

## **ENHANCING SUPERVISION OF UNDERGRADUATE STUDENTS' DISSERTATIONS THROUGH THE USE OF EDUCATIONAL TECHNOLOGY**

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### **Abstract**

In Sweden, the use of educational technology has increased in tertiary education. But there is one part that has proved more resistant to change, technology enhanced or not — the supervision of student thesis work. In this paper one attempt to enhance the supervision of students thesis work through the use of technology is described and analyzed. The analysis showed that students in general find the use of technology helpful for the supervision both one to one and collaboratively. Educational technologies and collaborative forms for supervision of student thesis work are therefore suggested as a productive way to enhance students' learning through technology.

### **Introduction**

In Sweden, the use of educational technology has over the last ten year period increased in tertiary education. In most universities using learning management systems (LMS) of different kinds is today as common in courses given at campus as they are in distance based courses. This development is parallel to an increased number of courses and programs offered online or as blended learning courses. But there is one practice that has proved more resistant to change, technology enhanced or not — that is the supervision of student thesis/dissertation work (Forsberg & Lundgren, 2006; Högberg & Eriksson, 1998). It has remained a one-to-one venture, on campus or in online settings. This paper describes and analyses one attempt to enhance the supervision of students dissertation/thesis work through the use of technology.

### **Supervision of Student Thesis Work — Relationship between Student and Supervisor**

Supervision can be characterized as a puzzling pedagogy requiring a thoughtful response by its practitioners — in the case of supervision theory does not easily translate into practice (Grant, 2009). In her dissertation study, Grant (2005b) focused on the relation between supervisor and student, with the intention to shed light on the underlying ethics that shape supervision. She states that even though the supervision process is being more and more restricted and regulated, the pedagogy of the supervision process is elusive and not much theorized. She concludes that too much regularity of this pedagogy is

problematic since the ambition is to produce original, independent academic work and this therefore must be much a practice of improvisation. Grant (2005a) claimed supervision to be a deeply uncertain practice, in which expectations on supervisors as well as on students are unclear and in which it is also unclear what is being supervised. In supervision the focus blends between the personal and the academic, between student or research. Yet another issue making the pedagogy uncertain is raised in Grant (2009): the ambiguity of dependence and independence. Grant (2009) suggests several theoretical frameworks for understanding supervision: supervision as a map of layered relations; the object of competing and contradictory discourses; the bondage of master and slave; playful improvisation. These frameworks imply that students and supervisors could have both different as well as competing notions on the content and purpose of supervision.

In a study of how students approach their dissertation work, Greenbank and Penketh (2009) conclude that dissertation tutors need to enter into dialogue with their students to better understand the values underpinning students behavior. Their study, they argue, demonstrates that students' willingness to autonomy in the dissertation process is influenced by several factors, such as their previous experience in writing as well as the nature of their relationship to those they seek advice from (dissertation tutor in particular). A key factor, however, is the students' beliefs in their ability to meet the objectives they set themselves. This belief led students to rely on their intuition and experience rather than on advice from dissertation tutors, which in turn could cause them to not conform to tutors expectations. A conclusion Greenbank and Penketh put forth is that it therefore would be valuable for tutors to enter into dialogue with students, and to encourage students to reflect critically on how they intend to undertake the dissertation instead of trying to persuade students to conform to tutor expectations.

The experiences and perceptions of final-year students was investigated by Todd, Bannister, and Clegg (2004). Students were reported on valuing autonomy, authenticity and ownership in relation to the dissertation. But also considerable challenges, especially in relation to time, were reported. Todd, Bannister, and Clegg also suggest that students might benefit from practicing on writing dissertation on projects conducted earlier in their education. Todd, Bannister, and Smith (2006) investigated the experiences and perception of staff supervising final-year social science students on their dissertations. The dissertation was seen as having a unique status as independent, self-directed work undertaken on their degree, autonomously but also in need of appropriate support. In this study, staff reported a need to change roles and to be sensitive to the differences between students.

In another study concerned with the students' expectations, Stevenson, Mac Keogh, and Sander (2006) show that it is possible to work with students expectations on the levels of the service and support they receive from their tutors in distance education courses. Their study implies that it could be beneficial to include knowledge of expectations beforehand, not only in retrospect as in the study reported on in this paper.

### **Supervision and Use of Educational Technology in Personalized Spaces**

According to Mac Keogh (2006) even though much is written on various aspects on undergraduate research dissertations, what is written is largely focused on on-campus studies. Questions concerning supervision arrangements for distance education students such as the role and responsibilities of supervisors, the balance in support for the novice, and the development of autonomy and independence therefore need attention. The supervisor has, according to Mac Keogh, a wide range of roles; among others are subject experts, gatekeepers, resource person, advisor, promoter, and supporter. For a supervisor at a distance, Mac Keogh presents challenges related to time, availability of resources, ethics and more, (challenges which are not only related to distance education but also relevant to on-campus education).

