

# Coaching in and for digital collaboration

- a case study of the use of video conferencing at  
The Norwegian University of Science and Technology,  
NTNU



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## **Abstract**

This case study looks at and identifies what elements that are important when it comes to how The Norwegian University of Science and Technology, NTNU, uses the possibilities that collaboration with video conferencing offer. The focus is mainly on human factors and culture, not on the technology itself. The data are based on statistics of video conferencing activities, existing strategies that deal with how NTNU approaches usage of video conferencing, and interviews with employees at NTNU who either offer video conference services or have knowledge about NTNU's overall ambitions for use of video conferencing. Theories dealing with digital collaboration are used to examine what potential challenges NTNU is facing, and to give a deeper understanding of the status quo at NTNU. As a way to overcome identified challenges, the field of coaching is introduced as a potential solution. A coaching program that is specifically aimed at users of video conferencing is outlined, and the value of coaching techniques as solutions to some of the identified challenges is discussed. Eventually the connection between users and what implications they have on the culture of collaboration at NTNU is discussed.

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## 1. Introduction

The work on this thesis started before the Icelandic volcano Eyjafjallajökul partially paralyzed many countries because of the restrictions on airplane travel due to the volcanic ash. As more and more flights were cancelled, more and more people sought to find alternative solutions to transport. For some people this meant travelling back home to Norway on buses for several days from their vacation far south in the warmer parts of Europe. For others it was simply enough to make a phone call and book a video conferencing session as a replacement of a physical two-hour meeting that one would originally catch a plane to attend. For a couple of weeks back in April 2010, video conferencing was suddenly “hot”. At my workplace, The Multimedia Centre at NTNU (MMS), we experienced a boom of video conferencing enquiries. The rush was actually so big that we could not help everybody. This problem was new to us. Normally the “problem” is that the video conferencing equipment is *not* in use much of the time, and we at MMS are often asking ourselves “*what we can do in order to make more people use these facilities?*” It is this “problem” that was the origin of this thesis, and suggesting or guessing that volcanic ash was what it would take achieve this goal, was not even considered in my wildest dreams in the brainstorming phase of this thesis.

As the volcanic ash vanished, so did the sudden demand of video conferences at MMS. In many ways I am back where I started, or actually I am even *more* curious about what it *really* takes – aside from volcanic ash – to make digital collaboration a more natural way of collaborating at NTNU. Could it be that the volcanic outburst is yet another proof that external circumstances can only do so much for making people change their habits? Could this be seen as yet another proof that if one wants to make changes that last, independent of whatever external circumstances, one will have to make a change *within* people? Further, what difference does it make if this change is welcomed and nourished, rather than experienced as forced and alienated? Could it be that the field of coaching holds a valuable key in the work for making this change possible?

I want to explore, discover and accomplish many things with this thesis. The thesis is a case study in which theories from different disciplines, interviews, and statistics together are presented and discussed with the purpose of discovering: What is status quo, why is this so,

and what can be learned from the field of coaching if one wants to make changes that last in and for digital collaboration at NTNU?

In this thesis I have two research questions:

- 1) What human factors are involved in NTNU's current lack of the extensive use of video conferencing?
- 2) How could one hope to achieve an increase in the video conferencing activity at NTNU by introducing and offering a coaching program?

## **2. Background**

The inspiration for writing this thesis comes from multiple sources and experiences. After having worked for almost a decade at a large public institution, I have experienced firsthand that things take time, and sometimes a really long time. Video conferencing equipment has been present at my workspace from the very first day I started at NTNU, yet the usage of the system has by no means “taken off”. It seems that the demand on the usage of the equipment has been more or less stable all these years, with the result that the equipment is not in use much of the time.

### **The national commitment**

In 2005 the Ministry of the Environment introduced the public offensive “Grønn Stat”, which means “Green state”, in Norway. Grønn Stat imposes on every governmental service that a system be established for environmental management. This results in that NTNU is obligated to carry out cartography of their business activities on the external environment. As a minimum, this shall include procurements, waste, transport, and energy (Miljøverndepartementet, 2006). The university newspaper “Universitetsavisa” launched a series of articles that looked closer at the actual state of this environmental commitment and revealed that there is still much work to be done in order to get this job done properly. One of the specific points of criticism has been that employees at NTNU are better at using planes to attend meetings than to harness the “established truths” of the benefits with video conferencing: Save time, money, and the environment.

### **An ever changing world**

In late 2008, when the financial turbulence in the world economy caused what has come to be known as The Finance Crisis, many businesses were forced to pay extra attention to their expenses. As a result of this many companies, at least private, introduced travel regulations and saw to it that their employees considered video conferencing as an alternative to airplane travel. Even though saving the environment always has been a key buzzword for trying to get people to use video conferencing more actively, it is ironic that the next boom in video conferencing usage came because of something as ancient and natural as volcanic ash. Despite the fact that more and more collaboration technology is available, and that this

technology has become more reliable, it seems to be a big challenge to make the Average Joe bother enough about this to consider getting to know these tools before he or she is forced to.

### **Personal interest and aspirations**

For me, both The Financial Crisis and the Volcanic Ash Airplane Chaos are interesting aspects to take into consideration when it comes to looking at how video conferencing seems to be something many people only consider when they are more or less forced to. What could and should be done in order to make people consider video conferencing as “Plan A”? For this thesis I will be looking at what is going on at NTNU as a case study, and my goal is to try to reveal and understand why video conferencing is still “Plan B” for most people, and what could be done to change it into “Plan A”.

My field of interest in this thesis is not the technology itself, but rather the human aspect. I am curious about the possibility of human factors being the missing link in getting an increased use in this sort of technology and I want to look at the relations between people who are to use the technology, rather than the technology itself. Ever since I started my higher education I have been interested in how communication and collaboration are tied together. After completing a Teacher’s degree, I continued with a Master’s degree in practical film studies. My thesis, *“The incredible digital doctor? – use of multimedia video in problem-based learning for medical students at NTNU”*, discussed what is important to consider when making educational multimedia productions. I have continued to keep this interest in how technology and people together can create a better learning environment. In my continuing education in organization and leadership, my interest in this field has been taken even a step further. Taking into consideration leadership and the field of coaching has expanded my horizons: I now clearly see the importance of what role leadership plays in the bigger picture of getting things done, and am inspired by the techniques used in coaching and mentoring.

In many ways the overall goal for this case study is to find out if it possible to come up with a theoretical “digital collaboration cure” for NTNU. By first identifying what human factors are important in regards to extensive use of video conferencing, it will then be interesting to see if offering a coaching program that takes these factors into consideration could help change status quo. In the end, the overall dream would be if I, or somebody else, could use these findings so that NTNU will both use video conferencing more often, and that the users

actually are so happy with video conferencing that they prefer to have this as their “Plan A” when planning most meetings that would normally involve plane travel.

### **Structure and topics covered**

In short, the structure of the thesis is as follows:

1) Introduction, 2) Background, 3) Method, 4) Collaboration history, 5) Collaboration theory, 6) Coaching theory, 7) Core excerpts from the interviews, 8) Discussion, 9) The introduction of two coaching programs, 10) Summary, and 11) Conclusion.

The reason I have chose this structure, is because it is a tidy way of presenting the different topics. The sources I use in this thesis are many, and they vary both in context and in content. The personal experiences I already have mentioned will be one of the key factors in this thesis. In many ways, my personal experiences and interest in this field are my motivational driving forces. Therefore they are the red thread throughout this thesis. I use a variety of sources in this thesis for three reasons; to give the reader descriptive data about the case, an understanding that there are many different factors that come into play in this field of work, and to give the necessary empirical evidence. In addition to this I address possible rival explanations that might be significant. This is important in order to see what forces one might be up against in the real world. Context-wise my sources vary from newspaper articles, web articles, reports, strategies, textbooks, web videos, interviews and presentation of statistics. The thesis will include aspects of strategies, communication, leadership, and collaboration.

### **3. Method**

#### **Case study**

It was natural to choose case study as a research method in this thesis, as it deals with many explanatory “how” and “why” questions and has a focus on a contemporary event. Another reason why I chose case study as a method, is because of the variety of sources I use.

Following Yin’s (2009) design criteria for case studies this is a single case study with multiple sources of evidence. The study is limited to focusing on the situation at NTNU, and in the data collection I have included multiple sources of evidence. Having multiple sources of evidence is one of the case study tactics for ensuring that the construct validity is attended to. The case is also a representative case, as the sources of evidence together give a picture of the circumstances and conditions for NTNU’s use of video conferencing.

This thesis follows a linear analytic structure, where each sequence of the subtopics starts with its relevance to the issues that are studied, and a brief review of the literature or source of evidence. Where relevant, possible methods used, findings from analysis of collected data, conclusions and implications from the findings will then follow.

As data is collected from many different sources in this thesis, I have chosen to use the constant comparative method as the analytical technique. The constant comparative method is a research design for multimedia sources where the formal analysis begins early in the study, and the method relies on treating descriptive data to in a series of steps to present the theory (Bogdan & Biklen, 1992). In the discussion chapter of this thesis I will go back and forth, comparing the different sources of information and data until I am satisfied. I might be tempted to draw conclusions at some points, and at other points new questions might emerge.

As described in the Background chapter, the sources I use have many different origins. These sources both complement and confirm each other, in order to maintain a chain of evidence. In the design of this case study, it has been important for me to keep a focus at the situation at NTNU, and not to drown in information overload from experiences with video conferences at other institutions, be they private or public. In that regard it has been important that as much as possible of the data/sources I use can be linked together to reveal a broader picture of the situation at NTNU.

Little research has been done earlier on this kind of approach that I take in this thesis. In many ways I feel lucky to have the freedom to choose and use different sources, yet this freedom also challenges me in my work to design a good case study where I have collected, presented and analyzed data fairly. I also want to point out some aspects as myself as a scientist in this thesis: I am both an observer and a participant in this case study, and I choose to write in the first-person “I”-form. As I am both engaged and knowledgeable in this field, it is a challenge for me to remain neutral in this work. I have partially contributed to the actual recording of the video conference statistics. These statistics will be used more in a qualitative than a quantitative way in the thesis. This is because I find it interesting to look for patterns of who uses the equipment and the potential information I find here rather than looking at only the numbers of usage.

### **The interviews**

The proposition in this thesis is that something can be done in order to get an increased use of video conferences, and finding the right informants at NTNU to provide information about this was important when planning the interviews. I decided early on that the key informants in this case study would be people who in some way were either contributors in offering video conference services, or had knowledge about NTNU’s overall ambitions for use of video conferencing as a tool for contributing in the environmental work being done at the University. I decided not to interview any users of video conferencing, as I wanted to keep a tight focus on what different people at NTNU together could contribute in the work of offering a better service for all users. After I sorted out who would be valuable sources of information, I developed an interview guide as a framework for getting answers to the relevant questions. The type of interview selected for this thesis is the semi-structured interview, which one can define as *“An interview which aims to collect descriptions of the world of the interviewee, with an eye to interpret the described phenomenon”* (Kvale, 1997). When constructing the interview guide, I first made a basic outline of the aspects that were relevant for my research before constructing the specific interview questions (Appendix A). During the interviews I used the interview guide as the basic outline for the questions, and on many occasions these were followed up with supplementary questions. These questions varied, depending on the information given in the interviewees’ answer and whom I was interviewing. As the interviews took place I tried to make the situation as comfortable as

possible for the interviewee, and I had emphasis on being cautious in both the questioning and listening phases in order to get the most out of the interview.

Before any interviews could take place, I had to make sure everything was taken care of formally. When the interview questions were outlined I sent them to the Norwegian Social Science Data Services (NSD) for approval. I also constructed a contract containing information about the purpose of the interview, which the participants had to give a consent declaration in writing (Appendix B). The interviews were conducted in Norwegian, and then translated into English in the transcription.

