ship, in an army unit, et cetera or 2) the instructor can facilitate learning without role-playing and give feedback that is non-judgmental and respectful. In real life we recommend that the two different roles and kinds of feedback are clearly separated and treated with the utmost care.

Judgmental feedback was a topic for continued debate for both groups that participated in the course. Not only at the first session, but as a topic that came back again and again. Overall it was clear that this was a very delicate matter of great importance to the participants. The opinions ranged from one saying that foul and judgmental language should be used when necessary. This was expected and the most natural thing in a military environment. Others argued in line with the theory from the course that judgmental and abusive language should always be avoided. The topic was clearly very challenging to many. I believe that there will be a long term effect of the discussions but that is to be seen. My recommendation to others is to let this topic unfold and make room for the discussions, make your opinion as instructor clear, but don't be judgmental of opposing opinions.

The learning activities that supported feedback were a discussion and presentation of what the participant learned from the literature about feedback. This was followed by a dialogue in pairs about personal experiences with feedback. This led to a reflection in teams on what findings about feedback could be used in the future. And finally

the participants made a personal reflection on the take-away from the day. The exact design of the learning activities was not fixed and it varied from the first group to the next based on the difference in the two groups.

Interview Method

As the second theme of the course, we introduced the interview method. The intention is to let the participant reflect on asking questions and develop their basic understanding of the value of asking questions in simulator-based training. As we have seen in relation to feedback, the instructor's competence when it comes to asking questions that facilitate learning is essential. The theoretical framework for understanding and creating questions is the interview method developed by Karl Tomm (Tomm, 1988, Tomm 2003). The method was developed within the area of family therapy but has proved useful in other areas. It is called a systemic approach since it has been developed within the systemic Milan approach to family therapy. It is a valuable tool in coaching and we use it in teaching and instruction also as a way of heightening the instructors' awareness of their questions as interventions.

Figure 2 shows the basic theoretical framework of the method. The method states that questions have an intention. This is symbolized by the horizontal double pointed arrow. We ask questions because we want something. In this case we either want to 1) influence or 2) investigate the system or person we ask the question. This is shown in the figure by the two boxes at the end of the horizontal double pointed arrow. Very often this difference in intentions is not clear to us, but it is a very important difference that can give us more variety in our questions since we might not be aware that we only use questions to influence or to investigate an action, thought, problem or anything else.

Our questions can be based on different assumptions of how the world is connected. This dimension is shown in figure 2 by the vertical double pointed arrow. We can have a simple mechanistic approach where the relationship between action and reaction is clear and direct, called linear. This is shown in the top box in the figure. Our approach can also be more complicated. We no longer assume that the world is simple. Instead we have a circular approach where we assume that the actions and reactions of the world have a circular relationship. We no longer only see one person as subject and another as object but acknowledge that there is a relationship between two subjects who act together as a system. This is shown in the figure in the box at the bottom.

When we combine the two dimensions it creates four areas which in turn produce the framework from which questions can be understood, created and reflected upon. The four types of questions are linear, circular, strategic and reflexive. This is shown in the figure's four corners.

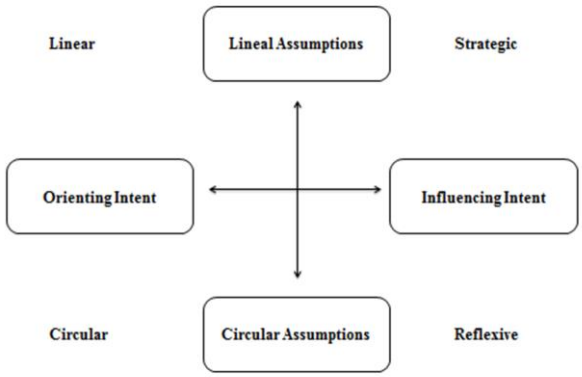

Figure 2. A framework for distinguishing four major groups of questioning (Adapted from Tomm).
The figure shows the horizontal dimension "intention" that can be orienting or influencing and the vertical dimension "assumption" that can be lineal or circular. When the dimensions are combined they produce four areas, lineal, circular, strategic and reflexive, which provide a framework for constructing questions.