In a study of how IT was introduced as support in a course previously given face to face, as a way of personalizing a course creating a personalized virtual learning space, PVLS, it was included to study how students and tutors perceived the supervision of a research project in terms of the access, clarity and usefulness of the PVLS (Källkvist, Gomez, Andersson, & Lush, 2009). The study reports on both student and tutor satisfaction with the PVLS, especially with the asynchronous one-to-one communication tool and the interactive web-forms which were used to structure the supervision.

While reporting on how to improve the formative assessment in dissertation supervision, Heinze and Heinze (2009) suggest that good communication is crucial to the supervision process and advocates a combination of meetings and technology-enabled communication. They also suggest a blended e-learning skeleton of conversation models to provide guidance in the supervision process.

### **Collaboration and Participation in Higher Education Online — e-Learning Practices**

In recent times, there has been an increased interest in the social dimension of learning. This was anticipated more than a decade ago by (Koschmann, 1996), then in relation to computer-supported collaborative learning. According to Jonassen and Land (2000) the change could be due to a shift from a so-called traditional transmission model of learning towards an understanding of learning as a social enterprise signified by knowledge construction, active participation and collaboration (see also Balacheff, Ludvigsen, de Jong, Lazonder, & Barnes, 2009; Dillenbourg, Baker, Blaye, & O'Malley, 1995). It seems possible to distinguish parallel ideas with a focus on how a situated social practice brings about learning through participation in Lave (1997), Brown, Collins, and Duguid (1989), and also Greeno (1998).

Focusing specifically on online educational settings in higher education, there has been somewhat of a move from a focus on transmission, via a cognitive focus on representation and construction, to a narrower focus on social theories of learning and collaboration (e.g., Sorensen & Ó Murchú, 2006; Willis, 2009). Online educational settings in higher education seem no longer to be a only a distance-based venture equivalent to correspondence education (Keegan, 1996) with limited possibilities for the students to learn with and from each other (Howard, Schenk, & Discenza, 2004). Today,

they can rather be seen as a practice built on enhancing individual as well as collective participation and collaboration in a social arena (Belderrain, 2006; Bonk & Cunningham, 1998; Friesen, 2009; Haythorntwaite, 2008; Palloff & Pratt, 2005; Shih & Hung, 2007).

## **Aim**

The aim of this paper is to describe and analyse the use of educational technologies in the supervision of student thesis work.

## **Method**

### **Educational Setting**

The educational setting in this paper is a bachelor programme in Behavioural Science at a Swedish university. The students are enrolled in either a campus-mode or in a distance-based blended learning mode. The programme is divided into two different specializations, human science or computer science. In common for both are studies in the disciplines of Education and Psychology. The first and second semester comprises studies in Education. While distance students meet at campus 2–3 times each semester, students enrolled as campus-based studies has physical meetings regularly. Overall the studies in the first year of the programme are thematically organized. Each theme includes opportunities to participate in various dialogues supported by telephone conferences and an assembly of tools included in the LMS FirstClass (FC), tools such as blogs, chat, computer conferences, and e-mail. Instead of participating in dialogues through telephone campus-based students meet physically. The students participating in this study studied in their second semester. In the second half of the semester a period of 10 weeks consisted of writing a thesis.

The educational design of the thesis course included a structured working process comprising nine steps; from an introducing three-day meeting at campus, to virtual seminars on students' theses. This process were described in an 18-page study guide and built on two different but interrelated principles: group dialogues and open and public exchanges of information. Group dialogues as a principle used to emphasize the development of a learning community (Carlén & Jobring, 2005; Lave & Wenger, 1991; Vygotsky, 1934/1987). The group should therefore have the function of being a major resource in students learning and a place where peer-review processes could be executed (e.g., Anderson & Garrison, 1998; Palloff & Pratt, 2005). Open and public exchanges of information were used to make the process transparent and to provide students' insight into different aspects of the research process. Furthermore, it also made it possible for students to receive in an extended amount of advices from their tutor. The theses were written of students in pairs, organized in tutor groups consisting of 5 or 6 pairs led by a supervisor. Each of these tutor-groups embraced a particular theses-theme related to the particular competence of the tutor.

The work with the theses was primarily supported by tools such as chat, computer conferences, and telephone conferences. These tools were used in four different forms of dialogue, all characterized by being open and public group-dialogues: emergency dialogues; structured group-dialogues; conference dialogues; and pair dialogues.