## **4. Collaboration history – in general and at NTNU**

### **The evolution of collaboration**

Since the dawn of man the ability to collaborate has been important. Hungry cavemen had to collaborate physically to bring down a mammoth so they could feed their clan, and as the years went by man has continually discovered new way to make new and improved tools. Many of these new tools have resulted in new forms for collaboration, and in general one can say that the driving force behind this evolution has been to increase the volume of the harvest while decreasing the need for physical effort put in the work. Over the years the need for physical collaboration has either been replaced by or supplemented by collaboration based on knowledge. It seems that the search for the appropriate level and method of collaboration will always be a driving force in both how every single man and society thinks: The search for what I choose to call “The Holy Collaborative Grail” will always take on different shapes, all according to the different times we live in. Mankind has always been driven by his or her hunger for knowledge, and never before has it been this exciting and demanding to work with collaboration as it is today. In developed societies we now know more now than ever before, and the collaboration possibilities that exist are almost uncountable. Ever since Samuel Morse invented the telegraph in 1844, a technical evolution that does not ever seem to want to stop has made communication and collaboration with technology as natural as it is to sleep and eat for many people on our planet. The ranges of socio-economic class and age do not seem to be important criteria any more.

The evolution of the Internet has resulted in numerous new ways of communication and collaboration possibilities. The so-called “Web 2.0” and the social media services on the Web that have been with us for the last few years seems to offer almost endless possibilities for communicating and collaborating digitally. Facebook, Twitter, Skype, LinkedIn, MySpace and blogs are all tools or services that are growing ever more popular. My daughter is now eight months old, and she has already had regular weekly video sessions with her grandparents who live in another part of the country with the free communication software “Skype” on the family’s laptop. Both my daughter and my parents-in-law were introduced to this form for communication when my daughter was three months old and her age taken into consideration, it is clear that she communicates in her way with the faces on the screen. For both my family and my parents-in-law this way of communicating has become so natural now

that we are beginning to take this form for interaction for granted. In short one can conclude with that it does not take long time to adapt to a new technology, as long as one knows how to use it, and the usage has a clear and defined purpose. What takes more time, is to get an overview of what technologies exist, and what makes one better than the other – both in regards to regular communication and collaboration.

### **Definitions and aspects of collaboration**

So far we have looked at how collaboration has changed over the years, and we have seen that it is closely linked to communication. Collaboration can be defined as:

*Working together to create value while sharing virtual or physical space* (Rosen, 2007, p. 9).

In his book “The Culture of Collaboration” Rosen deals with how technological, economic, cultural and regulatory trends have made us change the ways we collaborate, and explains what he calls “Rich, real-time collaboration: ”*Rich, real time collaboration lets people with a variety of skills and talents in multiple fields and functions come together spontaneously and create value regardless of geography* (p. 22).

In this thesis I use the term “digital collaboration” to separate collaboration where one uses rich, real-time collaboration with technological/digital aids from regular collaboration without the use of such aids. The reason why I use this term is to keep it short and simple and easy to separate from regular collaboration. Even though the term digital collaboration has potential to encompass much more than the use of video conferencing, it is mainly video conferencing I will refer to as digital collaboration in this thesis.

### **Digital collaboration at NTNU**

#### **Background**

What today is The Norwegian University of Science and Technology, NTNU, has a long and proud history of education in technology in Norway. It started in 1870 with the opening of “Trondheim tekniske Lærestalt”, TTL, (Trondheim Technical Educational Institution) which was the first technical school in Norway. In 1910 “Norges Tekniske Høiskole”, NTH, (The Norwegian Technical College) opened for engineer -and architectural studies. In 1996 NTH and other higher educational institutions in Trondheim were merged into NTNU.

As far as I have found out, the introduction of video conferencing at NTNU can be traced back to 1992, and was located in what was then called the NTH TV-studio. The video conferencing system at that time was a simple Tandberg Vision with one small video screen and a normal telephone handset, which was connected to the telephone network. This system was fairly unstable, and both audio and video qualities were very low compared to what today's systems can provide.

### **Video conferencing explained**

Explained very simply, video conferencing is a telephone conversation where the sound is being played back via loudspeakers, and the participants can see each other on video monitors by the use of connected video cameras. Today most of the video conferencing traffic takes place via the Internet Protocol (IP), and this makes it possible to achieve much better audio and HD-quality video than the simple Tandberg Vision. In addition to this, today's systems allow multiple participants located at different physical locations to share documents, either via document cameras or by connecting a PC or laptop to the system. The video conferencing equipment can be customized for the users' needs and installed in a room or studio specifically designed for digital collaboration, or the equipment can be mounted on wheels so that it is portable and can be used where needed. On the visual side, most rooms that are customized have two video monitors. It is typical that the other party/parties are displayed on one video monitor, while the other monitor is either used for showing the picture of the video image going out (so the participants can see themselves) or used for showing the shared content. Many of the customized rooms/studios have more than one camera, which allows more flexibility when it comes to what can be shown to the participant(s) on the other end. On the audio side, there are one or more microphones installed in the room/studio to pick up the sound from the participant(s), and loudspeakers mounted close to the screens which are used for receiving sound from the other participant(s).

### **The video conferencing possibilities at NTNU today**

It is not easy to get a complete overview of the video conferencing equipment that exists at NTNU today. Even though many of the faculties and institutions have invested in video conferencing equipment, the information about these systems is unfortunately not easily traceable. This thesis deals with describing the circumstances, usage and challenges of the equipment which is traceable, and which keeps a statistics of its usage. These are:

1. The Multimedia centre at campus Gløshaugen: Two studios, one with a capacity of up to 30 participants, the other with up to 10 participants
2. The library at campus Dragvoll: One studio with a capacity of up to 17 participants
3. The Administrative building: One portable system.

There is also a studio with a capacity of up to 10 participants under construction at the AV-services headquarters at campus Gløshaugen, and one portable system being made available at campus Dragvoll for the fall of 2010. The only auditorium equipped with video conferencing facilities is auditorium, EL3, at campus Gløshaugen, which can hold up to 150 participants. All of these studios are available for NTNU's employees, and some of them are open for bookings from students. Information about these studios can be found at <http://www.ntnu.no/multimedia/videomote>

### **Today's routines for video conferencing booking and preparations**

Even though the information about the known and accessible video conferencing studios is available on the Internet, there is no common system for booking and testing. What was once the NTH TV-studio has been under both organizational and functional change, and was renamed, "The Multimedia centre" when it was moved to Realfagbygget (The Science Building) in 2004. Historically most of the traceable video conferencing activity at NTNU has taken place here, and reservation of the rooms have traditionally occurred either by telephone or e-mail requests. As a part of the booking routine, contact information for technical personnel at the other end is acquired. If testing of this party/equipment is required, such a test is conducted in advance with the technical personnel. These tests are seen as crucial in order to make sure that everything works as intended when the booked session is to take place. The booking routines at both the Dragvoll library and the Administrative building also ensures that the necessary information is being gathered and that necessary testing takes place before the booked sessions. There are no common booking- or registration schemas used, though; every unit uses routines different routines that work well for them.

### **Video conferencing at NTNU in the light of strategies, policies and marketing**

#### **Strategic work**

As mentioned in the Background chapter "The national commitment", NTNU has since 2005 been obliged to carry out cartography of their business activities on the external environment.

As a result of this, a project report describing the introduction of “Miljøledelse” (Environmental leadership) at NTNU was published, and “Miljøutvalget” (The Environmental Board) was established. The Environmental board is an advisory committee for the Principal (Rektor) in the further implementation of Environmental leadership at NTNU. It was also decided that from 2006 Environmental leadership would be an integrated part of NTNU’s HMS-system. The project report deals with many environmental aspects and goals (Svendsen, 2006), and among these we find that the project aims to *“create a stronger sense of environmental consciousness among leaders, employees, and students through information and offering courses”* (p. 3). In the part of the project report dealing with activities associated with transportation, video conferencing is specifically mentioned as a field where the Norwegian Ministry of the Environment wishes to see an increase in public sector use. The project report reveals that an effort has been made to find out what video conferencing equipment exists at the different faculties and institutions. However, the picture gets blurry when one tries to find out owns/runs this equipment, and for whom it is available. At the time the report was published, the only video conferencing systems that were available for all employees and students were the equipment at the two Multimedia centre studios. The report’s concrete goal is to start registering all the usage at the Multimedia centre’s two video conferencing studios, looking for the following key indicators: 1) The number of arranged video conferences, 2) the duration of the video conferences, 3) the number of people who have participated in these sessions, and 4) the number of delegates from NTNU who participated in these sessions. As a follow up to the launch of the report, the Multimedia centre developed an Excel spreadsheet for registering the key indicators. This has led to the Multimedia centre systematically documenting all of the video conferencing activities in the two studios since 2005.

Another result of the initialization of Environmental leadership at NTNU was that the Multimedia centre was asked to help produce a short promotional video, which showed the advantages using videoconferencing had compared to traveling by airplane. The video had focus on saving time, the environment and money, and has been used in various settings.

Another specific activity that was introduced with the goal to increase the environmental consciousness at NTNU was the introduction of “Miljødagen” (The Environmental Day). Each year, from 2006 and on, there was to be one specific Environmental day filled with different activities, which showed the different aspects of how NTNU worked with becoming

more environmental friendly. In order to get professional help in making visible the different aspects of the environmental work being done at NTNU, the Information Division was seen as the natural collaborator for communication through the right channels to reach the target group. The video conferencing equipment in the Administrative building is also a result of the work of the Environmental board. At first the equipment was rented, but early in 2010 it was purchased.

### **The travel policy at NTNU**

NTNU's travel policy at <http://www.ntnu.no/adm/okonomi/portal/reiser> states that *“before a travel is conducted, it shall be thoroughly considered if the trip can be replaced with video meetings, video conference, etc. Look at the following pages for more information...”*

The page that is linked to; <http://www.ntnu.no/adm/okonomi/handbok/reiser/reisepolicy>, contains the following information: *“Travel policy - NTNU. New information regarding travel policy will be published soon”*. This information has been displayed at these pages for several months, and the last time I checked before this thesis went into print was August 28<sup>th</sup> 2010 at 2305 hours.

### **Marketing of video conferencing**

As mentioned earlier, the marketing of video conferencing was pinpointed as a field where the Information Division was seen as a natural collaborator. This is natural, as all of NTNU's external websites and its Intranet are managed and maintained by the university's Information Division. In addition to video conferencing being mention in connection with the travel policy, it is mostly referred to at the homepages of the Multimedia Centre; <http://www.ntnu.no/multimedia/videomote> and at the homepages of the University Library; <https://www.ntnu.no/ub/omubit/video> that one can find information about videoconferencing at NTNU. Just recently a link to information about video conferencing was published on the webpage that contains different information about studies/lecturing; <http://www.ntnu.no/web/studier/undervisning>. Up through the years the Multimedia centre has hosted several “Open days” where staff and students are invited to come and learn about and try the possibilities that video conferencing has to offer. These “Open days” have on average been arranged once or twice a year, and there number of people showing up has varied from approximately five to approximately fifteen. Some posts have been published on NTNU's Intranet “Innsida” (The Inside) about events for marketing video conferencing, such

as the Environmental day and “Open days”. When the University Library at Dragvoll opened its facilities, the University Newspaper, UA, made an article about this newcomer. Other than that, the marketing relies much on “word of mouth” from satisfied users.

### What the video conferencing statistics say

Looking at the Multimedia centre’s statistics from 2005-2009, one can see a slight overall incensement in the use of video conferencing. The exception is the usage in 2009, when there was slightly less activity than in 2008: When one looks at the combined usage of both studios for meeting purposes, the changes were a decrease of 8,22% in the number of meetings (73 in 2008 and 67 in 2009), and a decrease of 20,65 % in the hours of meeting activity (161 hours in 2008 and 127,75 hours in 2009) Figure 1 shows what kind of activities that were conducted in the two studios:

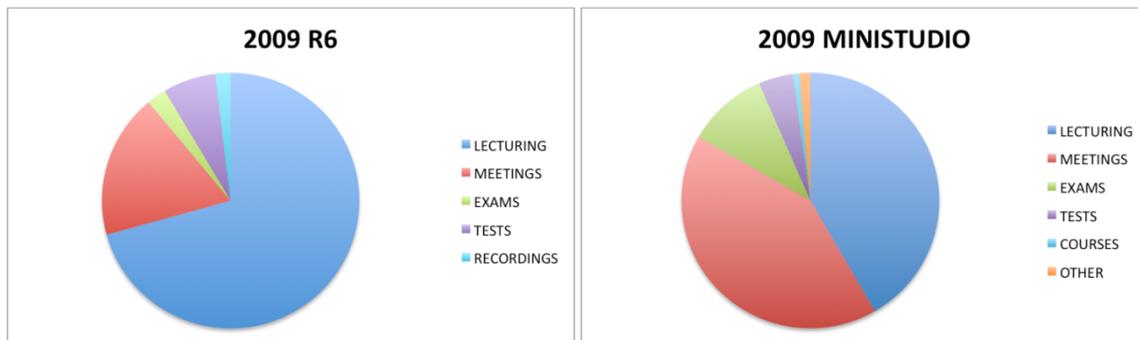


Figure 1: Video conference statistics at the Multimedia centre’s two studios, Ministudio and R6 in 2009.

