

Things Take Time

-Establishing Usability Work in a University Context

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Keywords

Usability work, action research, third space environments, organisational change, IT management, business-IT alignment, IT governance.

1. Summary

This short paper presents a project spanning over two years with the goal of establishing usability work in a university context. The project was a collaborative project where members from the university administrations planning division worked together with action researchers in order to reach the project goals. During the first year the project members educated almost 200 of the IT professionals working at the university, and organised seminars and workshops. The second year the project did two studies on the work environment and usability issues of the people working with financial administration, which were well received within the organisation. To summarize one can say that the project was successful, and that the collaboration within the project worked well despite the fact that it is difficult to measure organisational changes of this nature. Usability work is now an integrated part of the development plans at the university, and usability work will be catered for by the establishment of a knowledge center to enable continuous development in this field. However, one can conclude that a sustainable work environment requires sustainable change process regarding usability. There are surely no quick fixes, and things take time.

2. INTRODUCTION

Today, computers constitute the primary working tool for the employees at our universities, and hence comprise a major part of the work environment and procedures. The work environment is made up of the surroundings and conditions of the workplace, of which computers and usability are parts. Rapidly increasing use of ICT systems has had a significant influence on efficiency and flexibility in organisations, as well as on the nature of individual employees' work - often positive, but sometimes also negative. Uppsala University (UU) has about 6500 employees, of which almost all have experience using administrative ICT-systems, and naturally administrative personnel are the most frequent users. An internal survey made in 2013 identified some 100 administrative ICT-systems in active use. As most of the systems have some usability issues, usability work to improve the work environment for the employees is emerging as an important field of action for UU. This paper will present an organisational change project focusing on establishing usability work in the context of Uppsala University.

Previous research has shown that establishing usability work in organisations is a difficult IT management challenge (Cajander 2010, Gulliksen et al 2009). However, in order to tackle this management problem UU consulted its internationally well known research group working with usability in work settings. In 2011 this research group conducted a preliminary investigation within the field of ICT (Lind et al 2013) and usability at UU, the results of which were discussed with senior administrative management during a full day workshop. Some interesting findings presented were the lack of coherent methods and techniques in system development projects, as well as a general

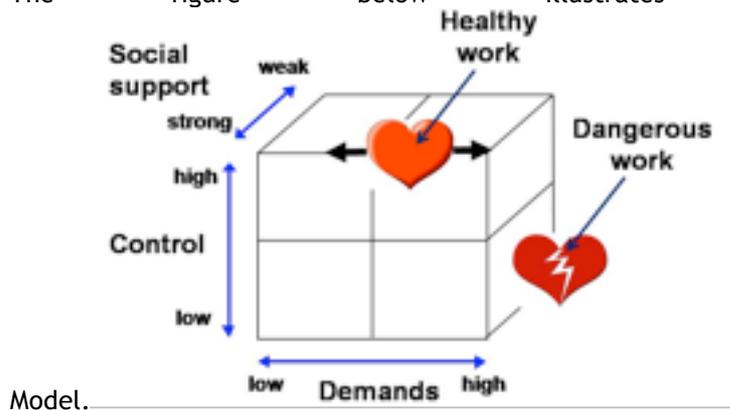
need for knowledge of usability work and usability methods. End users were rarely consulted in the development or procurement of IT systems, and the contact between the IT department and the end users regarding improvement of existing systems was very limited. During the workshop there was a general consensus regarding the importance of integrating usability work in the organisation, and an improvement in the level of knowledge related to usability. However, though several top managers agreed that ultimately usability should be their responsibility, there were no suggestions as to how it could be incorporated in practice. As a result the organisational development project KiA (Swe. "Kvalitet i Användning", Eng. "Quality in Use") was formed, the results of which are discussed in this paper.

The KiA project ran for two years, 2012-2013, and was coordinated by the university administration whereas most intellectual contributions were done by the researchers. It should be noted that the project was not a research project as such but the researchers were allowed to use the findings for scientific work beyond the project. The researchers worked within a participatory action research tradition (Heron and Reason 2006, McKay, J. and P. Marshall 2001) meaning that they were used to work closely with organisations, rather than observing without interfering. The close cooperation between academic and administrative staff can also be seen as a good example of a blending of professional roles that is an emerging trend within university contexts, and often referred to as a 'third space' where individuals are "moving laterally across functional and organisational boundaries to create new professional spaces, knowledges and relationships" (Whitchurch 2008).

3. USABILITY AND HEALTHY WORK

Usability is often reduced to the actual user interface of a particular system, despite the fact that it denotes much more. The ISO 9241-11 definition of usability has been used throughout the project: "[The] extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specific context of use". Thus, usability has to be understood in an actual work environment (this is further discussed in Sandblad, B., et al. 2003) and organisation of usability work is often found on an organisational level rather than being a user interface problem. Usability work needs to be integrated from a lifetime perspective, as is described in Gulliksen et al (2003).