The four different areas have different intentions and different effects (Tomm 1988). The linear questions have an investigative intent and the effect is often conservative. It does not add anything new to the person being interviewed but it has a tendency to confirm the position he or she has taken. In a maritime simulation the question could be "At what speed were you sailing?" or "What were your thoughts when you passed the other ship?" Even these simple questions can create learning if the issues are relevant and have not been reflected upon by the learner before. Tomm states that in a therapy session these kinds of questions can create self-blame and stimulate people to become more critical toward their own person. A hypothesis is that this goes for training as well and that these investigative questions must be used with care and caution.

Circular questions have an exploratory intention and the effect can be liberating. It opens the interviewed person's mind to how relations can have relevance for an issue and that actions can be seen from another perspective. In a

simulation the circular question could be "How did the surroundings contribute to your chosen speed?" or "What did the captain of the passing ship think about your chosen speed?" The questions can be very productive. A pitfall that must be avoided is that circular questions can digress into different areas of interaction and might become irrelevant for the learner. This must be an area of attention for the instructor, and a meta-conversation where the instructor asks the learner if the questions make sense and seem relevant can be necessary.

Strategic questions have a corrective intent. We use them to guide the interviewee in the direction we want the focus to go. The questions have a constraining effect. This can be negative if we have it wrong, but with these questions our intention is to focus the person's mind and point to what we think is a useful solution. "Do you think it would be wise to sail at a slower pace in the future?" could be at strategic question in a maritime simulation example. The pitfall of strategic questions is that they can be quite manipulative.

The last category is reflective questions. The intention of the reflective questions is to facilitate learning in a very open tone. This is the playground where new and creative things can happen. The effect of the reflective questions is to open new perspectives and new options as to how actions can be understood. The complications of reflective questions are that they could be confusing, but sometimes even the confusion can be productive with a learner who thinks he or she knows all the answers and is stuck in their habits. A questions could be "On a scale from 1-10 how important is it to sail at the right speed?" This question might generate a new understanding for the learner of how important the questions are. It might also give the instructor a new perspective on the learner's view of the problem. They might find out that they do not agree on the importance of sailing at exactly the correct speed.

The method that we used to facilitate the theme of 'the interview method' was a workshop where the participants created questions based on the theory. The questions needed to be about asking questions in simulator training and the questions were later used to facilitate reflections on the topic. The participants were given preprinted documents with the different question categories and short definitions. They should each produce one question in each of the four categories. The questions were compiled on the whiteboard for everybody to see and the produced questions were discussed. The participant could then choose freely from the common pool of questions when making their own interview-guide for an interview with a fellow participant at the course.

In the future it must be made more clear that this exercise is a chance to reflect on one's own use of questions and an opportunity to get new inspiration. It is not a training session that promises that the interview-method can be used directly after the course. To fluently use the interview method requires that the participant get further training after the course or/and experiment with the method in his or her instruction and little by little become fluent in using the method. The pitfall for the inexperienced is that too much focus on the interview method takes away attention from contact with the learner and actually hearing what the learner's answers to the questions are.

Conflicts

The third topic of the course is conflicts. Conflicts can and do occur in training, but often the conflicts are not dealt with and not accepted or noticed as conflicts. The consequence can be that the instructors become frustrated and create a hostile relationship with learners where the learners are positioned as immature or stupid. The conflicts can be about practical aspects of daily life in the training facility or it can be related to the training subject. Conflict can be generated from the pressure of the training, but it can also relate to rather simple, different views on how practicalities should be managed.

The importance of this theme is not to teach solutions but to introduce the fact that conflict occurs, that this is natural and normal, and that conflicts should and can be managed to the benefit of the training environment and the work satisfaction with both the learner and the instructor. In a very fixed training design where instructor and learner do not engage in dialogue and where rules in the simulator facility are very clear and enforced, conflict will often not surface. The learner will keep his or her frustrations hidden and the instructor might experience lack of motivation but not conflict. In this way, conflict is also a product of a more dialogue-based learning environment. There may not be more frustration generated, but frustrations come to the surface and can be experienced by the learner and the instructor.

To introduce the theme, we used a text by the Swedish authors Barbro Lennéer Axelson and Ingela Thylefors (2006). It is a compilation of humanist and organizational development research on conflict in small groups and how they can be managed. To facilitate this theme we created a workshop where the participants write cases from

simulator training. They swap cases and analyze them to produce recommendations to the instructor on how a conflict should be managed. The cases and recommendations are reflected upon and the most important findings are agreed upon.