The registration of statistics from 2010 is not completed yet, but if looking at the numbers of conducted sessions in Ministudio between April 15<sup>th</sup> and April 30<sup>th</sup>, the numbers doubled from five to ten. The numbers of usage in the Administrative building are as follows: 2008: 8, 2009: 4, and 2010: 8 so far. It must be noted that this is only the number of times NTNU has been responsible for hosting/dialing up the other parties, and the statistics logger claims that the actual numbers for 2009 are actually higher, but that some sessions were not registered.

At the University Library at Dragvoll only statistics from 2010 exist, and there have been 14 sessions, not including tests and various tutoring and internal communications.

In general the usage of video conferencing varies from distance lecturing, meetings with two or more participants, job interviews and oral exams.

## **5. Collaboration – theoretical approaches**

With approximately 20,000 students, NTNU is among the largest higher educational institutions in Norway, and in general more and more people in Norway choose higher education before starting their working career. The hunger and demand for knowledge has never been so big and available as it is now. As a result of the number of people completing higher education, the bar is raised in terms of expectations when businesses are recruiting new employees. Most businesses are constantly looking for new ways to improve their effectiveness, and digital collaboration has much to offer in terms of this. The challenge is to get it done right. Even though there is a difference in the expectations and routines of a private company and a large public institution like NTNU, the question still remains the same: How can *we* do better in terms of working more effectively by collaborating right.

In order to come to the core of finding out both the status quo and what can be done better at NTNU in terms of digital collaboration, it is relevant to look closer at theories dealing with collaboration and coaching.

### **Collaboration and knowledge work**

#### **Trends and possibilities of digital collaboration**

There is an increasing demand for richer interactions within and among both small and large companies, and Evan Rosen (2007) has identified for key trends that are changing the business landscape.

1. Technological. This deals with the convergence of video, voice and data over the Internet Protocol (IP), as for instance modern video conferencing equipment.
2. Economic. This deals with exploiting the best talent at the best price regardless of geography. For instance, for NTNU this means getting a hold of world-class lecturers by using video conferencing.
3. Cultural. This deals with the desire for instant feedback and the expectation of immediacy. For NTNU this means that faculty and students are able to attend meetings that have a short scheduling notice.

4. Regulatory. This deals with complying with scores of new federal, state and local laws plus treaties. For NTNU this could be relevant in connection with, for instance, the travel policy.

Kjetil Kristensen has been teaching the class “TMM 4225 – Configuration and Use of Collaborative Working Environments” at NTNU since 2007, and in 2009 the Multimedia centre recorded all of his lectures so that they were also available for the students after class for repetition purposes. In this thesis I refer to content from many of these lectures. The hyperlink to each video is found in the reference chapter of the thesis, and the videos are open for public viewing. Kristensen shows to a collaboration trend in studies conducted by Morello and Burton in 2006 (Kristensen, 2009a). The figure shows both the actual change and expected change in the future. As figure 2 shows, the largest increase is in the percentage of “individual performance that depends on group input”. There is also a big increase in “different time and different place”, while “same time and different place” has a slight increase. The figure also shows a clear tendency that “working alone” and “same time and same place” has a decrease.

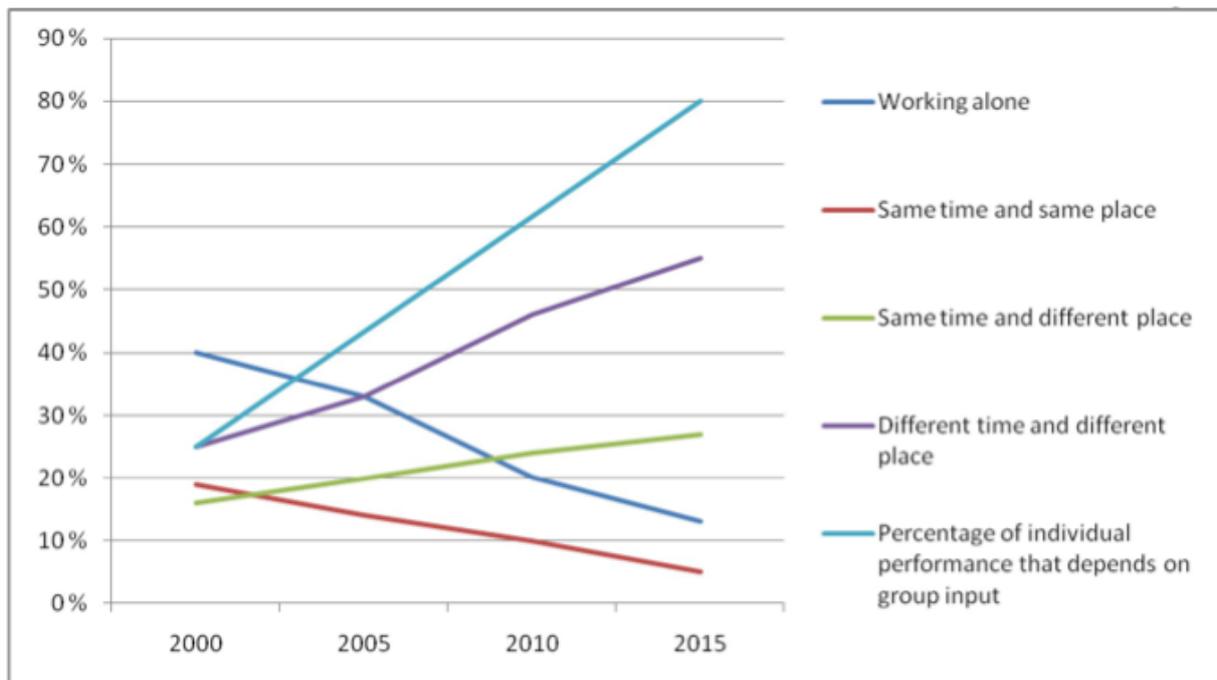


Figure 2: Collaboration trends [Morello & Burton, 2006](Kristensen, 2009a)

The reason why it is especially important to take these trends into consideration is because it actualizes the need for taking the challenges of collaboration seriously at NTNU. With expert lecturers located around the globe in an era where the Universal genius has passed, it is more important than ever for NTNU, having ambitions about climbing up the ladder of the prestige

Universities of the world, to start thinking more strategically on how digital collaboration can help secure NTNU's reputation as a serious educational institution.

In Evan and Wurster's (2000) book "Blown to bits", the trade-off between richness and reach is discussed. "Richness" refers to the quality of information as defined by the user, while "reach" refers to the number of people who participate in the sharing of that information. Digital collaboration has changed the possibilities and ways of traditional information sharing: Through this traditional information sharing it has either been possible to share extremely rich information with a very small number of people or less rich information with a larger number of people. To share simultaneously as much richness and to reach as many as one would like was not possible in the traditional way, but with digital collaboration new possibilities arise.

As the working landscape is changing, so are the knowledge work trends. Today Norway has one of the most knowledge-intensive economies in the world, and in the Oslo-Akershus region we find the third highest density of workers in knowledge intensive services in Europe. With a percentage of 49,8%, it is topped only by inner London and Stockholm (Kristensen, 2009b).

In addition to that collaboration has taken on many forms and shapes, it is also common to be involved in multitasking today. When multitasking, a person does several operations at the same time. People multitask both in their private time, at lectures, and even in meetings at work. While in a meeting, it is not uncommon that some of the participants either write an email or answers an SMS on their mobile phone. A Japanese study shows that Japanese teenagers put in 40 hours of activity per 24 hours, all because of multitasking (Kristensen, 2009a). Kristensen also refers to a study that shows that the amount of information that an average man in 1850 was exposed to over his entire lifetime is less than what a 2009 Sunday edition of the New York Times contains of information. It must be emphasized that a Sunday edition of the New York Times is almost as thick as a conventional phonebook.

The ability to take in information and use what one finds necessary has become an increasingly complex task in today's society, and businesses should have a conscious attitude when it comes to how they choose to cope with this. The generation born between 1991 and 2001 is referred to as "digital natives", and these people are highly prepared for Web. 2.0 and the opportunities possible with new technologies (Kristensen, 2009c). When these digital natives start their higher education, they will expect to enter an environment where they can

continue to use their natural way of communicating and collaborating. Many of the experienced lecturers at NTNU will certainly experience their share of challenges when it comes to living up to these eager digital natives' expectations on how to collaborate well.

### **Culture and disciplined collaboration**

Having given a picture of the complexity of collaboration and knowledge work, both of today and of the future, it is time to look at some more basic factors of success in order for collaboration to be successful. When looking at which cultural elements are typical when collaboration works, Rosen (2007) mentions environment, trust, sharing, communication, community, and value as important. The primary reason we do collaborate is to create value, and if one collaborates without any defined value it can be compared to driving without reaching a destination. Because of this it should be clear that if one sees the value of using a certain type of collaboration tool, one has to have a clear picture of what value this technology will bring. Also, this tool must function in an environment that is organized in such a way that it creates a community with good communication, based on both trust and sharing. More specifically; if NTNU wishes to foster culture that uses video conferencing as a tool for digital collaboration, NTNU has to create an environment that genuinely believes in the value of this tool.

In order to look at how one can incorporate a culture where digital collaboration can be nourished, it is important to start looking closer at different aspects of collaboration. In order to work systematically with this matter, I have chosen to look closer at the work of Hansen (2009), and what he calls "Disciplined Collaboration"; *Cross-unit collaboration takes place when people from different units work together in cross-unit teams on a common task or provide significant help to each other. It can be joint work between units or a one-way collaboration, as when one unit provides advice to another* (Hansen, 2009, p. 14).

Disciplined collaboration deals with collaboration within a company, and is not specifically designed to deal with digital collaboration. Still, I find that it is of great relevance for this thesis as it deals with the leadership practice of properly assessing when to collaborate, and when not to. It also deals with both the *willingness* and the *ability* of people to collaborate when required (Hansen, 2009) There are three steps that leaders have to follow in order to accomplish disciplined collaboration:

- 1) Evaluate the opportunities for collaboration
- 2) Spot the barriers to collaboration
- 3) Tailor collaboration solutions

I will work with these three steps separately in different sections in this thesis, and the first step will be dealt with in what I have called “Collaboration possibilities”, the second step will be dealt with in what I have called “Collaboration challenges” and the third and final step will be dealt with in what I have called “Collaboration suggestions”. In these sections I will also pull in other relevant theory in order to keep the focus on digital collaboration. The section will close with looking at how to instill a culture of collaboration.

### **Collaboration possibilities**

The first step in disciplined collaboration is evaluating the opportunities for collaboration. The leaders of public institutions have to ask themselves if it is something they can do to make sure the institution reaps better results than if they choose not to collaborate. In many occasions it may be better *not* to collaborate, and declaring this might be just as important as finding out when collaboration is beneficial. In Hansen’s terms, one says *no* to collaboration when the collaborative premium is negative. The possibilities that come with digital collaboration can be hard to spot by the leadership if they have little or no knowledge about what tools are available. Still, knowing about the possibilities is not enough; At NTNU the principal has access to a video conferencing system, but this in itself does not increase the number of video conferences he participates in. So even if the possibilities are there, it is not hard to see that there are numerous challenges that have to be encountered in order to come up with a routine that ensures the best collaboration solution at any given time.