In the 1970's Robert Karasek developed a model for analysing work-related stressors associated with cardiovascular illness. His demand and control model was thereafter further developed together with Töres Theorell (Karasek & Theorell, 1992) and is now one of the most widely used models for explaining psycho-social work conditions and their effects on health. This model suggests that the combination of perceived demands and perceived control at work is a determining factor for stress. The figure below illustrates the Demand-Control-Support



Model. Figure 1. The Demand-Control-Support Model of stress in a work situation. High job strain, i.e. high demands in combination with low decision latitude, and low social support are associated with the highest risks for health problems.

The figure above illustrates how healthy and sustainable a work situation is, in relation to the level of demands, control and social support experienced by the worker. High demands are normally not a problem when combined with a high level self-control and influence over the work situation and necessary tools as well as a strong experienced social support from management and colleagues. A skilled worker can experience this as a positively challenging situation. He or she has full control over the work conditions, the planning of inherent tasks and receives full support when needed. The work is efficient and sustainable. On the other hand, if high demands are not matched by high levels of self-control and social support, the situation will soon become dangerous. If the worker does not have control over work conditions and planning, does not have usable tools and feels totally exposed if things go wrong, the work situation will be very unhealthy. Such work situations are associated with high stress, health risks of different nature are common and people can generally not cope with the situation for long an extended period of time. Regrettably, research shows that subjective control and support factors often decrease when new systems are introduced (Åborg, 1999, 2002).

4. ACTION RESEARCH

Action research is a suitable research methodology for a collaborative project such as the KiA project as it has the dual aim of investigating research questions at the same time as solving problems in practice (McKay & Marshall, 2001). The idea is that the researchers, together with the practitioners, combine their different experiences and knowledge in order to solve a particular problem, as well as developing theory around this problem. Rapoport (1970) defines action research as an approach that “aims to contribute both to the practical concerns of people in an immediate problematic situation and the goals of social science by joint collaboration within a mutually acceptable ethical framework”, and Rasmussen (2004) describes the collaboration in this way: “research is conducted with people rather than on them”.

Another prominent feature of action research is an active and deliberate involvement of the researcher in the context of the investigation. This is unlike many methodologies where the researcher is seen as a spectator who observes different phenomena without intervening. Hence, there is an emphasis on change in action research: “The researcher does not simply observe and describe. They are concerned with making a difference, and learning about how they effected the change.”(Oates, 2005)

Other researchers (Elden & Chisholm, 1993) have noted that the different instances of Action Research extends the methodology in a variety of dimensions such as for example the nature of the problem addressed, the relations between the researcher and the subject, and the nature of science itself. Hence, one can say that the action research family is quite diverse, but at the same time, one can argue that there are some common features in the different usages and that action research is based on a common view of how to conduct research. However, when looking at the multiple approaches within the action research it is possible to distinguish a few common features. Rasmussen (2004) argues that there are three features that unite the different variants of action research. The first is that it is a participatory research methodology, and that is an approach that is: “unique in the way it associates research and practice, so research informs practice and practice informs research synergistically” (Rasmussen, 2004). The second common feature relates to data collection methods that are not restricted to strictly formalised rules but often an integral part of the research process. The third common feature according to Rasmussen is that the researcher often takes different roles in the project. This is also elaborated further by Westlander (2006) who for example describes the tension between the pure researcher and his/her interest in data gathering, as compared to the more service-oriented researcher who collects data that are of a practical value rather than scientific value.

5. PRESENTATION OF THE PROJECT

The KiA project had two phases. During the first year most effort was concentrated on establishing a common ground through educational activities at various levels of the organisation. That is, a theoretical understanding of usability as well as an understanding of organisational development and IT development as interconnected. A half day course was given to almost 200 staff members, covering both the IT and business community. Also shorter introductions were given to various levels

of administrative management where about 25 people attended. Finally the project arranged open seminars for all university staff where usability issues were discussed. All of this was well received and there was good support for taking the project further.

During the second year the project wished to get closer to the actual governing process, that is to say to really establish usability work in the organisation. However, this turned out to be more difficult than expected. It was difficult for the project to establish usability work in various ongoing or planned efforts. Several ongoing projects were interested in receiving help with usability related activities in the form of improving graphical interface designs. However, the members of the KiA project judged that being involved only as interface design consultants would not sufficiently impact the organisation and help drive it towards incorporating usability work at all levels. The KiA project wanted to work together with people in the projects as mentors, or coaches, to make sure that the knowledge gained would persist within the organization. Moreover, the KiA project experienced that it was difficult to stay on the agenda of the top management. Perhaps a reason for these difficulties was an ongoing reorganisation of the administration's IT department, and the launch of a large management project focusing on process development.