*The emergency dialogues* were performed through chat three times a week (45 minutes) and included opportunities for students to discuss problems of an immediate character in their current work with a tutor.

*The structured group-dialogues* consisted of three meetings. The first of these meetings focused on research problems and the appliances of different theoretical perspectives in the writing of a thesis, the second meeting focused on different methodological issues, and the third and final group meeting comprised discussion on how to analyze empirical data and structure data in the theses. While these tutor-groups included both students enrolled as campus and distance students, the participations were a mixture of being present on campus or through the telephone. Therefore the supervisor both had to simultaneously handle a blended setting consisting of participants with a physical and virtual presence.

*The conference dialogues* were asynchronously performed through a computer conference. They consisted of comments from the tutor on drafts on students' theses. These dialogues comprised the use of functionalities such as comments and tracking-changes in the word processor. These commented drafts were published in the tutor's computer conference which was available to all students of the course.

*Pair dialogues*, the fourth form of dialogue, were performed within the pairs of theses-writing. Each thesis had a computer conference of their own; in this conference the pairs could share drafts of the thesis; the students could also learn from other students work by downloading their drafts. Moreover, students were expected to perform peer-review of other theses. These exchanges were expected to be performed in these conferences.

### **Sample**

Of the 42 students enrolled in the course, 37 completed their studies — a completion rate of 88 percent — and 37 participated in this study, which is based on the student evaluation performed at the end of the course. Of the 37 students, 18 were enrolled as distance students, 19 as campus students; 34 students were women; 3 were men.

### **Instrument for Data Collection**

The instrument used for data collection was a questionnaire with two different sets of questions. The first set included closed-ended questions and was created in a semantic differential-style (Johnsson & Christensen, 2004). This scaling technique was used to measure on an aggregated level the students' attitudes toward the course. Students were asked to give an account of the course on ten different word-pairs in a series of a 6-point bipolar rating scale, meaning that the instrument had endpoints anchored by contrasting adjectives, for example valuable versus worthless or restful versus difficult.

The second set of questions was three closed-ended questions followed by seven open-ended questions on the educational design of the course. The closed-ended questions were used to categorize the students. The subsequent open-ended questions allowed the students to describe in their own words their attitudes towards different aspects of the educational setting such as assessment, dialogues, the educational design and its implementation, literature, and the study-guide.

## Results

In the analysis of the answers from the students two main themes emerged. One of these themes concerned aspects of time; the other consisted of different aspects of communication. The results will be organized around those two themes, first the theme of time and then follows an analysis of communicative issues.

### Time

Different issues related to time emerged in the analysis of the empirical data. Generally, students experienced the course as very good, very interesting, versatile, very important, and very valuable. Simultaneously, they thought that the course was difficult, very tough, and hectic that forced the students to be very active in their studies. These attitudes towards the course may be explained by the fact that the students didn't live up to the expectancies from the university on workload. Generally, the university presumed the average students to work at least 40 hours a week with their studies. However, work with thesis usually takes more time than these 40 hours. According to the students' self-reports distance-based students (d) worked 36 hours a week (h/w) and campus-based (c) 41 hours a week. The average student worked 38 hours a week. This is in two cases less than the presumed 40 hours, particularly in the distance-based group working 4 hours less than expected (or at 90% of an expected pace). This raises question on how the students might have experienced the course if they had worked more hours each week. It also raises issues on how the students organize and plan their studies.

The majority of the students expressed that they were satisfied with the educational design of the course. Particularly this was the case of structure of the course. Having the working process structured with several deadlines to follow was appreciated. It was also expressed that the working process helped the students to plan their studies. As one student wrote "I think that the design with deadlines have worked out great. It has helped keeping the work in pace in the different phases, such as the research plan, date for finishing interviews and so on. Great!" (d 30-35 h/w).

Only a few of the students expressed that they were stressed by keeping up-to-date with the phases in the working plan. One of them claimed that it was: "stressful with working with several different elements of the theses simultaneously and much information to keep up with in the next steps in the working process" (d 45+ h/w). However, since the students are novices in writing theses, these kinds of feelings might be an effect of being a first-time writer.

In the educational design students were particularly happy with the emergency dialogues through chat. Almost all of the students were positive to that feature of the course. They expressed various opinions of that feature regarding time, for example: “Very good! Haven’t got any need to take part in it regularly; however the times I/we needed it was worth its weight in gold” (c 35 h/w). Students also appreciated to get quick answers on their problems and frequent opportunities to get advices from a supervisor. This saved a lot of time and avoided unnecessary repetitions.