### **Collaboration challenges**

Step two in Hansen’s disciplined collaboration deals with spotting the barriers to collaboration. There can be many reasons why companies have a hard time facilitating good employee collaboration. Some of these reasons have to do with lack of motivation, and others have to do with ability. This means that in many occasions people are either not willing to do what is expected of them, or they don’t have the skills that are required. When it comes to the reason people are unwilling to collaborate, Hansen suggests that there are two barriers; 1) “The not-invented-here barrier”, which deals with people’s unwillingness to reach out to

others, and 2) “The hoarding barrier”, which deals with people’s unwillingness to provide help. The barriers that deal with ability are; 1) The search barrier, which deals with people not being able to find what they are looking for, and 2) the transfer barrier. The main problem for many leaders is that they simply start in the wrong end when facing these challenges: They first assume what the problem is, and then try to find a solution for it. In order to have success with the work of disciplined collaboration it is important that leaders analyze which barriers are present and then look for the appropriate solution (Hansen, 2009). In other words, many companies have skipped the first step in the model, and simply jumped right to the solutions for the problem. The fact that there are many video conferencing systems around the world that stand in a corner and collect dust is a prime example illustrating this.

One of the challenges that Rosen (2007) sees is that corporate cultures often are slow to embrace new tools, particularly those that fundamentally change how people work. In order to face the challenge on how to collaborate effectively, Rosen means that we must break out of our organizational and individual comfort zones. Kristensen (2009d) points out that few companies manage collaboration systematically. What often happens is that different groups within an organization work within the safe and known environment of their own “silos”. Rosen (2007) says that it is a challenge to break down the barriers to cure the silo syndrome, to which almost no organization is immune. The silo syndrome refers to a situation where each department or function within an organization primarily interacts within their own “silo” rather than with other functions or departments.

In direct regards to digital collaboration there are also quite a few obstacles that one has to hurdle in order to proceed successfully. First of all companies often don’t have a culture or the tools for measuring the benefits for investing in digital collaboration equipment like video conferencing. It is easier to measure the cost of things than making calculations about what one can save in the long run (Kristensen, 2009d). In many private companies leaders are concerned with the Return of Investment (ROI). Rosen (2007) claims that investing in a culture of collaboration pays off by creating value, which typically will end up as hard-dollar returns. Also, there are more personal benefits that are less tangible that will translate into gains for the organization. If one is able to collaborate effectively, both the employee’s lifestyle and work style will be enhanced because of the freedom and flexibility. Still, even though a company has invested in equipment for video conferencing, there seems to be something called “The 50 foot rule” that raises new challenges: The 50 foot rule refers to the

phenomenon that if such digital collaboration equipment is not available within 50 feet or less, the employees feel that that they might as well have the meeting in another town (Kristensen, 2009f). If this was not enough, it also turns out that it is of great significance how the collaborative environment, like a video conferencing studio, is built and equipped. Kristensen has experienced firsthand many digital collaboration sessions that start off with a lot of the time in the beginning of the meeting being used for “figuring out how this technology actually works” (Kristensen, 2009e). What is more the rule than the exception, is that the people who want to create a digital collaboration environment don’t really know what their needs are, and the ICT-departments - who mainly focus on the technologies themselves rather than user friendliness - are given the job of building the studio (Kristensen, 2009d). This is in many ways similar to falling into the same traps as many companies of the mid 1990s did: In many organizations at this time it was a common belief that if video conferencing equipment was purchased, then the employees would rapidly adopt its use. Rosen (2007) refers to this as the “*build it and they shall come*”-attitude. The main problem was that many of these organizations had not anticipated cultural factors when integrating these tools into the workflow, and one of the reasons why the implementation of video conferencing has had many unnecessary false starts in organizations is that the users rarely used the equipment in low-impact situations (Rosen, 2007). That means that that the users were expected to jump straight into an important meeting without really knowing how to use the equipment, and it is worth noting that this situation has not really changed much since the mid-90s, with reference to Kristensen and his experiences with sessions that start off with people struggling with getting the equipment to work.

### **Collaboration suggestions**

Step three in Hansen’s (2009) disciplined collaboration deals with tailoring solutions to tear down the barriers. Hansen operates with three levers in his model: L1, L2, and L3. This model is quite complex and detailed, and because of this I will simplify the information provided from these levers with focus on what is important in regards to suggestions that apply to the field of digital collaboration. In short, the different barriers that a company faces require different solutions. Motivational barriers require that the leader pull the different levers that make people *willing* to collaborate, while in order to overcome the *ability* barriers the leader must pull levers that enable motivated people to collaborate throughout the company (Hansen, 2009). L1 deals with unifying people by trying to motivate them to collaborate. Setting

common goals, creating a core value of teamwork, and creating a language of communication is important in this job. L2 deals with people, and how leaders can seek to cultivate a certain type of management by getting the right people to collaborate on the right projects. More specifically this deals with something Hansen calls T-shaped management, which describes a process where people simultaneously focus on the performance of their own job in their unit (the vertical part of the “T”), and also across boundaries in the corporation (the horizontal part of the “T”). That means that if a person is both able to work well on both individual performance and cross-company contributions, you have a very valuable employee who works well both alone and in teams. L3 deals with building networks, and how leaders can build nimble interpersonal networks across the company. If this is done right the employees will be more able to cooperate. If a leader succeeds in building all these levers in the organization, he/she will have a motivated group of employees who clearly knows what goals they are working towards, and they can master individual as well as group tasks within a collaborative network. With all these challenges that we have seen that can be associated with digital collaboration, it will be a great benefit for a leader if the organization has a staff of employees that master all these levers.

One of the challenges that the employees often face is the challenge of integrating collaborative tools into the culture of the company. Rosen (2007) suggests that if the employees have tried out a digital collaborative tool and learn how to use it in low-impact situations, the approach to using the tool in higher-stakes work situations will change significantly. When people are familiar with both a tool’s shortcomings and benefits, the tool will be used with greater confidence, and perhaps the capability of the tool will be used more appropriately (Rosen, 2007). This suggests for that it is important that people who are going to use video conferencing for the first time should be able to come and try it based on their own terms and previous knowledge before actually attending a meeting where it is expected that the employee uses the equipment both efficiently and appropriately. In some companies there are fertile “collaborative pockets”. These pockets consist of particular people or groups who work very well across functions, different business units, and regions. Leaders often hope to leverage these successes so that these collaborative pockets eventually will spread throughout the organization (Rosen, 2007). It might be possible that if one had a well functioning disciplined collaboration in the organization, this leveraging could happen much faster than if these pockets exist in less collaborative cultures.

## **6. Coaching theory**

The collaboration theory chapter reveals that there is a great need for working with “the soft stuff” in order for digital collaboration to be successful. Digital collaboration is unlike other forms of communications especially in the way that it depends on technical aids in order for the communication to take place. For some people, like the “digital natives”, using digital aids comes very easy and seems natural. For others, technology can be seen as such a big barrier that they will do almost anything to stay away from dealing with it. Still, most people are willing to give new and unknown technologies a chance before rejecting them point-blank. In order to meet the needs of this group of people, coaching can be seen as a relevant approach to give them a good starting point for successful digital collaboration. In this chapter I will first refer to a study conducted at the University of Oslo, UiO, which reveals some of the concrete challenges one has to overcome in order for video conferencing to be more valued as a successful communication tool. I will then define coaching and mentoring before looking at possibilities, challenges and solutions for coaching in and for digital collaboration.

### **Digital collaboration: improvements wanted**

The master thesis “Fjern- og nærelever i 'Det elektroniske klasserommet'” (Distant- and near students in 'The electronic classroom'), by Carl Henrik Aaby (1999), UiO, deals with a study of three video conferencing courses for the Norwegian State Railways, NSB. The thesis looks at the students' and instructors' experiences with this kind of lecturing, both in regards to the use of video conferencing equipment, and how the learning process itself is attended to in such a setting. Aaby's conclusions are drawn directly from the results of a questionnaire given to the instructors and students, and they give useful information about what areas one should put more effort in, in order for this kind of lecturing to become even more successful. The study concludes with that the instructors feel that they would benefit greatly from participating in a comprehensive training in the use of the video conferencing room so that they could use the equipment properly. The instructors also wanted more information about strategies and advice about how an instructor should behave and go through with the lecturing in order to maximize the learning output (Aaby, 1999). The study also reveals that getting feedback from the distance students was a problem and because of this the level of interaction suffered. This was particularly clear in two of the courses, where the participants in the video conferencing session had never met in person before the video conference took place. Despite

the technical challenges the instructors pointed out, both the students and instructors felt that the interpersonal factors were more decisive: When seeing somebody else on a video monitor, it becomes harder to associate with a person than if the people were in the same room (Aaby, 1999).

Aaby's findings suggest that there is a need for working more specifically with several parameters in order for digital collaboration to become more successful, both seen from the eyes of the instructor and the students. Some of this work deals with the instructor or lecturer becoming more confident in using the equipment itself, and some of this work deals with finding more ideal ways to maximize the learning process by taking into consideration the interpersonal limitations of a video conference. In order for the participants to feel that digital collaboration is valuable and regard it as successful as possible, how one deals with both these challenges is important. One approach can be by the use of coaching and mentoring techniques. Before returning to these challenging issues I will give an introduction to the field of coaching and mentoring.

### **Coaching and mentoring defined**

Coaching represents a field of movement that involves potential for action and potential for change as parts of its practice. More specifically coaching deals with a coach helping people, called coachees, to help themselves reach their own goals through conversation sessions (Kvalsund, 2005). Coaching and mentoring are two terms that are surrounded by confusion when it comes to their definitions. What one practitioner describes as coaching, another might perceive as mentoring (Megginson & Clutterbuck, 2005). According to Megginson and Clutterbuck, what is of importance is the clarity about what is expected by the the two partners in a developmental relationship; While *coaching* primarily relates to performance in a specific skills area (often over a short term), *mentoring* primarily relates to the identification and nurturing of potential for the whole person, and it can be a long-term relationship. In coaching the learner, or *coachee*, has primarily ownership over the goal, and the coach has primary ownership of the process. Also, in most cases, direct extrinsic feedback is involved in coaching, as the coach reports what he/she has observed to the coachee. In mentoring the learner, or *mentee*, owns both the goal and the process, but the mentor helps to develop understanding and insight through intrinsic observation, so that the mentee can become more aware of his or her own experiences (Megginson & Clutterbuck, 2005). Kvalsund (2005) also

points out that there are, and will be, unclear opinions about what one means with “coaching”. Kvalsund claims that to seize the logic in the need for coaching, one must comprehend that there is an implicit goal to work towards change; to help improve something by doing certain things differently. In this work the coach is somebody that supports and helps the coachee to succeed with reaching his/her goals by conversation sessions.

In this thesis I use the term coaching for the sake of simplicity, despite that some of the techniques and suggestions I deal with consist of elements that most normally would be associated with mentoring.

### **Coaching possibilities in and for digital collaboration**

In order to come up with specific solutions/suggestions for how one can use coaching to work more successfully with video conferencing at NTNU, I will look at what one needs to take into consideration when working with coaching. There are many different approaches and techniques a coach has to choose from in his or her work, and even though I will mention some basic coaching considerations, my main focus will be on approaches and techniques that I find relevant for coaching in and for digital collaboration.

### **Basics in building a coaching relationship**

When starting a coaching relationship, it is important from the start that there is both high clarity and rapport in order for the coaching to succeed. The relationship should be built on an open dialogue where expectations of the outcome are shared. It is common to write a learning contract where one specifies what the coaching is about, and this contract often addresses what steps to take if the relationship does not work out as intended, and how and when the relationship might end. In the start of the coaching relationship it is important that the coach gets to know the coachee, and a good way to start things off is that the coach listens to what the coachee feels passionate about thus getting useful insights about him or her. In order to get as much useful information as possible out of the conversation, the coach can benefit from using certain dialogue techniques (Megginson & Clutterbuck, 2005). A trained coach has a wide repertoire of different skills (Kvalsund, 2006) he or she uses during a conversation, and these include the ability to ask deep and meaningful questions, listen actively, and provide meaningful feedback. With integrative dialogue the coach can recognize the appropriate level of dialogue and make the coachee engaged in the conversation. It is important that the coach

focuses on the coachee's goals for the relationship, and does not limit the discussion about the coachee's desired outcome (Megginson & Clutterbuck, 2005). Allowing moments of silence in a conversation can be very beneficial, as it can reveal new insights about the coachee. A pause with silence can either be a sign of that the coachee does not know what to talk about, or it might be necessary for some people to take this pause before addressing an emotionally difficult issue (Megginson & Clutterbuck, 2005). This can be important if for instance a coachee is about to be coached in digital collaboration, but actually has more fear of using technology than he or she is willing to admit in the first place. The physical environment where the coaching sessions take place can also be of significance, as some meeting environments are more suitable for reflective dialogue than others. For coaching in and for digital collaboration, it could for instance be natural that the first meetings take place in a room with video conferencing equipment. When the time is right the sessions can be conducted via video conference, with the coach and coachee situated at different physical locations.

