Developing Information Systems Education in a Network – Lessons Learned from a R&D Project

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Abstract

In this paper we focus on lessons learned from developing information systems (IS) higher education in an inter-organizational (IO) network focusing possibilities and challenges. Developing higher education is one area among others where organizing joint efforts in networks are possible. An IO R&D project is described and analyzed in this paper. The overall research design is qualitative and interpretive. The research is based on a case study of the project and the network collaboration between four Swedish universities as participants as such. Theoretical concepts that characterize an IO relationship (continuity, complexity, symmetry, and formality) and concepts that describe dimensions of such relationships (links, bonds, and ties) helped us to describe and to analyze interaction in the IO network together with the characterization of context, content and process related to the development work. The IO network in this paper is classified as a joint problem solver; a functional network. Findings in the paper address several possibilities and challenges related to higher education development in IO networks. Findings highlight e.g. the need to involve active teachers and researchers, to manage distributed teams, to be aware of the critical and sensitive matter of opening up the "black box" of courses using critical friends, and the time and effort needed for anchoring projects and changes at the participating universities.

Keywords: Higher education, networks, learning outcomes, information systems, action research, IS education

1. INTRODUCTION

There is a rapid development in the area of higher education (HE). From a European perspective several joint European Union (EU) initiatives are taken. The Bologna Declaration of 19 June 1999 with a joint declaration from the European Ministers of Education is a major point for development of HE in Europe. In the declaration, facilitation of mobility of students, graduates and HE staff are focused. Preparing students for their future careers (focusing employability) and for life as active citizens in democratic societies is also important dimensions of the declaration. Offering broad access to high-quality HE, based on democratic principles and academic freedom, are also focused. With the Bologna Declaration, and the inbuilt focus on learning outcomes, a R&D project named "A learning outcome model – reflected assessment" (further described below), with four Swedish universities as participants, where launched in 2007. The projected ended in 2009. The idea was to deal with the fact that

almost all HE syllabi were re-written and re-formulated (under time pressure) according to the new standards during the year 2007 at all Swedish universities and that the need for reflection and improvement were huge. Working with these challenges together in an inter-organizational project – an inter-organizational network – learning from each other was an important ground for the joint initiative. The R&D project is an action research project (Avison, Baskerville and Myers, 2001; Baskerville and Wood-Harper, 1996) trying to achieve the dual purpose of improving HE and developing scientific knowledge – combining relevance and rigour (Keen, 1991). This paper focuses on lessons from this development project. The project is, thus, the case studied.

An important incentive when organizing the joint effort as an IO network was the collaborative advantage (Moss Kanter, 1994) opportunity. The collaborative advantage can be regarded as a contrast to competitive advantage. Of course the involved universities in the present project compete on the research funding market and on the student recruitment market, but have joined forces in this project focusing on learning outcomes. Organizing work in an inter-organizational network, or a virtual organization, have several potentials regarding pooling of resources, actors' competence, mutual trust, building relationships, identity (Hedberg and Olve, 1997) and setting up a dynamic and heterogeneous group together.

Developing HE is one area among others where organizing joint efforts in networks (see e.g. Fincher, 2002) is possible and present. In this paper we will focus on lessons learned from developing information systems (IS) HE in a network focusing possibilities and challenges. Our analysis of the activities in the project will be guided by concepts from inter-organizational theory, i.e., the industrial/business network approach (Håkansson and Snehota, 1989; 1995). Theoretical concepts that characterize an IO relationship (continuity, complexity, symmetry, and formality) and concepts that describe dimensions of such relationships (links, bonds, and ties) will help us to describe and analyze interaction. Concepts from Pettigrew (1987; 1990) will also be used to characterize context, content and process related to the development work.

The purpose of this paper is to analyze and describe lessons from a higher education development project within the IS discipline in Sweden. The development work is organized in an IO network and lessons are presented in terms of possibilities and challenges. Research questions addressed are: (1) what possibilities and challenges are present in joint development of higher education in networks? (2) what lessons can be learned from the present development effort?

