WIKIOSH – to develop learning networks about safety and health in the engineering sector

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In Sweden the market for Occupational Health Service (OSH) firms were liberalized in the year of 1994. Even if it has passed 20 years since then, the OSH still have difficulties in finding well-functioning relations with their customers as well as between each other. It shows in a very competitive climate as well as a decline in the sector related knowledge about safety and health at work. The latter is much due to reduced profitability for the smaller and specialized OSH firms. In this paper we will present one part of an ongoing three yearlong research project - WIKIOSH. The project focuses on developing three methods for learning and knowledge dissemination, in order to strengthen the sector related work with safety and health.

The three methods are:
- Learning networks for environmental safety and health engineers and ergonomists in two sectors.
- A webpage that should serve as an interactive Wikipedia - WIKIOSH.
- Supplementary courses for staff concerned.

The method that will be further explored in this paper is the first one, learning networks. The aim is more specific to critically explore the scientific method co-operative inquiry (Reason and Bradbury, 2008) when used as a tool for initiating a learning network on OSH (Occupational Safety and Health) in the engineering sector (Boud et al., 2006).

The theme for the learning network is to strengthen the sectorial knowledge on safety and as well as ergonomics, both when it comes to risk assessment as well as work environment development. Knowledge and good examples from the network will be disseminated at the webpage and included in courses.

In order to develop the knowledge about work environment, here in engineering companies, we need a method that makes it possible for those concerned to exchange theoretical knowledge as well as practical experiences (Aagaard Nielsen and Svensson, 2006).

Co-operative inquiry is a method where researchers and practitioners meet on an equal basis, and jointly act as researchers (Heron and Reason, 2006). This methodological tool also opens up for empowerment, which was an important factor in this case. That is creating interactions and networking between different OSH firms who are competing on the same market and in the same sector.

The co-operative inquiry shall according to Heron and Reason (2006) be organized as a cycle consisting of four steps or processes. The aim is sharing knowledge and creating solutions within the network (ibid.).

The recruitment to the network had to be thoroughly worked out. Main criteria’s were that the members should be either ergonomists or safety and health engineers; represent in-house OSH as well as separate firms.

Besides one researcher and one PhD student, ten actors signed up for being part of the network, representing free-standing OSH as well as in-house ones. None of the actors are first line managers. We argue that these are preconditions for crafting (Rees et al., 2010) professional knowledge in a network where the actors represent competing businesses.

Four thematic areas are to be explored by the inquiry method; (i) work environment and productivity, (ii) knowledge sharing, (iii) OSH in the future and (iv) partnership with costumers.

In addition to the physical meetings diary notes up on practical issues from the network actors’ everyday day work are taken.

The recruitment process clearly showed that this kind of networking is highly attractive and desired in the engineering sector. The apprehension that the big OSH firms would not cooperate in the same network was not confirmed. A first analyze of the empirical data from the network meetings show that there is a call for knowledge about processes as well as more subjective knowledge on how to handle and/or prevent
certain risks in the sector. The latter is exemplified in the open reflections on the diary notes. These two different demands will be a challenge for the network and its actors.

Practitioner summary: In this paper a network for knowledge sharing is presented. The network turns to safety and health engineers, ergonomists and researchers working in or with the manufacturing industry. The aim with the network is to strengthen and share sector related knowledge on safety and health. The results show a high interest in this kind of network and that the need for knowledge on how to handle complex situations is in focus, and not how to solve specific one dimensional problems.

Keywords: environmental safety and health engineers, ergonomists, learning network, knowledge sharing, manufacturing industry

1. Introduction

Even if it has passed 20 years since liberation of the Swedish market, the OSH still have difficulties in finding well-functioning relations with their customers as well as between each other. In practice it shows in a competitive climate between the firms as well as a decline in the sector related knowledge about safety and health at work. The latter is much due to reduced profitability for the smaller and specialized OSH firms, in other words they have not recovered from the withdrawal of the state subsidies. There is also to be seen in that the OSH firms have a focus on just profitability and a tendency to sell different kind of health tests.

Of importance to pinpoint here is that measures as health tests and wellness activities are on an individual level and never can improve health and safety issues on an organizational level. Unless the results from the health tests are worked through and related to the organizations specific context (Åkerlind et al., 2007), that is initiate work environment improvements that are locally adjusted and based on in-house learning (Haims and Carayon, 1998).

In this paper we will present one part of an ongoing three yearlong research project that focuses on developing three methods for learning and knowledge dissemination, in order to strengthen the sector related work with safety and health. The project includes the manufacturing sector (industrial engineering companies) and home care service, chosen as they are complementary from the point of view of the dichotomization private/public as well as gender segregation. As the project is ongoing we only have results from the manufacturing part of the project, and these will accordingly be presented here.