### **Setting specific goals**

In order for the coaching sessions to be as successful as possible, it is important that specific goals are clarified. The different conversation skills mentioned earlier are vital in order to get the most out of the situation, and the coach uses these skills in various ways to get to know the coachee so well that they can work together to help the coachee reach specific goals. In this work it is important that the coachee reveals what "success" means to him or her, so that it is possible to achieve what he or she values. In order to get a deeper understanding of how to reach what the coachee defines as success, the coach can help the coachee with establishing the current reality. This crucial step in the process can be done by the coachee rating himself or herself on a variety of factors, which may or may not be important to him or her. This will elicit the values of the coachee, and having a deeper understanding of these values will be important in the development of the coachee's self-awareness (Megginson & Clutterbuck, 2005). Using this method can help reveal what the coachee's main success criteria are related to: For some people success might be associated with the benefits that digital collaboration have to offer in regards to saving time, the environment, and money. For other people the success criteria might be that they are able to operate the equipment properly, so that they can conduct a video conferencing session without any technological problems. No matter what the coachee defines as success criteria, it is important that the coachee strives to work towards a

positive ideal rather than to fill a negative deficiency, as change is more likely to occur when focusing on the positive aspects (Megginson & Clutterbuck, 2005). People have different agendas and values, and it is important that the coach is aware of this right from the start of the coaching sessions. No matter what the values of the coachee are, a good and effective coach makes sure the dialogue progresses, primarily through switching perspectives so that the coachee does not stay in the same mental state for long. One technique for dealing with this is stepping “into or out of the box”. When stepping into the box, a coach acknowledges the coachees’ perspectives, and what they are feeling and why. Stepping out of the box is the opposite, and it helps both the coach and the coachee distance themselves from the issue (Megginson & Clutterbuck, 2005).

### **Reviewing and ending a coaching relationship**

In both a coaching and mentoring relationship there comes a time when reviewing what has happened becomes relevant, and also, ultimately, there comes a time when the relationship ends. Even though a mentoring relationship is defined as a relationship that lasts longer than a typical coaching relationship, some of the same rules of reviewing and ending it should apply in order to keep the relationship healthy all the way to the end. The importance of including ending procedures in the learning contract might be specifically important in mentoring relationships, as these relationships can lead to dependence, and, at worst the same dynamics as in a parent-child relationship (Megginson & Clutterbuck, 2005). In coaching in and for digital collaboration it might be particularly important that one avoids this type of dependency, as much of the overall goal in this work will deal with how the learner can become a more confident and independent user of the technology and equipment. If the coach and coachee have clearly defined success criteria at the start of the relationship, emotional issues of ending the relationship are minimized. If the parties have set realistic goals and have worked steadily with these, the ending will become an obvious and natural process (Megginson & Clutterbuck, 2005). In the time between the start and the ending of the relationship, the review sessions are precious moments to both look back at previous sessions and to future plans. As future plans often seem to be the preferred topic at the end of sessions, it can be wise to do reviews at the start of a session (Megginson & Clutterbuck, 2005). The frequency and duration of such reviewing sessions will vary, based on individual needs. While some prefer a review at every meeting, others find a review after three or so meetings more appropriate.

The possibilities coaching has to offer in working with digital collaboration are many, yet the general guidelines I have described above are important building blocks a coach should know about and strive to use in his or her work with the coachee. In the discussion chapter of the thesis I will come back to how these possibilities can be used in coaching in and for digital collaboration at NTNU.

### **Coaching challenges in and for digital collaboration**

Even though coaching offers many possibilities in the work of digital collaboration, there are also some challenges to overcome. These challenges differ both in aspects and origins; Some challenges deal with how to succeed with the coaching itself, while others deal with how to get both the employees and the leadership of an organization to see this as a relevant method that is wise to spend time and effort on. As we saw in Aaby's (1999) findings, there is most certainly a demand for some sort of training program if one is to become more successful in digital collaboration, both in order to have users that are confident with using the equipment and maximizing the learning effect of the sessions. As we shall see in the next chapter of the thesis, which deals with the interviews from key personnel at NTNU, many of the same challenges exist at NTNU. Coaching might not be the key to dealing with all these challenges, but it might be a helpful approach for overcoming some obstacles. For now we shall take a closer look at challenges related to coaching.

### **Layers of change**

One way we humans can think of ourselves is that our self consists of many layers, where each succeeding layer is both fed and shaped by the layer above (Megginson & Clutterbuck, 2005). The layers are illustrated in Figure 3.

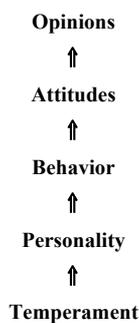


Figure 3: The Layers of Change

According to the Layers of Change model it is easiest to change the layer on top; our opinions. The bottom level, temperament, according to the model is impossible to change. In regards to the coaching in and for digital collaboration, the model tells us that it is easiest to change people's opinions about accepting digital collaboration as a good alternative to regular meeting. It is a little harder to make them change their attitude when it comes to really *meaning* this, and even harder to make people change their behavior. This means that there is quite a bit of work that has to be done in order for expecting people to come to the point where they find it more natural to see if there is a possibility that a meeting in another city can be conducted by video conferencing instead of ordering a plane ticket. Yet, the model tells us that it is not impossible to reach this behavioral change.

Knowledge and awareness of the challenges are important in order to get a realistic picture of the time and effort one can expect to have to use when setting out on the brave new task of using coaching as a technique for working with digital collaboration. If one is able to view these challenges as opportunities rather than threats, there is a better chance of coming up with successful solutions. In the true spirit of the field of coaching, it is important to focus on the strengths coaching techniques have to offer rather than possible roadblocks, and focus on possibilities rather than limitations.

### **Coaching solutions/suggestions in and for digital collaboration**

The nature of the field of coaching has a unique advantage in that it can be viewed as a versatile tool that can be moderated and customized to different situations. One of the advantages coaching has over other methods of training is that it invites the coachee to come with his or her opinions on how to deal with different situations on the road to reaching specific goals. Individuals learn more about themselves when their opinions are asked, and therefore a question like "How will you deal with this?" from the coach is much more fruitful for a coachee's development than being told "This is what I think you should do" by the coach (Megginson & Clutterbuck, 2005). In many ways, one can say that the key to a solution of succeeding with coaching lies within how the coach approaches each unique situation. A general suggestion of how to best go along with coaching in and for digital collaboration must be that the coach realizes that there is always something new that can be learned, and that one should stay on the alert for new impulses and keep a hunger for acquiring new knowledge.

### **Growth of coaching expertise**

Experimenting with new techniques and building up new techniques based on knowledge from previous sessions is a coach's prerogative. Coaches grow by experimenting not only by their own experience, but also from techniques devised by others. Being able to focus on possibilities rather than limitations, using appropriate questions at the appropriate time, and making sure to switch focus so that a conversation does not hit a dead end, are in many ways what one can say that being a good coach boils down to. In order to have a coach who can work well in a situation for dealing with coaching in and for digital collaboration, it is important that the coach has extensive knowledge about both the advantages and challenges associated with the video conferencing equipment. If not, it would be hard, if not impossible, for the coach to be able to build up a trustworthy relationship with a coachee. This could especially be true if the coachee is a newcomer to the field of digital collaboration, and has a basic fear of technology that he or she wants to overcome. In order to have coaches that are both competent in the field of coaching, and also knowledgeable about digital collaboration, it is important for coaches to look for supportive networks that can provide the necessary competence.

### **Building wider networks of support, influence, and learning**

Building wider networks is an essential part of the work of a continuous development of oneself, both in one's personal and professional life. While some people find it easy and natural to expand their networks, others might find this task troublesome. This can be because they don't feel confident in having even more people to relate to, and some people might even feel some resistance when it comes to expanding their networks. In the field of coaching building wider networks of support, influence, and learning is important for a coach in order to conduct the professional work as well as possible. A wide network will make it easier to look for support from other people on issues one is unsure of. Sometimes being influenced by others can have a great impact on one's work, and this influence might be the reason why something is accomplished in superb way rather than in just a decent way. Another advantage with having a big and varied network is that it makes learning more accessible. A way to sort out who in one's network can help out with different aspects of learning is offered in what Revan (1998 in (Megginson & Clutterbuck, 2005)) terms "Action learning": By using three questions one can sort out who one needs to talk with on different matters (Megginson & Clutterbuck, 2005). Even though these questions originally are intended to be used by a

learner, or coachee, I find it natural that also a coach can use these questions in order to gain new insights. Asking, “Who knows?” will give guidance on finding out whom to talk with to gain needed *information*. Asking, “Who can?” will give information about whom one should get on the “on-side” in the dimension of *power*. And finally, asking, “Who cares?” deals with who is sharing the concerns and is *willing* to do something about it (Megginson & Clutterbuck, 2005). As we saw earlier, the instructors in Aaby’s (1999) thesis cried out for help regarding more knowledge about how to maximize the learning output of distance education. If Aaby’s instructors had been offered a coaching session that had goals of making them both more comfortable with both using the equipment itself, and maximizing the learning output, using these questions could be helpful. The instructors could then have been encouraged to use their network to find out who is best suited to come up with the answers they needed. The first question would help them find people with information about what pedagogical methods are appropriate when dealing with distance education. This would naturally lead them to contact a department dealing with education, either in their own close environment, or perhaps a department at one of the Universities that specializes in education. The second question would help them to consider whom they should talk to in order to get permission to go through with using time and effort on this matter. This might be the instructors’ leaders or supervisors. The third question could lead them to finding other people who share their concerns, and who both are willing, and hopefully also able, to do something about the situation. These people might be colleagues at the same or other institutions, or perhaps even a leader or supervisor who sees the value of dealing thoroughly with this.

Ultimately this thesis will focus on how NTNU can go about dealing with and coming up with solutions to overcoming challenges related to video conferencing. Before discussing these issues it is relevant to go through the information from the interviews, to get a picture of the current situation at NTNU.

## **7. Core excerpts from the interviews**

In total four people from NTNU were interviewed, and these people were selected because they all are working with video conferencing at NTNU in one-way or another. These peoples' positions, background, and relationship to video conferencing varies, and the goal with interviewing these people was that together they would help provide useful information which can be used to build an understanding of the status quo at NTNU when it comes to issues related to video conferencing. Before presenting their opinions about what they view as possibilities, challenges and solutions in terms of dealing with video conferencing, I will give a brief introduction of each person.

Thormod Leinum, hereafter TL, works as a junior executive officer on the principal's staff, and has worked with videoconferencing since 2007. TL is both involved with handling requests of video conferencing sessions, and is trained in using the video equipment so that he can be of technical assistance during a session. This training qualifies him for being called a "super-user".

Anne Lillevoll Lorange, hereafter ALL, works as a librarian at the University library at Dragvoll campus. She has experience with video conferencing since March 2010. ALL is both involved with handling requests of video conferencing sessions, and is just like TL a super-user.

Frank Børø, hereafter FB, works at the Multimedia centre as a senior engineer, and has worked with video conferencing since 1992. FB is both involved with handling requests of video conferencing sessions, and is trained in using the video equipment so that he can be of technical assistance during a session. FB is also responsible for helping out others at NTNU who wish to invest in video conferencing equipment, and he has been involved in the purchase of the equipment which TL and ALL govern. FB has qualifications that go beyond being called a super-user.

Anne-Beth Holte, hereafter ABH, is a chief consultant and the head of the HMS-department at NTNU. ABH has no concrete experience with video conferencing, but is involved with

following up on the video conferencing activities, as NTNU wishes to make video conferencing a field of responsibility for the HMS-system.