After this introduction, the paper is organized in the following way: In Section two we describe the research design, followed by the introduction of the R&D project and the participating universities in Section three. The theoretical background is then presented in Section four. The empirical findings from the case studies are compared, discussed and analysed using concepts from the interaction approach in Section five. The paper is concluded in Section six, where some statements about the need for further research efforts in this area are also made.

2. RESEARCH DESIGN

The overall research design in this paper is qualitative and interpretive (Walsham, 2006) and based on a case study (Stake, 1995; Yin, 1994). In this paper we reflect upon our own R&D project (the case), trying to systematize experiences and put them in the light of theories. Concepts from theories (as stated above) have been used as guide (Walsham, 1995; 2006) when analyzing the experiences in the R&D project. The R&D project as such is classified as action research (AR), as introduced above, with a typical dual purpose of changing and studying change (Avison et al., 2001; Baskerville and Wood-Harper, 1996). The project group members have acted as change agents (Checkland, 1991) and researchers.

Based on interviews with members of the project group from the four universities, reflections, studies of documents, activities and process experiences and lessons have been identified and later on structured using theoretical concepts (introduced above). The level of analysis in this piece of HE research (cf. Tight, 2003, p. 10) is related to: individuals (students and academics), courses, department and university level.

3. THE HIGHER EDUCATION DEVELOPMENT PROJECT

Below the R&D project is introduced followed by an introduction of the participating universities.

3.1 R&D Project Introduction

A major point of departure for the project, "A learning outcome model – reflected assessment", is the Bologna Declaration introduced above with its focus on learning outcomes. Keywords such as knowledge, understanding, ability, skills, assessment, and perspectives are focused. When applying learning outcomes in HE courses the need for assessment of student achievements vs. learning outcomes is highlighted. The work with learning outcomes has a great potential, but several challenges are present. In order to be able to perform reflected assessment of student achievements, we, among other things, developed a framework in the present project. The framework is related to learning outcomes from different perspectives, such as employability, student learning outcomes, research and subject oriented profiles. The project is grounded in and related to didactic practice and pedagogical research. The R&D project is based in the IS subject area in Sweden but is relevant to other subject areas as well.

3.2 Participating Universities

Research has been performed at the four universities taking part in the R&D project. The settings in these domains are diverse regarding some aspects which have led to the following categorization of the participating organizations; *the big university (Big Uni)*, *the international university (International Uni)*, *the distance learning university (Distance Uni)*, and *the profession university (Profession Uni)*. The *Big Uni* is the largest of the four. This university has mainly program education; i.e. bachelor and master programs within a subject area where courses are grouped together and offered to students as a united education. Due to the size of the university, the process of learning outcomes formulation and decision making is rather formalized. This process is in parts separated from the teachers at the department which gives the IS education. The *International Uni* has an international profile for all their programs and courses. This implies that there are many students from other countries taking the courses, but also that Swedish students go abroad for parts of their education. Regarding learning outcomes this means that cultural and linguistic aspects have to be taken into account both when formulating the learning outcomes as well as when examining them. Diversity in education from different countries must also be handled when comparing and evaluating learning outcomes. The *Distance Uni* offers many distance learning courses without any demand for students being present at campus. The IS program we have studied is given under the parole of "free start and free speed" which means that a student can start taking courses in the program at any time of the year and in any tempo he or she likes. All course activities are handled via Internet. Learning outcomes and an individual plan for the studies are very important tools to get this kind of distance learning to work properly for each student. The *Profession Uni* emphasizes its close connection to the students' future labor market. Companies and other organizations in the region take active part in many courses as the relations between the university and important employers of students are seen as essential for the quality of the education. This profile means that students should be prepared for a future profession by integrating employers early in the process. Regarding learning outcomes this implies that they have to be discussed with future employers.

4. THEORETICAL BACKGROUND

Below a short background to development activities in networks are introduced followed by a characterization of the particular domain (higher education) and concepts from the industrial/business network approach supporting the understanding of interaction in networks.