The method that will be further explored in this paper is the first one, learning networks. The aim is more specific to critically explore the scientific method co-operative inquiry (Reason and Bradbury, 2008) when used as a tool for initiating a learning network on OSH (Occupational Safety and Health) in the engineering sector (Boud et al., 2006). Engineering sector is here defined as middle sized and large manufacturing industries.

The research questions in this paper are: 1. how can a learning network addressing OSH issues be structured and implemented so it becomes (i) attractive to participate in and (ii) sustainable over time? 2. What kind of OSH issues will be highlighted by the network actors?

1.1 Sector related knowledge on safety and health in the industrial setting

Sector related knowledge on safety and health can include a wide range of aspects, including processes as well as more specific hands-on knowing in certain areas (Cagno et al., 2011). Furthermore the OSH staff needs competence in the specific market, how the firms in the sector are organized and what professional’s skills the different categories of employees are required to have. The latter includes physical as well as psychological work load and risks in the work environment.

This project focuses on two different professionals working in OSH firms, environmental safety and health engineers and ergonomists, representing in-house as well as external OSH firms.

2. Co-operative inquiry as a frame for networking

The main challenges for this project were to find ways in which we could scale up the dissemination of knowledge and experiences when it comes to OSH in the manufacturing industry. Another challenge was to
build up a collegial support within and between the OSH firms, in order to gain a creative climate between engineers and ergonomists that had different employers.

Action research is a method that opens up for learning on a democratic basis (Aagaard Nielsen and Svensson, 2006). The method’s core value can be described as doing research with, and not on an organization (Reason and Bradbury, 2001). Moreover the participating actors are to be seen as co-researchers, that is both practitioners and scientists are collaborators on equal grounds. The latter with the aim to gain and implement local knowledge for practice and theoretical knowledge for the scientific society (Toulmin and Gustavsen, 1996).

This calls for a careful methodological approach, where both scientists and practitioners are involved. In this case we identified co-operative inquiry (Heron and Reason, 2006) as a method that had an action approach that would suit the purposes with the project.

Co-operative inquiry is suitable when you are striving for change and empowerment. The latter was also something that was identified as an important factor when working for improvement of the interactions between different OSH firms and their employees. Further on participation on equal basis as well as a dialogue between different actors are essential parts when you want to on one hand identify existing knowledge and on the other hand get the grasp of the participating actors professional experiences (Ekman Philips and Huzzard, 2007).

The co-operative inquiry model here used for networking can be described with the help of four cornerstones that interact and are dependent on each other. The first one is the initial meeting were the practitioners and scientists jointly explore a common field. In this case sharing and gaining sector specific knowledge on OSH. The following two cornerstones can be characterized as the creative phases where new knowledge and insights arise. Co-operative inquiry has a processual ground, with its focus on interactions between individuals representing different kinds of knowledge and experiences.

At the same time as the approach is transformative when it comes to understand and explore one self’s professional knowledge, and in a structured way it can be the platform for new ways and insights on how to work. Transformative learning contains element that comes close to this approach, for instance a kind of introspective role when searching for learning and strengthening ones competence at the same time as action for change is required, as well as trying out new roles and alliances (in this case professional ones) (Mezirow and Taylor, 2011).

When it comes to validation of the knowledge that emancipates from the networking it can be described as built into the process. This as there are ongoing interactions between the co-researchers, where the knowledge is reflected upon in the immediate situation (Aagaard Nielsen and Svensson, 2006).

3. Results: Starting up the networking
When writing this paper the research project is still in process and the networking is in the middle of its project time. Consequently we will in this paper present the recruitment to the network and empirical findings from the first completion of the process (sessions 1 – 3).

3.1 Strategies for recruitment
Before starting off recruiting to the network a decision was grounded with the projects steering group (composed of representatives from concerned unions, employee organisations, the Swedish Association for OSH, researchers and PhD-students) on what parameters that had to be met in this process, it resulted in; A profession as environmental safety and health engineer or ergonomists, in-house OSH as well as external firms, different length of experiences from working with OSH issues in the manufacturing industry and not have a position as a manger.

There was also a striving for a gender balanced network, with no more than 10 – 12 actors. A learning environment with open dialogues need a critical mass in order to be able to be creative (Oliver et al., 1985), at the same time as too many actors may result in a negative impact on confidence and commitment among the participants. The feeling of exclusiveness was also a variable that we defined as a valuable parameter (Bogenrieder and Nooteboom, 2004). The recruitment process was conducted by the university researchers.