The participants are divided into small groups and each group receives written instructions on how to make a case and the timeframe for the job. Each group has three major tasks. First they have to produce cases. Second, they have to analyze the cases they have received from another group. Finally, the group has to present their recommendations and engage in debate with the other groups.

When planning the exercise consideration must be given to how long it will take to present and discuss the final recommendations produced by the groups. The numbers of participants are the key factor to the plan. The plan can be adjusted accordingly by the number of cases the groups should produce and subsequently present at the conclusion of the exercise.

Leadership and Cooperation

The fourth and last theme of the course is leadership and cooperation. This theme is a reflection on the instructors' role in simulator-based training. It opens the instructors' responsibilities for further investigation and reflection. It provides an opportunity to see the instructor as a facilitator of learning and a leader and suggests that restricted view of the instructor as only a technical operator of the simulations facility and a neutral observer who provides flawless feedback is too narrow of an approach to the instructors' functions and responsibilities. In the simulator-based training we have encountered in the Danish Armed Forces, whether this has been training gunners, pilots or sailors, the instructor has always had a multitude of functions ranging from managing the facility, planning the training, delivering feedback to negotiating rules and expectations in relation to the training (Sjoestedt, Andersen & Olsen 2006, Sjoestedt & Huglstad 2006).

However, we have experienced that the instructors only regard themselves as subject matter experts and technicians who operate the simulator and provide value-free feedback.

The theme is facilitated as a reflection on what expectations the instructors experience in their role as instructors. This includes their expectations of themselves, the expectation from the learners, the expectations from their organization and their expectations of their colleagues. In the reflection we rely on the literature by Barbro Lennéer Axelson and Ingela Thylefors about leadership and we connect this to the military corporate leadership culture.

A vital assumption is that the simulator-based training is regarded as cooperation between learners end instructors. In a fully mechanistic approach to simulator-based training the issue is hidden. The learner just takes his seat in the simulator and drives, flies or sails and the instructor only operates the simulator and reads back feedback to the learner. But as mentioned before, this approach is not what we experience in real life. In real life, mistakes occur, conflicts arise, feelings interfere, and instructors share stories from real life with the learners and act as role models and gatekeepers of their professions.

As this theme is last, this is also where the instructors in connection to their role can summarize what they will take from the course and apply in their work. We do not assume that all points from the course will be accepted and implemented. Nobody does that. If we expected all that was taught to be learned, then we would not need exams and assessments.

PARTICIPANTS' REACTIONS

Participant reactions were recorded during the course and through interviews after the course. These two methods supplement each other and provide the basis for this report of reactions.

Reactions During the Course

The participant reactions were closely monitored during the course. The course design provided excellent conditions for this. The groups were small; the first group had five participants and the second group had twelve participants. There were plenary sessions at the start and end of every day and the participants were encouraged to express their feelings about the progress of the course and their learning. This provided a good opportunity to evaluate and adjust the course as it unfolded.

The general reactions during the two courses were that the participants enthusiastically engaged in discussions with each other on both a personal and a professional level. Attitudes were expressed and the participants confronted each other and me as a course director with questions and opinions. In general, the themes and activities were acknowledged as relevant and the methods were accepted. On a couple of occasions the second group expressed the view that more knowledge could have been provided to them from the course and less discussion. But at other times the same participants recognized, and were sometimes surprised, that the discussions and the topics had been productive.

It was a challenge to facilitate balanced discussions where everyone was able to express their opinion and comment on others' views, while moving discussion forward and taking time to stop when no new opinions were relevant. The participants only relied heavily on me as facilitator to stop discussions when they were getting too long. The course should have discussed more clearly with the participants how they could help and how they could take responsibility for the facilitation and control of the discussions. How debates can be facilitated in a motivating, legitimate way that supports learning remains a delicate and important question.

Outcome

To supplement the informal data about the participants' reactions group, interviews were conducted with participants from each group about their learning and their feelings about the course. Three participants from the first group were interviewed eleven months after the course. Two participants from the second group, the formal leader of the group and the leader of the simulations facility, were interviewed two months after their course. The interview consisted of seventeen fixed questions, and the answers were documented.