4.1 Development in Networks

In this paper we interpret the R&D project as an inter-organizational network (Aldrich, 1979). The formation of a network is based on the ambition that collaborative advantage is more productive than competitive advantage (Moss Kanter, 1994, p. 97 ff.). The ambition is to create advantages through cooperation and creation (ibid.). Hedberg and Olve (1997) also highlight several potentials regarding pooling of resources, actors' competence, mutual trust, building relationships, identity setting up a dynamic, and heterogeneous group as a part of a network. Oliver (1990) identifies a set of needs when developing a network; necessity, asymmetry, reciprocity, efficiency, stability, and legitimacy. These issues will be elaborated more on using the industrial/business network below. Networks are not controllable in an organizational sense, due to the inter-organizational and distributed arrangement.

4.2 Developing Higher Education

Networking is considered to be an important phenomenon when developing HE (Fincher, 2002). Networking can be discussed using several dimensions for example informal and formal dimensions. Such dimensions can be everything from having coffee and chatting with like-minded people (informal) to more organized (formal) networks based on explicit target communities, benefits, conceptual models and a set of desired aims (Fincher, 2002). The present network is a formal network trying to act as a joint "problem solver" (cf. Fincher, 2002, "functional network"); focusing on one particular aspect, in this case trying to make use of learning outcomes in the Bologna Declaration in a broad-minded sense.

Research on educational development (e.g. Baume, 2002) suggests some insights regarding planning and management: *context* should be taken into account (with its local norms, policies, and priorities), *discipline* (generic educational development should consider the practice, in particular disciplines and involved stakeholders), *change plans and goals* (adapting to changing circumstances), *framework* (avoiding a-theoretical approaches – using explicit theoretical basis for planning as well as analysis and evaluation of project results).

We consider our approach to teaching in a university context to be a mix between what Ramsden (2003, p. 115) characterizes as "teaching as organising" and "teaching as making learning possible". For example, we try to organize for active learning and apply skills to improve learning on one hand, but also try to engage and challenge students and to make teaching as a "research-like, scholarly process" (ibid., p. 115).

4.4 The Business Network Approach

The industrial/business network approach, called the Uppsala School (e.g., Håkansson, 1982; Axelsson and Easton, 1992; Håkansson and Snehota, 1995), is a mature line of thinking that supports the understanding of interaction in networks. Interaction is an aspect of reciprocal action or interplay; it is not the case of just one organization acting and the other organization reacting (ibid.). In this approach business relationship's characteristics can be described and analyzed in terms of its levels of continuity, complexity, symmetry, informality, and its dimensions (links, bonds, and ties).

When studying the interaction between organizations we can find several characteristics of relationships; (1) continuity (2); complexity; (3) symmetry and (4) informality as structural characteristics of a relationship (Håkansson and Snehota, 1995).

1. *Continuity* refers to the relative stability that tends to characterize relationships.
2. The *complexity* can comprise the number, type and contact channels for those from each organization who are involved in relations (ibid.). Also, contacts can vary from level to level between organizations.
3. It is typical for relations in industrial networks for customers and suppliers to be *symmetrical* in terms of resources and initiatives on each side.
4. The relationships often demonstrate a low level of *formality*. Even though contracts exist, they are seldom referred to (ibid.).

Another important aspect to study is different dimensions of relations, such as links, bonds and ties. Link refers to the connections that exist in the activities between organizations, so-called activity links. An activity is defined as: "a sequence of acts directed towards a purpose" (Håkansson and Snehota, 1995, p. 52). Activities can be of various types, for example technical, administrative or commercial. The links between activities reflect the need for co-ordination which affects how and when various activities are carried out. The links between activities make up a certain structure within the respect of organization at the same time as it also creates certain patterns in the network.

Bonds between the actors in a network can be of various types, for example technical, social, time-based, knowledge-based, administrative, economic or legal (Håkansson and Snehota, 1995). Bonds arise in relationships as two related actors mutually acquire meaning in their reciprocal acts and interpretation (ibid., p. 197). Bonds may have various aims, an example being to achieve co-ordination as a means of saving resources.