Invitations to participate in the network were sent out by e-mail to environmental safety and health engineers, ergonomists and their managers. The latter as it was of importance to have the project anchored with the concerned managers. The selection process ended up with 12 (eight women/four men) participating
actors (six engineers, four ergonomists, and two researchers) representing six OSH firms, four in-house OSH/employed engineers and one university.

3.2 First session

Two crucial points were to be met, (i) create an open and reflective atmosphere where the actors felt trust and could be open-minded, (ii) to jointly define the theme(s) for the network. In other words the network should not be driven and defined by the professional researchers only, but in close interactions with the participating practitioners.

The session included dialogues on beliefs and expectations concerning (i) the participation in the network as well as (ii) practical issues. The results from these dialogues are presented in Figure 1.

This dialogue was then deepened by using queries on what possibilities and obstacles that could be generated from the networking. Three main obstacles to be aware of but that also could be seen as possibilities were illuminated: time, usefulness and the competitive parameter. There was also an agreement on the network’s framework that included aspects as when and where to meet.

Power points were used as a tool for capture the co-researchers reflections and wishes, a conscious choice that opened up for immediate feedback and validation of the collected data.

The analyze work was performed manually by sorting the reflections and wishes into groups of familiar resemblances. Theses familiarities came to consists of four different themes (Figure 1). Notebooks that should serve as diaries were handed out to each one of the actors. The aim with this tool was to encourage reflections between the sessions on the everyday work, and by this start up the shared research process.

<table>
<thead>
<tr>
<th>Beliefs and Expectations</th>
<th>Themes</th>
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<tbody>
<tr>
<td>Arena for sharing knowledge and experiences.</td>
<td><strong>Work environment and productivity</strong> (work environment and quality, key figures and how do you motivate investments in OSH)</td>
</tr>
<tr>
<td>Opportunities for meetings between researchers and practitioners.</td>
<td><strong>Knowledge sharing</strong> (Reflections upon good examples, how to handle problem projects and obstacles, information about programs and courses in higher education, how to tackle working alone)</td>
</tr>
<tr>
<td>Characterized by an open and creative climate, including trust.</td>
<td><strong>Future working-life</strong> (Manage proactive OSH, what will the future qualifications for working with OSH, OSH safety and health engineers and ergonomists as in-house professionals?)</td>
</tr>
<tr>
<td>Spill-over effects into the home organization.</td>
<td><strong>Relations between OSH and the costumers</strong> (The customer’s procurement skills, forces on the market, code of conduct, customer agreements)</td>
</tr>
<tr>
<td>Provide international and national outlooks.</td>
<td></td>
</tr>
<tr>
<td>Contribute with cases from practice.</td>
<td></td>
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</tbody>
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Figure 1. Results from dialogues on the learning network with environmental safety and health engineers, ergonomists and researchers.

3.3 Second session

Work environment, productivity and economy were the jointly decided theme. Firstly we opened up for discussion on the diary notes taken by each participant’s about their OSH work. It turned out that not everyone had taken notes, despite this fact the dialogue got intensive and the actors were committed.

The presentation by an invited researcher turned out to be a lecture on work environment and economy rather than a seminar, it was time-pressured and not much time was given to reflections within the group. Highlighted was however aspects as it is hard to capture figures about work environmental costs as well as the fact that these kinds of calculations are usually not requested by the top managements. Even the fact
that it takes some time to do economic calculations on work environmental issues and different risks was illuminated.

This second session was characterized by high energy in the beginning, but less commitment towards the end. Before ending the day it was decided to, until the next time, reflect upon energy boosters and drainers in the everyday OSH work, as well as bringing good examples from practice and invite a researcher specialized on ergonomics, quality and productivity.

3.4 Third session

This session started off with reflections on the assignments energy boosters and drainers followed by presentations of good examples.

The dialogues were summarized on a whiteboard, as well as recorded and transcribed. Aspects considered as giving energy at work was good relations with the customers including interest and trust, being able to contribute to improvements, and coming in early in a process.

Energy drainers were associated with the professional role, e.g. working a lot and alone, difficulties in achieving awareness of the benefits working systematically with OSH and the lack of well-functioning expert tools for ergonomic risk assessments.

A majority of the good examples presented during this session had resemblances with the aspects that were considered as “boosters” at work. Shared themes were close cooperation with the customer, inter professional work and OSH adjusted to the costumer’s contexts.

In this session more time was spent on reflections and dialogues, and less on the seminar (in this case productivity, quality and ergonomics).

4. Discussion

In this section we will discuss and analyse both the networking as such in relation to co-operative inquiry and reflections on the knowledge sharing itself, that were going on during the first three sessions.