They also appreciated the asynchronous feature of the emergency dialogues. Since the tutor saved the sessions in an archive, students had access to it throughout their writing. For example one student claimed that it was good “to take part of it afterwards” (d 35-40 h/w). Students expressed that this form of dialogue was necessary and that they wanted more of this form of dialogue with their supervisors.

### **Communication**

Communication is the other theme that emerged in the analysis. Regarding the communication conducted through the chat, not all students understood how they should optimize the groups’ participation. One problem they experienced concerned turn-taking, for instance problems to understand when it was their turn to ask questions. Students’ participation in the structured dialogues through telephone conferences were appreciated and considered as good. One student expressed: “has been worth its weight in gold, however, it doesn’t always felt necessary to listen to the other students’ problem. Nevertheless, I understand the thought behind it; it is only my personal opinion” (d 30-35 h/w).

Another issue regarding communication in both the emergency dialogue and in other forms of dialogue concerned the students being confused by different answers from different supervisors. One student expressed that: “this has been hard to handle though I didn’t know what was right or wrong” (c 40-45 h/w). Nevertheless, one interpretation on this confusion is that these students are novices in higher education. Supervisors use different concepts and terms to explain the same thing. Understanding the discourse of scientific work and the concept used takes time; to fully understand and compare the answers of the different supervisors is not possible for all novice students. And in some cases tutors disagree on issues. To understand this means an emergence of an understanding that disagreement on scientific issues and giving argument for different positions are at the heart of academic writing. The educational design of the course helps making this feature of academic work visible.

Students did not see it as a problem that the tutor in service sometimes might be a supervisor form another group. Rather as one student expressed it; “you could get advices from an examiner a person that wasn’t the tutor you was allotted, this gave the opportunity to get supplementary advices, Thumbs up!” (c 35-40 h/w). This issue links to the principle of open and public access in the educational design. This was also recognized as an appreciated feature of the asynchronous conference dialogues. As one students wrote: “great that we got the opportunity to take part of the advices that other

tutors gave to their groups” (c 40-45 h/w). Appreciated was also the communication with other theses-pairs in their own group.

## Discussion

In this paper, focus has been on the supervision of students dissertations/thesis work. In the analysis presented above, two major themes emerge: time and communication. Time as of the main themes identified links to the relation between students and supervisors. In their study of final-year students Todd et al. (2004) discuss this in terms of challenges in relation to time. They suggested writing and practising earlier on in their studies as a way of handling issues related to time. While the study reported in this paper build on empirical material from first-year students, these challenges of time is taken into account. In the study-guide, a well structured working process accompanied by several deadlines was designed into the educational setting. The intention of this complex process was two-fold; to maximise resources of time to supervision; to learn students manage the process of writing a thesis. The latter embraced managing time, for example learning about potential time thieves in their work and estimating the time needed to perform different steps in the research process. This learning process was integrated in the practice of writing. Moreover, in line with the claim of Stevenson et al. (2006) this was an issue discussed in the introducing steps of the dissertation course. Therefore, students’ appreciation of the time schedule of the working process confirmed the study of Stevenson et al.

The latter issue, managing expectations of time, links to the other main theme that emerged in the analysis, communication. The opportunity to discuss their thesis with tutors other than their own was appreciated. It might be that students related this to feelings of autonomy (Greenbank & Penketh, 2009; Todd et al., 2004). Nevertheless, the design of the course included communicated structures, such as expectancies to write in pairs and choosing a theme for the thesis that suited the competence of the tutor. These structures constrained the autonomy of students but were appreciated by most of the student. This contradicts in part the expectancies expressed by other scholars (e.g., Todd et al., 2006), where students autonomy is highly valued.

The challenges of time in distance-based educational setting include the use of different educational technologies. In the current study various tools were chosen; chat, computer conferences, and telephone conferences. Such tools afforded participation in four different forms of dialogue. Overall students were satisfied with these dialogues (Källkvist et al., 2009), while the dialogues afforded various participation in the dimensions of time and place, both synchronously and asynchronously, and on campus and from a distance. This includes the possibility for students to arrange their studies in a suitable fashion were secured. Therefore, this intersection of home settings and the educational settings afforded both meetings on campus as well as collaboration through online dialogues. Students positive attitude towards this educational design confirms the suggestion of Heinze and Heinze (2009) that it is important that the process includes a combination of meetings and online dialogues.

## Conclusion

The design of the course emphasised the importance of open and public dialogues and stress the group as a resource for learning. Subsequently, collaboration through various forms of group dialogues was performed by students and teachers. Moreover, locating these dialogues in an online setting affords participation suited to students' life situation. Such mixture was not reported in the reviewed research and seems like a fruitful approach to further develop the practice of supervising student dissertations.

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