An IO relationship affects the way in which the organizations use their personnel, equipment, know-how, and financial resources, only to mention a few. An IO relationship can comprise pooled resources of these kinds, so-called resource ties. The relationships between organi-

zations are not just a way of assuring access to resources, they are also a way of getting various types of resources to meet, confront and combine (Håkansson and Snehota, 1995), and to develop, create or refine.

5. ANALYSIS AND DISCUSSION

In the following section important activities in the present R&D project are summarized. The activities are then analyzed and discussed using theoretical concepts and issues introduced above.

5.1 R&D Project Activities

An important part in our R&D project network has been to (1) critically examine a selection of courses and study programs in IS at the participating universities. Furthermore, we have (2) generated empirical data from a number of employers and students and examined and compared the findings to local educational profiles and topics; (3) related emerging models under development to established pedagogical and didactic theory, and (4) continuously anchored results mainly from teachers and students (cf. Tight, 2003). These four types of activities are further described below.

The selection of courses and study programs (1) have been coordinated within the network and have been adjusted to the characteristics of the programs at the various universities. We have pursued both homogeneity and heterogeneity in the sample. Homogeneity in terms of identifying similar courses from each university in the network. Heterogeneity on the other hand, in terms of variation in the set of studied courses regarding content, positions (e.g. introductory vs. advanced) in programs, etc. Regarding the selection of employers (2) we have generated empirical data from typical employers. A reference group of students (2) also participated in the work at each university and the joint project activities in the network.

While the approach of the project has had the common principles of design and implementation among the universities, the methodology has been adjusted to local conditions, practice and needs. The *International Uni*, for example, conducted group interviews and a survey among students in a bachelor´s program in IS including current perspectives on learning outcomes, as well as interviews with the program manager and a study counselor. The *Big Uni* has generated the equivalent empirical data with the use of focus groups with students and interviews with teachers, counselors and a program director. Students at *the Big Uni* have also contributed to a logbook in an introductory course on learning in general and learning outcomes in particular. *The Profession Uni* has worked with participant observation in addition to interviews and document analysis. The latter has also been performed by and shared between all participating universities in the network. *The Profession Uni* has also been particularly successful in recruiting students from the active student section to participate in this project. *The Distance Uni* has conducted interviews with the program director and the head of the department and a member of the department board. The data from students (newly enrolled and in training) was obtained by e-mail due to the e-learning setting used at *the Distance Uni*. The variation described above was considered to be fruitful for the project and the participating universities – allowing each university to work in their particular areas "at home" – but sharing a common project platform in the network.

An important part of the cooperation in the network has been, in addition to anchoring and grounding models well in empirical needs, to include findings and experiences in established pedagogical and didactic theory (3). The IO dimension in the project has opened our eyes regarding the subject – IS - as such and its unique character in our departments and universities, while we have identified an interdisciplinary nature (through theoretical roots) for the emerging knowledge in the project.

In order to achieve results in active teachers' everyday teaching, anchoring of the results is central to its success (4). This has been proved by experience from a previous externally funded educational development projects at the *Big Univ*. Anchoring in teacher groups at each university has been an ongoing activity in the project. However, this has taken more time, energy and resources than anticipated. The collaborative climate in one of the participating universities has not been the best to anchor and begin implementation of the models. One reason for that is based on the fact that our work has an amount of self-reflection and collegial critique. Sometimes these activities were interpreted as critique on a personal level by teachers. Overall, we underestimated the need for time and other resources, in parallel with this project network cooperation to pursue a more active process of change at

each department regarding systematic and open minded work with learning outcomes.