4.1 Comments on the network process

One of the reasons for applying co-operative inquiry was that we wanted to apply a network where the driving forces laid in the hand of the practitioners that is it should not be too dependent of governance. Another reason was that the network’s focus was on knowledge sharing and this action-oriented approach was judged to be suitable for this purpose. Very much due to views as a democratic approach and that practical and theoretical knowledge stands on an equal ground (Toulmin and Gustavsen, 1996).

The first step to meet and hammering out the networks direction and structure turned out to be quite easy. Probably there are two main factors contributing to this fact. Firstly the professional role as an OSH specialist is fairly alone as well as there are a need for developing ones professional knowledge and meeting equals acting in the same kind of business sector. Secondly it may well be due to the fact that the university itself is a neutral ground and has a high status in Sweden.

According to Heron and Reason (2006) this kind of approach is suitable for empowerment. As the OSH business in Sweden is suffering from problems as clear and strong boundaries between each other, as well as nearly no co-operation and interactions with professionals outside the firm you are employed in, this could be a way to play down the perceived risk coming with knowledge exchange. The results so far confirm this view, as there have not been any concerns regarding these issues.

The second phase, where the co-researchers should get active and reflect upon their everyday professional life, was harder to tackle. The approach was to take notes in diaries between the meetings and then use them for dialogues at the meetings. However it turned out to take two sessions before we found a way forward, it was through deciding quite narrow themes and assign tasks. Noticeable is that we were partly about to leave one of co-operative-inquiry’s main values, as the practitioners wanted us from the university to take this decision and govern the network.

The principals of co-operative inquiry set high standards on, in this case, the researchers driving it. One of the experiences from this case is that at the same time as the network participants should act as co-researchers and jointly operate the network, the participants have clearly demonstrated that they “want” a management. The request is answered, but in the future we see that the participants must take responsibility
to a greater extent, if the networking is going to be sustainable and operate after the end of the research project.

Consequently we have taken on a leadership where we are walking on a thin line, balancing between leading the sessions and open up for the practitioners to join us in this responsibility and be the co-drivers.

4.2 Knowledge sharing in action

Striking for the whole process so far is that the focus has not been on specific sectorial knowledge on how to solve a certain problem, but rather on processual understanding. This is a read thread from the ongoing dialogues to the good examples, which can be synthesized into the themes: (i) communication and cooperation with the costumers, (ii) the lack of transparent structures for OSH work and (iii) a complex reality to operate in.

An analysis of energy boosters gives that it involves good relations with the customers as well as an interest in OSH from the concerned organization’s behalf. To this comes also the concept trust in the meaning of costumer’s beliefs in the engineers and ergonomists professionalism. Rees et al’s (2010) discussion on crafting sustainable work highlights the importance of just openness and trust. These concepts can be argued for being necessary in building creativity and forums for knowledge sharing (Chow and Chan, 2008), especially when actors from different organizations meet (Rees et al., 2010: 627).

Energy thieves are linked to the professional role and aspects as loneliness, fragmentation and conflicts of loyalty. Even if there in Sweden are legal directives (SFS, 1977:1160) concerning systematic organizing of OSH as well as approaching risks (Frick, 2014), the firms tend put very much effort on health examinations and wellness activities. The co-researchers here highlight that this discourse gives birth to an internal competition within the firm about the resources and investments. The interactions between OSH specialists and client companies drains energy, if there are difficulties to create an understanding of the usefulness of investing resources in developing the work environment (Rose et al., 2013).

5. Conclusions

The following conclusions could so far be drawn from this case.

Co-operative inquiry can definitely be used as a tool for establishing a learning network. It contains standpoints that are crucial for knowledge sharing; as it builds upon and enables different kind of knowledge’s equal worth, social trust and open dialogues. In this case we can argue that the network has turned out to be attractive as the recruitment process was easier than expected, a wide range of themes are to be reflected upon, it has been a high attendance to the meetings and openness when it comes to share good examples. An important factor for the positive outcomes, as openness and knowledge sharing, despite the competitive situation is i.e. the fact that we have been networking on a neutral ground.

Knowledge sharing and trust are important factors for the network to be sustainable over time that have been realised in this case. The intentions with co-operative inquiry, that all involved actors own the network and its aim have turned out to be harder to tackle. A critical point is the role as co-researcher and manager of the network. It can be described as a balancing act as the network should be driven by its co-researchers, and not be too dependent on a single actor.

Another aspect is the usefulness and knowledge dissemination into the “home” organizations, how to deal with these questions are to be highlighted in the coming meetings and by the projects managers.

There has not been a need for sharing solutions on specific practical problems, rather reflecting on more complex themes. The first kind of knowledge is easily found on a webpage, and the network has turned out to be an arena for more complex knowledge sharing, on practical and theoretical issues with focus on processes. This on themes as work environment and productivity, future working-life and a proactive OSH as well as relations between OSH and the costumers.

6. References