The two groups' experiences and their reflections on their learning differ. The first group reported a very significant professional and personal value for the course. One participant described a transformative learning experience regarding his approach to teaching and instruction. Several themes were highlighted. First, the art of asking questions is regarded as highly valuable. This does not only relate to the technique but also the areas that can be negotiated through questions. They expressed the view that not only topics strictly related to navigation can be explored but that more personal questions can be very helpful for learning and teaching. Second, they mentioned the value of making contracts and negotiating expectations, which are also related to the art of asking questions. Overall they talked about a general feeling that they had gained a lot that empowers them as instructors without being able to pinpoint the exact topics that contributed to this.

The first group was very satisfied with the course design, group work, and semi-structured dialogues. The design suited the group well and was also an inspiration to their own teaching and work as instructors. They especially valued the morning sessions, where the participants' reflections on their energy and focus were shared with each other. They said the session had been an inspiration in their own work.

When asked about how the course related to other competence development initiatives with regard to the simulator they explained that their request for the course had partly been a reaction to a traditional five-day simulator instructor course provided by the manufacturer of their simulators that had been a disappointment.

The interviewed leaders from the second group reported the group development as the most important outcome. They found it of great value that they had had the opportunity to have lengthy discussions, which is not possible in daily service given the lack of time as well as the normal separation where each person performs separate duties alone. The group was made-up of persons with very different tasks and responsibilities for training navigators and the most important outcome was that the different approaches had been brought forth and negotiated. The simulator training is related to and interwoven with, classroom teaching and practical life sailing and these areas had different approaches to training. There was a strong feeling that a more coherent pedagogical foundation had been developed and that this was of great value. The group decided that a pedagogical training manual should be developed but as of publication time, this had not yet been completed.

The perception of the outcome on the individual topics presented in the course varied from one participant to the next. The participants that were most dedicated towards the simulator instructor role were most positive regarding the outcome. These differences could be a foundation for further pedagogical development facilitated by the creation of a common set of pedagogical rules in the form of a manual.

DISCUSSION

Some participants stated that they did not reach a conclusion with all of the different topics. This points toward spending more time on each theme, or alternatively, altering or clarifying the expectations and intended learning outcomes.

It has become clear that the course has no, or very little, practical training on the task an instructor performs in the training situation. Instead of seeing this as a flaw that must be mended, it should be made clearer that the course ambition and method is reflection on experiences, not training. With reference to Kolb's learning circle, it can be argued that this course is a chance to reflect on the experiences the instructors have from their instruction. After the course, instructors have to experiment with implementing the conclusions they reached during the course.

The course fits the experienced simulator-instructor who wants to develop his or her competence further to achieve better training results.

The experience of the instructors had a significant influence on the course design. The fact that the participants were colleagues and knew each other before the course helped to determine the needs and the learning focus of the groups. It also set the scene for the choice of activities and how they were carried out. If a future course is carried out with a group of people that come from different organizations and have no working relations beforehand, the course should be adjusted.

Some participants will be more willing to take risks and experiment in an environment that could seem freer. Others might be more constrained by the uncertainness of the new group. A major task for the course leader will still be to help the participants to engage in discussions and relate to each other. This is also a task with the experienced group, but the setting will be different and other tasks for the group to perform can be chosen.

A main activity in the course was plenary discussions. These proved challenging to lead with the larger more inexperienced group. More effort should be put into negotiating how the plenary session should be carried out. The participants should be involved in solving the problem and made more aware of the fact that there is a challenge that must be shared between the instructor and the participants.

CONCLUSION

The course proved that simulator instructor's pedagogical competences can be developed further by reflection on their experiences with instruction. The framework for the reflections can be 1) the instructor's various feedback tasks, 2) knowledge about how to ask questions, 3) the likelihood of conflicts and how they can be managed and 4) cooperation between the learners and the instructor as a leader and facilitator of learning. These topics can be productive, and theory from these areas can be provided to support the reflection on actions and experiences.

The methods and general pedagogical approach used in the course proved rewarding. They were compiled from a broad range of research, but rely most heavily on humanistic and experiential theory and method.

The two groups described in this paper suggest that development of the group can be one outcome of the course and development of personal competencies can be another outcome. This is determined by the developmental stage of the group and the needs of the individual participants.

It should be made clearer that the course's main focus is on reflection on instruction and that there is less focus on "hands on" training of instructional skills. This will allow the instructor to focus on the course as a reflective experience.

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