As the systematic work on generating empirical data, analysis and publishing have been prioritized in the project from the start; we consider it important that we have had both research and teaching staff active in the project. There is a clear success factor to be genuinely interested and active in both arenas - research and teaching. It is also a way of creating legitimacy in the cooperation. The reason for emphasizing research experience is that we have placed emphasis on theoretical grounding of our results, a systematic approach and methodology, and dissemination of knowledge (scientific articles and conference papers). This was done in order not "only" to stay on the level of experience and the development of "local theories". The research process as such has been a clear metaphor and a strong ambition in our work.

The construction and use of multiple perspectives to identify learning outcomes has resulted in an exposure of conflicting objectives (such as different priorities of different interest groups) as we noted above. This has been particularly interesting from an implementation and a learning point of view, but this has not always benefited the project's progression. Our intention has been to highlight the trade-offs in order to search for explanations for its occurrence and increase a more thorough understanding. Our aim was also to demonstrate the importance of the perspectives taken when learning outcomes in relation to quality in IS education are discussed. Such discussions have been more delicate than we expected since courses often are seen as a personal property rather than an institutional, organizational, property to initiate, design, manage and develop further. Open criticism of the courses' design, content and learning outcomes can be perceived as criticism and questioning of person (and his or her personal views, teaching styles and expertise in the field as mentioned above) rather than constructive criticism and questioning of learning issues and course content and design as a part of an ongoing quality development.

Collaboration and the systematic research approach applied in the project as such benefit from the fact that all departments and actors have relationships through their postgraduate studies in IS development or economic IS - both based at the Big Uni. In this context, however, IS education (at basic and advanced levels) and development, is focused. These relations and alliance that we have has resulted in a shorter "takeoff" when initiating the present network cooperation. We also believe that we have been able to work productively and with a good atmosphere. If the elements discussed above have hampered the project's progression, the latter have clearly benefited the project's progression.

5.2 Possibilities

The *context* for and the *content* of the work performed in the IO network are important. This is e.g. expressed in the following way:

"Beyond the statements in the project plan, I think that our educational project has put educational development on the agenda, made it to a research object and expanded it from just being operational implementation. The project also has important image-building impact internally at our university, our reputation as being a proficient and ambitious subject area is being affected. We become role models in several contexts, etc." (Project Member, *Big Uni*)

The *Profession Uni* also emphasizes the importance of incentives in the *context*. An ongoing certification activity and the need for quality assurance departmental level were important. The project contributed to that work. The *International Uni* had a similar set of incentives related to a launch of a new bachelor study program in IS and an active work with learning outcomes related to that needed support.

The *Big Uni* has had a number of R&D project in the educational development research area. However, the present project is organized in a network – an organization that has not been the case in the earlier R&D projects in the educational development research area. The present project is also a part of an ongoing renewal of study programs in IS at the *Big Uni*. This context is important as an empirical source, a "test milieu", and as a receiver of the result (cf. AR, above).

Common for all universities, and an important part of the set of incentives in the *context*, is the national evaluation of the IS subject area that is going to be performed by the Swedish National Agency for HE in 2011. Quality assurance is an important part of this evaluation motivating development work in line with the present R&D project *content*. Finding means and methods of quality assurance and improvement of IS courses are essential and em-

phasized particularly by the *International Uni* and the *Distance Uni*. One possible explanation for the emphasis of quality assurance particularly from these two universities is the dimensions of handling students from 80 different countries in the first case and the dispersion in time and space in the second case.

The *content* and the combination of research and development are also considered as important from an individual incentive perspective: "To develop the educational activities *and* research is my driving force. One of these reasons was not enough, but the combination makes it interesting" (Project Member, Big Uni).

Several project members also emphasize discussions concerning approaches to handling learning outcomes, common practical obstacles (sharing and comparing experiences and theories – the comparative dimension between the universities) and the exchange of different perspectives as particularly valuable. These aspects can be related to the *content* of the cooperation as well as the *process* as such.

Other *process* related aspects are e.g. "fun", "great discussions", "time for reflection" etc. The last aspect is also highlighted by the *Big Univ*. It is considered as important to have teachers active, not only performing "course after course" without reflecting upon their practice, but instead be a reflective, research based, practitioner within their own field of expertise. The *content* in the project, focusing learning outcomes and employability, is also aligned with policies at the university level and the national level, legitimizing the work performed in the present project.