The first study was an in-depth study on the overall ICT-workload of the financial administrators at a number of different departments throughout the university. The method chosen was participatory observations, where a researcher observed and interviewed staff in their daily working routines. The results were summarised both as a social type of personas and a generalised method for this kind of work environment study was developed. The development of the method means that the same method can be used on other groups, in other settings or simply as a later follow up. The method will eventually be presented in a research paper. At UU the study has contributed to a deeper understanding of the diversity behind what might be perceived as a homogenous group with routine tasks. It also contributed to knowledge regarding usability problems generally, and the stress level of certain kinds of work.

The second study focused on the deployment of a new ICT system. The idea behind the study was to look at what was perceived to be a successful introduction, and to identify possible success factors that might be included in a more general process. As the ICT system in question was provided by an external vendor, the system itself was not possible to change. Despite this, the deployment went smoothly as a lot of effort was put into preparing the organisation and the users for the new system. While the results from the success study might be said to confirm best practices from theory, it is relevant to show that theories are possible to apply in practice and that it is possible to launch new ICT in organisations without having negative impact on the work environment of the users. Moreover, this success story can be used as a way of showing that it is possible to establish sound principles in a university setting. The study also support the findings of the first study in that it clearly identified that heterogeneous organisational structures at the department level adds complexity to the deployment effort and easily complicates the reception of new ICT.

While the above mentioned studies at first seemed like a step back from the planned path of the project, they actually seem to have established the project within the organisation (just as the project came to a close). The studies themselves have been well received and have given more credibility to the overall approach of usability work.

6. CONCLUSION

In conclusion, the KiA project has been successful from an organisational change perspective, and usability work is now integrated in the organisation to a larger extent. The long row of meetings and consensus-making as well as discussions almost felt like a waste of time at that point, but resulted in noticeable and somewhat unexpected changes in the end. The general understanding of usability issues has improved, and major new projects now include best practices for usability work established by the project. The establishment of usability work also continues through the establishing of a competency center to enable continuous development in this field. Moreover usability work and a clearer responsibility for usability related issues are now a part of the IT development plan at the university, which can be seen as an unexpected and major possibility for continued work with the establishment of usability work.

One important result from the project was the collaboration and community of practice created within the project as such. One should remember that the KiA project was a pioneering effort in establishing a third space environment. One important result from the KiA project is the planning of further change efforts when it comes to the establishment of usability work at the university. The researchers and the people at the planning division have launched a new collaborative project related to the Ladok3 project that will affect all universities in Sweden. They have also applied for additional research funding to be able to extend the collaboration further.

It is difficult to measure the establishment of usability work and to describe the results of situated reflexive change (Eriksson, 2013). The establishment of usability work can be seen as a competence development, and as such one can relate it to general models of competence (used in for example Byram, 1997). In these models, a competence has three parts; knowledge, attitude and skill. Knowledge in the context of usability work denotes techniques, methods, knowledge regarding user involvement, user interface design etc. The attitude is related to the position of the end users in the development, the value one gives to usability work in relation to other aspects and the willingness to change (Cajander et al 2008). The skill denotes the ability to integrate the knowledge of usability work in the actual work procedures. In the KiA project many of the people taking the different courses really appreciated them, and the courses were well received. However, from previous similar educational efforts we know that usability is not an easy concept to learn (Cajander et al 2006) and that usability methods are not always perceived as adding value to the systems development process (Eriksson et al 2009).

One conclusion that can be drawn from the project is that usability is perceived as too vague, too complex and that it was difficult to find anyone who really saw usability as their responsibility in the organisation. This applied both to individuals and to organisational units, despite the fact that most people thought that usability work was important. This finding support previous ones presented in Cajander (2010) where the main project manager described the situation in this way: "Usability and user-centred systems design is like peace in the world. Everyone says that it is truly important, but no one really understands how they can contribute to it, and no one takes responsibility for it." One recommendation based on our experiences is to avoid the use of usability as a synonym to GUI or interface design. The view of usability as a user interface problem only would be strengthened by such a use of the word.

Also, it should be noted that although the project lost some momentum the second year it allowed the organisation to catch up with the project. Perhaps the most important lesson from the project is that long term change is possible, but that change projects need time. One can conclude that a sustainable work environment requires sustainable change process regarding usability. There are surely no quick fixes, and we would like to finish this short paper with one of Piet Hein's grooks (2002, p 5):

T.T.T.
Put up in a place
where it's easy to see
the cryptic admonishment
T.T.T.
When you feel how depressingly
slow you climb,
it's well to remember that
Things Take Time.

7. 8. ACKNOWLEDGEMENTS

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Gerolf Nauwerck works at the Planning Division, Uppsala University. He joined the administration late last century and has worked there ever since. Lately he has coordinated the KiA project where he learnt about grooks for the first time.

Thomas Lind has a M.Sc. in Sociotechnical Systems Engineering from Uppsala University and is currently a PhD student in Computer Science with a specialization towards Human-Computer Interaction at the Department of Information Technology, Uppsala University. In his research he is identifying pitfalls and key principles towards facilitating user adoption of IT in large governmental organisations and is presently engaged in action research projects within the sectors of higher education and health care.