## **Possibilities, according to the interviewees**

### **The need and demand for video conferencing services**

ALL has had many enquiries about booking of the equipment at the Dragvoll library, and has no doubts that there is a need for video conferencing services at NTNU. Still she does not believe that this kind of meeting can replace all regular meetings, but that it is a nice substitute that many people seem to appreciate. TL also sees the need for this kind of service, and says that *“more people in the principal’s staff seem to use it now”*. Still, TL thinks that it is easier for people to attend to a video conference if the meeting participants have met each other physically previous to the meeting. ABH says that there should be a demand for using video conferences, as *“everybody claims to have a hectic working day”*. FB thinks that it is important for two reasons that NTNU can offer video conferencing services. First of all it is a very effective way to increase the number of distance educational classes. This is important because many of the academic institutions at NTNU are having a hard time getting competent lecturers. Secondly, FB means that video conferencing is an important tool in order to deal with NTNU’s ambitions on reducing air plane travel to attend to one day meetings. TL says that the leadership at NTNU also sees video conferencing as an important tool in order to reduce these kinds of meetings, as *“It has been discussed in meetings of the presidency, and the principal is eager to use it more”*. Also, TL says that the Director of Organization and Information at NTNU often remarks that it will be used more in the future. FB, ALL and TL all had many more requests about using the video conferencing studios at NTNU when airplanes were grounded due to the ash cloud from the Icelandic volcano in 2010. FB says *“The number of inquiries exploded, and we were not able to comply with all the requests. It will be exciting to see if some of the people who had their first experience with video conferencing because of the ash cloud will come back at a later time”*.

### **The keys to success**

It is widely agreed upon among the interviewees that it is of vital importance that the users of video conferencing are happy with the services, as this is a success criteria for whether they return or not. FB says *“the equipment works so much better today than when I first started*

*working with video conferencing, both in terms of stability and quality. The difference is like day and night*". FB says that the Multimedia centre together with the Audio-Visual services, "AV-tjenesten", at NTNU can help with counseling and training, which is important when dealing with video conferences. He also thinks that much of the reason why the Multimedia centre has many happy users is that *"the centre has dedicated employees that are both knowledgeable with the equipment and have a service minded attitude"*. This opinion is shared by ABH. The interviewees all agree on that one of the big tasks that have to be dealt with in order to get even more happy users, is to reach out to new potential users and tell them about the possibilities and added values with video conferencing.

### **Challenges, according to the interviewees**

Even though there are many potential benefits associated with an increased usage of video conferencing, the interviewees point out that there are several roadblocks to cope with in order to get even more happy users at NTNU.

#### **Reaching out to new users and user confidence with the equipment**

FB says that many people who tried video conferencing in the past, when the equipment was fairly unstable, have had such bad experiences that they are not willing to give it a second chance. FB believes that reaching out to these people and having them see that these problems are history is one of the challenges one has to overcome. Even people who have not tried video conferencing in the past seem to be skeptical before the first session, according to TL and ALL. Still, TL and ALL say that this skepticism vanishes for most people after having conducted a successful meeting. ABH wonders if it could be that many of the internationally excellent employees at NTNU are so accustomed to mastering everything themselves, that they are afraid that they might lose face if they try to use new technology and fail trying. What ABH sees as the biggest challenge when it comes to increasing the usage of video conferencing is *"to make people use it, and have the experience of it as successful and easy to conduct such a type of meeting"*. TL says that he is surprised that the video conferencing activity in the Administrative building has not increased more and that *"change comes slower than first anticipated"*. TL also says that because the equipment is not used frequently enough, it is not always easy to be "the expert", or super-user, which he is expected to be. TL says that some meetings have had technical challenges in the start-up process, but these challenges often have to do with the other participant(s)' lack of knowledge about how to

operate their own equipment. TL says *“One of the most common problems is [simply] that the microphones are muted”*. Nonetheless, this causes a delay in the start-up time of the meeting, and some people might associate video conferencing as something that is troublesome because of this.

### **The importance of infrastructure**

FB regularly gets questions from employees at NTNU who wonder if there is video conferencing equipment close to where they have their offices, and FB thinks that it is necessary to invest in more equipment throughout the different buildings at the different campuses in order to get an increase in the overall usage. Despite this, FB also says that there is a danger in simply buying new equipment: *“Some equipment has been purchased by various faculties without any over-all plan. The equipment has been placed in ordinary meeting rooms without any organizational plan and a clear definition about who is in charge of and responsible for the system. Also, the room has not been prioritized as a video conferencing room, which means that on many occasions one cannot conduct a video conference in the room simply because the room is used for a regular meeting”*. Lack of information about what video conferencing services are available at the different NTNU campus locations is also keeping the usage down according to ALL: *“People don’t ask for video conferencing services if they don’t know that the services exist”*.

The interviewees all agree on that working with marketing is vital in order to reach out to new potential users, but that marketing at NTNU is a task also associated with its share of challenges.

### **Marketing, communication and flow of information in a large public organization**

ABH believes that The Multimedia centre has arranged many good events and sessions in order to give the employees and students a chance to get to know more about the possibilities with video conferencing, but still it seems that NTNU fails to reach the target groups.

Marketing in the close environment also seems to be a big challenge: TL says that he, in addition to the posting of information about the information about the video conferencing possibilities on NTNU’s Intranet, often remarks that the equipment should be more used in the regular surroundings of his office area. TL says, *“It seems like talking about it is not enough. Even though the secretaries who book many of the leadership’s plane tickets for distant meetings know about that the video conferencing equipment exists, they continue to*

*book flights for most meetings*". ABH says that she knows about the challenges associated with arrangements for short notice meetings, and that in many ways it is easier to book a plane ticket than to book a video conference. Still she does not see why this should be a bigger challenge for NTNU than other companies; *"At the private company Reinertsen they have an extensive use of video conferencing [...] and they have just the same need of conducting meetings as the employees at NTNU have"*. The interviewees agree that it seems as if most of the marketing attempts fail simply because the information somehow does not come out to the target groups, and that a clearer strategy from the leadership is a key element that is required in order to change status quo.

### **Lack of strategy and support from the leadership**

ABH believes that the leadership should set a good example for the rest of NTNU by using the equipment more often themselves. ALL agrees to this, but points out that *"diffusion of information and influence from the top is a challenge in a large organization like NTNU"*. FB argues *"before it was the technology itself that was the challenge, today it is the organization around using the equipment that is the challenge. Perhaps there is too much freedom in academia? In private companies it is easier to impose usage by the leadership"*. ABH says that she suspects that *"few people take the travel policy at NTNU seriously enough"*. Another challenge that FB points out that is the result of strategy failure is that *"some equipment that is bought is not used enough"*. FB adds that even though it is important to build up studios around the different campuses, there is much available capacity at the existing studios.

### **Solutions, according to the interviewees**

Even though the interviewees agreed on that there is a lot that could be done in order to increase the video conference usage, they also had some clear ideas regarding what is needed in order to succeed.

### **How to generate happy users**

ABH claims *"what is done in the start-up of a video conference meeting is especially important in order to get users that are both confident and content with this type of meeting"*. FB points out that one of the reasons why the Multimedia centre has so many happy and content users is because everything is taken care of by the employees at the Multimedia centre

in advance: When the meeting participants come to the studio, the meeting can start immediately, and being offered a cup of coffee also adds value to the situation. FB also points out that it is important that both the leadership and NTNU employees are given appropriate information and training in order to generate more satisfied users. In order to be on the top of the situation and to feel confident in being a super-user, ALL says *“I try to figure out how things work by myself first, but if I encounter a problem I either contact the Multimedia centre or the people who installed the equipment”*. TL also asks for assistance if needed, and his prime contacts are the employees at the AV-services at campus Gløshaugen and a private company called Avikom, who offer video conferencing consulting services.

### **Action regarding strategy from the leadership**

According to ABH it is not the lack of money that is the reason why NTNU has not been able to get more things done in terms of increasing the volume of video conferences. ABH says *“it is rather the ability to carry out the initiatives that are lacking”*. ABH also says *“in general there should be a bigger demand and interest for information about the activities of The Environmental Board. It would have been of great help if the leadership had done more in order for things to happen. If they had shown some action, this could have had some effect down in the system, as they are important as role models”*. ALL also believes that the influence from the leadership is important, but adds that *“faculties must start to make a demand for video conferencing”*. FB believes that a clear strategy from the leadership will be important in light of making the right choices in the process of building more rooms. In terms of what such leadership strategies could result in an actual increase in video conferences, TL, FB, and ALL believe that the strategy must impose upon NTNU employees to *really* consider video conferencing as an alternative before ordering plane tickets. FB believes that *“there should be a bigger focus on employees having to show for good reasons, perhaps even documented reasons, for why one does not use video conferences instead of travelling”*. ABH does not share this opinion about imposing, as she believes that it is more important to try to use humor in this work rather than the index finger in order for people to change their behavior.

### **How to work with marketing**

All of the interviewees agree that marketing is important in the work for getting an increased use of video conferences, despite that marketing so far has failed in many ways. ALL says

that one of the keys to reach out to new potential users is “*information, information, information*”. ALL believes that one has to use all the information channels on NTNU’s Intranet in addition to information on rollups and information screens around the different campuses. She also suggests making more videos that show the possibilities with video conference and believes it is important to arrange “Open days” where the equipment is demonstrated from time to time. ALL says “*it is important to be visible and to constantly give small chunks of information in order to succeed*”. ABH thinks it would be interesting to go through the video conferencing statistics, to see if one can find some eager users who could share their “success stories” in, for instance, the University newspaper in order to motivate others. If employees at NTNU come to hear about the benefits from other people than the leadership, this could help inspire them to try it out for themselves. ABH also believes that perhaps a new version of the video the Multimedia centre has produced should be made, where the twist is more humorous than in today’s version which mostly focuses on that one can save time and stress by choosing video conferencing instead of traveling by plane.

### **Summary of key elements from the interviews**

In general the interviewees agree on that there are three key elements that one has to work with in order to be able to change status quo of video conferencing at NTNU. First of all they agree on that it is very important that the video conferencing sessions themselves are conducted as smoothly as possible in order to get happy and content users. Because of this it is vital that the super-users at the different locations are both confident in using the equipment and know about the equipment’s possibilities and limitations. To get confident super-users it is important that these persons go through training and that they get to practice operating the equipment often enough in order to maintain their skills. Secondly, there seems to be wide agreement that marketing and information about the available studios and the benefits of video conferencing are very important in order to reach out to potential users. Last, but not least, they think that the leadership must put forth some effort in terms of showing the way by using the equipment themselves, and come up with strategies which show what NTNU aims to accomplish by offering video conferencing, and also what NTNU shall do in order to reach these goals. When it comes to external factors that are beyond the control of both the super-users and the leadership, it is too early to say if the blossoming of usage in the days of the ash cloud will have any long-term effect.

## **8. Discussion**

In the summary of the interview excerpts section, I identified three key elements that need to be dealt with in order to succeed with increasing the video conferencing activity at NTNU:

1) Leadership/strategy, 2) Marketing, and 3) Users. In this discussion chapter, I will go through these three key elements and look at them in the light of theory. In order to maintain a clear structure in the discussion, I will look at possibilities, challenges and solutions for these key elements. At the end of the discussion extra attention will be paid to the user aspect, when I discuss how coaching can be used in and for digital collaboration at NTNU.

### **What can be done at NTNU by focusing on leadership/strategy**

#### **Possibilities for leadership/strategy at NTNU**

As we saw in the collaboration theory section, Rosen (2007) argues that there is an increasing demand for richer interactions within companies, and that certain key trends are changing the business landscape. One of these trends is the technological trend, which deals with the possibilities of digital collaboration: Countless numbers of technological collaboration tools are working just fine, and they are just waiting to be embraced and used. The economic trend, which Rosen points out as another key trend, deals with how companies can exploit the best talent at the best price, regardless of geography. Evan and Wurster's (2000) "richness" and "reach" theory also suggests that using digital collaboration invites many possibilities when it comes to sharing rich information with a large number of people. In the interview with FB, he pointed out that it would be beneficial if the leadership could see the possibilities video conferencing has to offer: Increased usage can help reduce the amount of airplane travel to one day meetings, and video conferencing can be used to get competent lecturers from distant locations so that NTNU can offer a variety of good courses which they otherwise couldn't. It is clear then, that NTNU has the possibility not only to save time, the environment and money, but also to recruit great talent, like super-star lecturers, by using collaboration technology as a part of their strategy. I think the leadership at NTNU should embrace these possibilities if they want to see NTNU rise in rank at various lists of World Class Universities. The possibilities for those in leadership at NTNU to use video conference for themselves are wide open, as the Administrative building has its own video conferencing system, and even a Principal who says he wants to use it more often.