All project members also accentuate the even more important need for (IS) researchers to uphold and improve their pedagogical portfolio and their publication portfolio in the IS area in general, and in this case, the IS educational area.

5.3 Challenges

Many challenges are identified in the *process* of working with the issues focused in this paper. Some of the challenges (highlighted by all project participants) are related to the implementation of the emerging results from the R&D network (in the daily operations at every participating university) – the *context*.

"[…] summarized, the biggest obstacle is teachers' unwillingness to change and lack of time, which means that we do not have time to implement changes even if we can identify the need. (Project Member, Big Uni)

At one university one interviewee even viewed the *content* as a "flash in the pan" or a as a token of opportunistic, market oriented, behavior linked to the overall Bologna Declaration and especially the focus on learning outcomes and employability. At another university the student representative phrased the challenge regarding implementation in the following way also linked to organization culture: "You have to be a warrior to make your opinion heard […]" [Student Representative, International Uni]."

To assess colleagues by analyzing the learning outcomes of their courses is not considered as appropriate and certain questions were not allowed to be asked. This is an obvious challenge when trying to develop IS education. An organizational culture like this shows a lack of respect for opinions from colleagues and students (cf. Handal's critical friends, 1999). A culture like this also stresses the question of ownership of a course. Who owns a course? Who owns the learning outcomes? The university? The school? The study program? The director of studies? The teacher? The students? We identify a need to open up the black box that a course can be. To be explicit about the design, content etc. To invite to dialogue and criticism (cf. Handal, 1999). To be inspired by the research process and the seminar.

Another challenge is the student involvement. Perhaps the focus of the project *content* is not perceived as super important to students? - At least not in a development phase. Compared to the interest of updating the course content as such, the students' interests in learning outcomes are rather weak. This has resulted in some challenges regarding the level of student involvement.

The exploring nature of the project regarding the *content* is partially interpreted as a challenge – there is e.g. a lack of models and principles covering the issue of focusing learning outcomes.

The fact that the project members are colleagues *and* competitors – representing different universities is maybe more of a potential challenge than a present one in the network. The different profiles of the universities may have reduced the risk of competition affecting the project negatively. A collaborative advan-

tage (cf. Moss Kanter, 1994) identified when setting up the project was identified and reported also at the end of the project when evaluating the collaboration *process*.

Different ways of working, at the universities, mentioned above, can also be regarded as a challenge (related to *process* and *content*) – not just a possibility to generate interesting R&D results. Challenges in the comparative analysis are one aspect.

From a project management perspective, the geographically distributed network is a challenge. There is a need that the present project should be a part of everyone's weekly agenda – but this is more challenging to achieve because the small talk (e.g. in corridors, coffee areas, lunches etc.) about the project *content* and *process* is not possible to achieve. All the participants in the project are active teachers and researchers – an extremely good knowledge base and resource in the project – but also a challenge in terms of recurrent attention. Other, closer tasks and actors tend to get more attention which is a general challenge with distributed project and networks. The work has, besides to local activities at every university, been performed at a number of joint workshops and a number of distance meetings using Internet (Marratech software). Another activity introduced in order to reduce the challenges related to the distributed network was "writeshops" (cf. workshops). These "writeshops" were based on a boarding school metaphor and contained several parallel and linked writing processes with the aim to produce co-written paper drafts.

5.2 Interaction and Relationship Characteristics

The issue of interaction – not just one actor acting (Håkansson and Snehota, 1995) – has been important in the present cooperation. This is e.g. shown in the variation between the universities regarding methodology, focus, etc. We have also identified a number of crucial relationship issues that were important in the present cooperation. There was continuity in the relationships based on common post-graduate background (the use of social bonds; Håkansson and Snehota, 1995), an informal atmosphere in the project, and a matching of resources (resource links; ibid.). The latter aspect made the project content important for the participating universities trying to e.g. learn from each other when handling a new situation (the explicit use of learning outcomes) and understanding the different university profiles in IS.

The interaction between project members from different universities has also, e.g. in discussions and comparative analysis, been a situation where resources have met, been confronted and combined (cf. pooled resources; Hedberg and Olve, 1997, Håkansson and Snehota, 1995).

5.3 Other Lessons and Reflections

Some of the implementation challenges may have been reduced if a kick off activity (e.g. a conference for our colleagues at all four participating universities) would have been launched. Examples and needs from all universities could have been highlighted in order to anchor the project and the need for development in the different IS divisions.

In a final evaluation of the project we have also reflected upon the need to – even more - emphasize a deeper literature study and analysis early in the project and to make use of e.g. staff from the different universities' pedagogical development units. The overall reflection from the participating universities can be illustrated using the following citation: "We have certainly accomplished more together than what any of us could have accomplished in his or her own." (Project Member, International Uni)

6. CONCLUSIONS AND FURTHER RESEARCH

In the sections below we summarize the possibilities (6.1) and the challenges (6.2) (RQ1) identified in our analysis above. We also summarize lessons from the present development effort (6.3) (RQ2). This section is concluded with some remarks on further research needs.

6.1 Possibilities

- To perform relevant development work in cooperation with colleagues from other universities – learning from each other in a network, making use of different universities' unique profile, dilemmas and situations.
- To interact, pool resources, confront and combine them in a fruitful way in an IO network in order to perform rewarding HE development work.
- To anchor the project well, in the appropriate context, with a rewarding

content and an efficient process. This can make a real difference for participating individuals and organizations. A research process can be used as a blueprint for HE development.

- To allocate staff that is active in both teaching and research in order to build trust, legitimacy and to pool research handicraft skills.

6.2 Challenges

To be aware of the:

- Effort to be put into the implementation of ideas and issues developed in the network at every participating university. This is not necessary a part of the development work – but needs to be taken into account early in the development work in order to create a platform for change. Change takes time! Implementing the results from the project in teachers' everyday life is an important aim in the AR project.
- Challenges related to distributed teams in IO networks – the lack of "small talk" (mutual adjustment; cf. Mintzberg, 1983) when coordinating the project on an everyday basis.
- Critical and sensitive matter of opening up the "black box" of courses – from design all the way to evaluation and redesign. Critical friends (Handal, 1999) are a good ideal in theory – but a delicate matter in practice. This aspect is related to the ownership of courses, organization culture, etc.
- Importance of creating a project that is legitimate in the different organizations.
- Importance of having students involved in relevant parts of the development work.

6.3 Lessons Learned

The network analyzed in this paper is a joint "problem solver"; a "functional network" (Fincher, 2002) using collaborative advantage (Moss Kanter, 1994) as a point of departure. The possibilities and challenges above summarize the lessons learned from the cooperation regarding e.g. the need to involve active teachers and researchers, to manage distributed teams, to be aware of the critical and sensitive matter of opening up the "black box" of courses using critical friends, and the time and effort needed for anchoring projects and changes.

The present work, both as a process and as a result, becomes a part of the participating universities' ordinary course and program development work, quality assurance processes, etc. This is a challenge but also an opportunity. Local supporters and stakeholders are needed in order to promote the knowledge base developed in the present project and in order to gain sustainable results in the organizations. This is in line with e.g. Baume's (2002) insights regarding planning and management in networks for educational development.

6.4 Further Research

Further research is needed in order to further anchor the results more thoroughly in theory and in practice. However, the findings above are an illustration of the possibilities and challenges when developing IS HE in an IO network. To add an international dimension (e.g. a comparative case study) could be interesting both within the EU (and the Bologna Declaration) and outside EU.

ACKNOWLEDGEMENTS

This study has been financially supported by the Swedish Agency for Networks and Cooperation in Higher Education. We dedicated this paper to our late project member and research colleague Dr. Göran Hultgren, Dalarna University.

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