## **Challenges for leadership/strategy at NTNU**

Rosen (2009) mentions that the regulatory trend is another one of the four key trends that are changing the business landscape. NTNU has since 2005 been obliged to carry out cartography of their business activities on the external environment, and as a result of this The Environmental Board was established. In the interview with ABH, she said that she did not think that the leadership at NTNU has done a good enough job in following up the initiatives of The Environmental Board. ABH also said that she does not think the Travel policy is taken seriously enough at NTNU. The fact that the travel policy webpage is still not updated, unfortunately does not help improve this situation: Even if somebody wanted to follow the travel policy, they have no clear guidelines for what is expected of them. FB asked if there is perhaps too much freedom in academia when I interviewed him. I think that it interesting to look closer at the current culture within the world of academia at NTNU today before drawing any sturdy conclusions around this. Perhaps the level of freedom that exists within the culture of academia today is much of the reason why many employees find it attractive to be working at NTNU. Perhaps the field of academia in general still needs some time to embrace fully possibilities offered by using collaboration technology like video conferencing. If NTNU suddenly was to limit the flexibility of ways of working together, this could perhaps do more damage than good. Many researchers would probably be happy to save time, money and the environment by using video conference, but their culture doesn't support it yet.

In order to gradually make video conferencing a more appealing academic aid, I think that the leadership at NTNU has to pay attention to this cultural shift and look for opportunities for changing the culture of collaboration. Right now it seems that the work with the strategy has entered an unhealthy circle: The leadership puts its faith in the work of The Environmental Board, but The Environmental Board misses encouragement from the leadership in order to really see some results. These challenges with the collaboration between the leadership and The Environmental Board are also clearly visible in many of the University newspaper's articles, where The Environmental Board has been criticized for not doing a good enough job in regards to taking the environment more seriously at NTNU. Hansen (2009) points out that in order to succeed with disciplined collaboration, the leaders have to analyze the barriers that exist, and *then* try to find a solution. It seems like the leadership at NTNU has gone straight into what Rosen (2007) calls the "build it and they shall come"-trap when investing in the video conferencing system in the Administrative building. They have started in the wrong end with looking for a solution before looking for the barriers, and perhaps they believed that

simply buying a video conferencing system for the Administrative building would result in regular and useful use. The fact that the Principal says he wants to use video conferencing more, but that secretaries instead regularly book flights before checking the possibilities for conducting the meeting as a video conference, proves that the leadership has some serious challenges to overcome.

### **Solutions for leadership/strategy at NTNU**

In the interview with ALL, she said that she believes that the different faculties at NTNU have to start demanding more video conferencing services at NTNU. I agree with ALL, because if the demand is strong enough, the leadership will have to relate to the challenges they are facing. Also, these challenges might encourage the leadership to care more about the work of The Environmental Board, and thereby provide the needed support which ABH feels is lacking today. If the leadership wants to develop a strategy for video conferencing use, they should consult people like FB who have knowledge about what is needed in order to build suitable studios. If the leadership *really* wants to build up a service that will be used as intended, the leadership has to realize that studios have to be built close to its users (Kristensen, 2009f), and that the rooms should be dedicated as video conferencing rooms with dedicated super-users. Also, the leadership should realize that when the coming generations of students like the “digital natives” (Kristensen, 2009c) arrive at NTNU they will expect that their surroundings offer possibilities for digital collaboration.

In the interviews we saw that there was a disagreement about whether or not it is best if the leadership requires its employees to use video conferencing. In some ways I believe that such a requirement could be effective in that people would make it a habit to check if a meeting could be conducted via video conference before ordering a plane ticket. Still, if one is to succeed with such a requirement, there has to be a plan to keep a consistent overview of the possible consequences. On the other hand, in an ideal world one would not need to impose video conferencing on people. In a study Rosen (2007) conducted for the Ford Motor Company, it turns out that employees are more likely to resist using tools and accepting changes in their work style if senior leadership imposes these changes. Also, as I previously have discussed, dealing with imposing change within the culture of academia is a delicate matter. I think more employees at NTNU would use video conferencing if they saw it as an attractive tool that could help them save time, money and the environment. In order to get to

this point, it is important that the strategy of the leadership also takes into consideration marketing, and the importance of training for users to ensure that the video conferencing sessions can be conducted as frequently, smoothly and effectively as possible. In this work, there are certain approaches Rosen (2007) suggests that work well if a leader wants to instill a culture for collaboration: Leaders should embrace the benefits of mentoring systems in training people, and invite people to come with constructive confrontation on matters that deal with changes of the employees' working culture. Overall, I think that if the leadership at NTNU is expecting to succeed with a strategy, they have to cope with both the motivational and the ability barriers that Hansen (2009) mentions. First of all the leadership will have to make people more *willing* to collaborate digitally. This holds true both for the people within the leadership and its staff, and for the other employees at the different faculties. In order to overcome the ability barrier, the leadership must pull the right levers that enable motivated people to book and conduct video conferencing sessions just as easily as it is to order a plane ticket today. Also, the leadership should try to keep track of the benefits video conferencing offer economically in the long run: even though building up studios cost money, the amount of money that will be saved on reducing air plane travel will be considerable, and thus justify the cost of the equipment. Finally, in order for the leadership to truly embrace and believe that video conferencing is a tool that should be used more extensively at NTNU, I argue that it is vital that the leadership have both trust and confidence in this technology. In order to achieve this it is important that they are offered training courses that take into consideration these aspects. As I will come back to, coaching seems a well-suited approach for dealing with this.

## **What can be done at NTNU by focusing on marketing**

### **Possibilities for marketing at NTNU**

NTNU has its own Information Division, and should therefore also have the competence to know which marketing techniques work well for promoting a service like video conferencing. NTNU's Intranet, The Inside, is the main portal for distributing information among the employees, and information that is posted here can be aimed specifically to reach certain target groups. The University newspaper, UA, is also a source of information for the employees at NTNU, but it is not easy to use this as a channel to *promote* video conferencing, as the UA's journalists filter which information *they* find journalistically interesting. Most of the marketing activities regarding video conferences are initiated by the Multimedia Centre (MMS): If for instance MMS arranges an "Open day", one of the employees at MMS

produces a text which is then sent to the Information Division which approves it before it is published on The Inside. According to Kristensen (Kristensen, 2009d), few companies manage collaboration systematically. As we have seen, NTNU might be a prime example of this. One of the possibilities for good marketing is what Rosen (2007) calls “Enlisting champions”. These champions are influential people who have a wide network and sit on multiple boards. If NTNU was able to find and use such candidates to promote video conferencing, this might have a huge marketing value.

### **Challenges for marketing at NTNU**

Even though the Information Division at NTNU is the natural collaborator for publishing information regarding video conferencing activities to the masses at NTNU, it can be argued that what they have done so far simply is not good enough. In order to cope with the low number of people attending to the various activities at the 2009 Environmental Day, the chief of the Information Division was invited to join the planning group for the 2010 edition in order to make sure that the marketing responsibility was in the best possible hands at NTNU. It is interesting though unfortunate that when the 2010 edition was up for evaluation, there was a wide agreement within the planning group that marketing again had failed miserably. I was in this group myself, and must admit that I could not help feeling anything but a sense of hopelessness regarding these matters. Yet, I was really not surprised, as I have seen similar challenges earlier when the Multimedia Centre has tried to market video conferencing. The problem it seems is that it is the *marketing*, and not the *content* of the specific activities themselves that fail. Still, could it be that the challenge of marketing video conferencing is more complex, and on a deeper level, than other forms of marketing at NTNU? Could it simply be that the marketing job itself is done well enough, but that people don't show up at events like “Open days” because they have some resistance to being introduced to a tool and a culture which is new and perhaps scary? Rosen (2007) argues that deployment is a bad word when trying to get somebody to use new collaboration tools. Could it be that the marketing so far has been interpreted as an invitation to entering a scary world that the leadership tries to impose on its employees, and that is the true reason why it has failed so far? Working with these matters is not straightforward, and as Rosen (2007) points out: “*imagine the irony in ordering people to collaborate*” (p. 138) No matter what the reasons are, a look at the video conferencing statistics over time indicates that even though there is a slight growth over time, this growth is far too slow to draw any conclusions that marketing attempts have had any

effect. It could be argued that the biggest and best marketer of all so far has been the Icelandic volcano ash cloud, which actually resulted in a demand for video conferencing services that was larger than the supply. As far as I know, this is the first and only time in NTNU's history that the demand has been bigger than the supply.

### **Solutions for marketing at NTNU**

Despite the challenges related to marketing, all the interviewees still believe that efficient marketing is vital in order to make changes in the status quo. The idea that ABH introduces when suggesting that one should try to get hold of one of the active users of video conferencing, and have this person share his/her story in order to motivate others is interesting. If the University Newspaper would publish an article about this, new users might be attracted. It could also be interesting to try to involve people from what Rosen (2007) refers to as "collaborative pockets" in marketing. As these people are employees or groups of employees that work across functions, units and regions, they might have valuable information and tips for others that could be used in marketing. It could also be that sharing stories about successful use of other forms of digital collaboration, and not only video conferencing, could have an effect. Rosen (2007) points out that by paying attention to what he calls "the tao of tools", people can learn more about how to match the right tool with the right situation. Perhaps if the University Newspaper had an article series on digital collaboration tools, more people would see that video conferencing is a right and natural choice for them. Still, it seems a long shot to hope that success stories and article series alone can really make a difference in the long run. "*Information, information, information*", was the clear message from ALL when she was asked about how to cope with marketing. I agree with her that it is important to use as many information channels as possible, and that small chunks of information and persistence are two keys that are important in order to constantly remind people that video conferencing services exist at NTNU. Still, I think that in order to really come up with the ultimate solution for marketing, it is important to look at the role of the leadership again. It is tempting to draw conclusions that one of the reasons why marketing is such a big challenge, is because the leadership at NTNU has no clear strategy regarding video conferencing. It seems that the leadership relies on The Environmental Board and the Information Division together to take care of that business. As we have seen, this cooperation has not exactly been the key to success so far. It would be interesting to see the effects of a leadership that showed encouragement for the work of The Environmental Board and put in

the needed effort to come up with a realistic strategy of disciplined collaboration that consists of concrete goals and milestones. In addition to this, those in leadership could actively show the way and be good role models by using video conferencing more systematically for themselves. When these matters are first attended to marketing can be used a powerful tool to systematically reach the target audience, and ultimately make the strategy a success. One of the concrete solutions that this strategy should make sure is implemented is a common booking system for all the video conferencing suites at NTNU, which will make it easy for the users to both get an overview over the availability of the different studios and to make a booking. Still, the development and implementation of such a booking system would alone not be enough. Strong marketing of this service could be very important in order for people to make it just as natural to book a video conference as it is to book a plane ticket today.

## **What can be done at NTNU by focusing on the users**

### **Possibilities for the users at NTNU**

Fortunately all of the interviewees report that most people who have used video conferencing are very happy with the service. This holds especially true if the meeting was conducted smoothly and on schedule. Much of the key to success with happy users seems to be connected to the super-users who help the users with conducting successful sessions. Rosen (2007) states that mentoring often plays a large role in collaborative cultures, and in many ways I think it is possible to draw some parallel lines to the relationship between the super-user and a user in a video conference session. As NTNU has an acknowledged Programme for Teaching Education, PLU, it should be possible to create and develop both exciting and successful training programs for mentoring/coaching in digital collaboration.

### **Challenges for the users at NTNU**

Even if the leadership had come up with a strategy that resulted in the building of more video conferencing suites and successful marketing of the services, it is unlikely that this alone would result in happier video conferencing users at NTNU. What seems to be one of the biggest challenges when implementing new tools that people are expected to use, is that one forgets the *user*. The report “The use of ICT at NTNU” (Tilset, 2008), is an analysis of how information technology is used at NTNU in 2008. This report concludes that “*NTNU does not have the attention and focus on ICT and Learning as one could expect, especially seen in the*

*light of that NTNU's Programme for Teaching Education is one of the country's biggest institutions for teacher training. Single individuals have motivation and interest for doing new things, but lack an organizational support network which makes this possible without too much use of resources. The situation is evaluated as not satisfactory"* (p. 23). Unfortunately this illustrates that there are big challenges associated with using The Programme for Teaching Education in working with coaching/mentoring for video conferencing activities. There are also other challenges at hand when it comes to finding ideal solutions for users. Rosen (2007) points out that integrating collaborative tools into the culture of a company is a big challenge. As corporate cultures are slow to embrace new tools, like tools for digital collaboration, it is important that the employees break out of their comfort zones. What normally happens is that eager users of a certain technology operate in silos, and this actually seems to hold true for the situation at NTNU: As we have seen, the Multimedia Centre deals with video conferencing daily, and is successful within "its own world". The users of the Multimedia Centre are mostly happy because the services provided there run smoothly and are conducted professionally. Still, the Multimedia Centre has little impact outside of its own silo. According to FB various places around NTNU have purchased video conferencing systems without a defined purpose and an unclear definition of who is in charge of the equipment. As this thesis does not have any statistics showing actual usage of this equipment, it is impossible to say how often this equipment is used and whether the users are happy and content or not. It is tempting to believe, however, that much of this equipment actually causes more harm than good because: 1) in addition to collecting dust, the equipment is taking space 2) it gives the users of the room bad conscience as the presence of the equipment constantly reminds the users of the room that they probably should use it, and 3) because nobody uses the equipment some people might try to cope with their bad conscience by coming up with assumptions that video conferencing technology is neither reliable nor useful. Overall this means that there could be several places at NTNU where "false starts" have resulted in potential users having already lost faith in video conferencing as a tool for digital collaboration. I believe that to prove these people wrong is a challenge that must be dealt with delicately in order to succeed. Still, one should not only pay attention to the people who might already have lost faith in video conferencing. It is also a challenge to follow up the people who know how to operate the system to a certain degree. The interviews revealed that both ALL and TL know how to operate the system to a certain degree but have to call for help from time to time because they don't feel that they master the equipment fully. One of the challenges TL mentioned was that it can be a challenge to be a super-user because the

equipment is not used frequently enough. Another frequent challenge he mentioned was the problem with the other party muting their microphones. This proves that it is not only at NTNU that there are challenges when it comes to focusing on the users.

### **Solutions for the users at NTNU**

The interviewees agreed that what is done at the start of a video conferencing session is especially important in order to win the users' trust in the equipment. If the users experience a video conference as both easy to conduct and successful; they are more likely to come back. This recipe may seem simple, but as we have seen it takes some substantial work in order to make sure that this can hold true for every video conference held at NTNU. I have earlier pointed out that The Multimedia Centre might be seen as a "silo", which more or less has operated within its own world in trying to find ways to make users of video conferences happy. Rosen (2007) argues that silos also have some advantages, as they allow departmental and functional cultures to develop and increase professional intimacy within certain areas. It is an interesting thought to imagine what the video conferencing situation at NTNU would be like if The Multimedia Centre had not existed. Nonetheless, the super-user approach that this silo has introduced as the current solution at NTNU seems to have a critical role to play in the world of video conferencing at NTNU today. We have seen that making sure that the super-users are confident in their jobs is very critical for accomplishing what the users will define as a success. Still, only having confident and skilled super-users might not be enough in order to really encourage more people to consider conducting a video conference. One of the solutions to Rosen's (2007) challenge of integrating collaborative tools into the culture of a company is to start using digital collaboration technologies in low impact situations. With the experience I have had with the Skype video-sessions with my parents in law, I must say that I totally agree. The first time we were to conduct a meeting, my parents in law used some time to figure out what the different buttons meant and how to connect, but after this things have been working smoothly, and both we and they value these sessions as both meaningful and successful way of keeping in touch and watching our daughter grow up. If possible users at NTNU could also get a chance to start off softly with being able to try out digital collaboration on their own terms first, this would help many overcome possible skepticism which is important in order to create an environment that is based on trust. With this I mean that NTNU has to strive to create an environment where the users genuinely believe in the value of digital collaboration, and that strategy and marketing alone are not enough to accomplish this. What is needed is

some sort of training, and the time has come to see how coaching could be used in and for digital collaboration at NTNU.

## **Coaching in and for digital collaboration at NTNU**

### **Possibilities for coaching in and for digital and for collaboration at NTNU**

So far there is no culture for using coaching to help increase the number of video conferences conducted at NTNU, but I argue that coaching techniques have much to contribute with in order to achieve more safe, happy and content users at NTNU. As Kvalsund (2005) points out, one has to seize the logic in the need for coaching, and one must comprehend that in coaching there is an implicit goal to work towards change. We have seen that at NTNU there seems to be a big challenge when it comes to recruiting new users. I have suggested that this might have something to do with that there is no culture for embracing video conferencing because too many potential users it is looked upon as a strange tool, perhaps associated with old myths that it is not reliable. For some people, simply the fact that they are going to be displayed on a TV screen can seem frightening. Rosen (2007) points out that video interactions is by no means as high-impact as sharing the same physical space, but in many occasions it can be the next best thing as the participants can see one and other and read some vital body language: It is possible to tell if another meeting participant is confused or annoyed, and this is important in order to achieve a meeting of the minds. Kvalsund (2006) also points out the importance of body language in communication, as it can help give an indication on if it is compliance between what is being said and the way it is said. In order to make sure that a possible meeting of the minds can take place, it is important to have the aspect of “working together towards change” in mind when planning how to generate the highest number possible of happy and content users. As we have seen, also the super-users could benefit from even more training in order to reach a higher level of security in their own skills. Because of this I argue that coaching is the way to go, as coaching takes into consideration that every person is unique and has different needs and desired goals.

### **Challenges associated with coaching in and for digital and for collaboration at NTNU**

According to the layers of change model (Megginson & Clutterbuck, 2005) it is necessary to work with people’s opinions and attitudes before hoping to come to the point where one can change behavior. Having people change their behavior when it comes to using video

conferencing because they *want* to and because it feels *natural* for them is what I would say is the ultimate goal for coaching users at NTNU. As we have seen previously, at NTNU there are potential users who either have opinions that video conferencing is something troublesome, or even attitudes that make them resistant from ever wanting to try it again. It can be a tremendous challenge to make a coaching program that is so consistent, flexible and user-friendly that it will result in behavioral change for everybody, but I don't think that is reason enough not to try. It is important to focus on opportunities rather than roadblocks, and actually, for my own part, it makes it even more interesting to work with something when there are challenges to overcome. One obvious challenge is how to actually carry out such a coaching program for users at NTNU. If one were to use external help for the coaching, the leadership would most probably have to be involved in some way, as the program would cost money to conduct. The suggestions for coaching programs which I will present below, only deal with using internal participants already working at NTNU, and thereby fewer roadblocks will have to be encountered before one could try out the programs in real life. Still, approval by some level of the leadership will have to be given, as the programs are intended to be conducted within regular working hours, and thus demand some of the employee's time.

### **Solutions for coaching in and for digital collaboration at NTNU**

The solutions I am about to suggest are outlined in the next section. The solutions consist of two different programs for coaching where I intend to use myself as the coach who is responsible for the overall programs. Despite not having practiced working with coaching earlier, I can argue that my overall competence should be sufficient in order to conduct successful programs: I have a Teacher's degree, I have years of experience with video conferencing, and I have taken coaching courses as a part of my Master in Organization and Leadership degree. Also, if my suggested programs would get a green light for being tried out in real life, I would know where to look for assistance at NTNU if I ever felt that I had any shortcomings which would limit the potential impact of the courses. In the next session I will not use the "I"-phrase when talking about the coach. For the sake of simplicity, and also to illustrate that somebody else could do the coaching, the coach is referred to in third person.

## **9. Programs for coaching in and for digital collaboration at NTNU**

Both coaching programs will deal in different ways with three main dimensions in relations, which Kvalsund (2005) refers to as dependency, independency, and mutuality. To reach a successful end of a coaching program a coach shall help the coachee experience his/her own independency. The goals for the two programs I have outlined is that the coach makes sure that both super-users and users use their own strengths and resources in order to move from a position of dependency to one of independency when it comes to using video conferencing as a successful tool for communication and collaboration. The value of mutuality will be realized on the way as both parties establish a consciousness that both the coach and coachee need each other in the process of reaching the coachee's desired goals. As the field of coaching pays attention to the details of the different dimensions in relations (Kvalsund, 2005), it seems better suited as a way to make a change that *lasts* for the people who enroll in these programs than normal training programs. Normal training courses don't deal with putting focus on the users' uniqueness and individual needs as coaching programs do (Kvalsund, 2005). Therefore, I argue that even though normal training could enable people to operate the equipment itself properly, such programs lack the depth of really understanding that change has to come from within people if one is not only hoping that the people will become confident users, but also operate as advocates. These advocates will be important in order to achieve the ultimate change: the change of collaborative culture throughout the entire NTNU.

### **Program I: Coaching super-users**

The first program is intended for the super-users, who already have some training and experience with usage of video conferencing. In this program the super-users all have access to a video conferencing system in their close working environment. Both TL and ALL have such access. The AV-service personnel at Gløshaugen and Dragvoll campuses will also have such equipment available in late 2010, and it is natural that at least one person from each of these campuses also participates in this program. Each of the steps in the program should take no more than an hour.

### **Step 1: A physical meeting in Auditorium R6, Gløshaugen campus**

The first session is more like a regular meeting, where the coach and coachees come together in the Multimedia Centre's studio R6. In this meeting the focus will be on getting to know each other, and starting building a collective feeling that the super-users have a special and important role in order for NTNU to offer first class video conferencing experiences for its users. After everybody has introduced themselves to each other, they get to know what the intentions behind the coaching program are. In a start up process it is important that the coach makes a point of maintaining and promoting that this work is done in order to deal with the coachees' independency by emphasizing the values of independency and responsibility. (Kvalsund, 2005). The coachees also get an outline of how the work will proceed, both in regards to future meetings and individual coaching sessions. The session ends with the super-users writing down on a piece of paper what they feel they want to master better and learn more about regarding being an even more confident super-user. The coach collects these notes and goes through them before the second meeting/step 2.

### **Step 2: A private coaching session at the super-users video conferencing studio**

In the second meeting the coach visits the super-user, or coachee, at "his/her" video conferencing studio. At this meeting they go through what the coachee has set up as areas that he/she wants to work with in order to reach the coachee's desired goals. In this part of the program it is important that the coach focuses on the coachee's goal for the relationship and does not limit the coachee's desired outcome (Kvalsund, 2005; Megginson & Clutterbuck, 2005). It is also important that the coach uses attention- and influencing skills appropriately. Kvalsund (2006) points out that paying focused attention will help increase the coachee's consciousness and is a part of building a relationship of trust, while influencing skills deal more with action- and behavior change. Sometimes the coach might benefit from using certain techniques in order to get an in-depth understanding of what has been expressed by the coachee. Paraphrasing, according to Kvalsund (2006), can be an appropriate technique to use in many situations. When paraphrasing, a coach mirrors his/her understanding of what the coachee has expressed, and by doing this the coach gives a parallel meaning to the already expressed meaning of the coachee. This helps the coachee a chance to hear if the coach has understood the situation correctly, and also gives the coachee a chance to create rapport – leading to the coachee feeling empowered and experiencing mutuality (Kvalsund, 2005). The coach visits each and every coachee at least one time before moving onto step 3.

### **Step 3: The super-users practice by calling each other on video conferencing**

The coachees are encouraged to further develop their skills and competence by calling each other on their video conferencing equipment. This way they get to practice and get a chance to use the equipment frequently which has the benefit that it minimizes the chance for forgetting how the equipment is used. Initializing and facilitating activities like these make the helping process easier. Facilitating is a skill that deals with the coach giving the coachee support in the exploration process (Kvalsund, 2006). The coachees are encouraged to try to use the different content sharing possibilities by connecting laptops, PCs and document cameras. They are also encouraged to try to add a third party to the session, either via telephone or another video conferencing unit. The coach will encourage the coachees to conduct at least one test-connection with three different super-users, so that the super-users get to know one and other better.

### **Step 4: The coach and coachee conduct a coaching session via video conference**

In the second private session between the coach and the coachee, the coaching takes place via video conference. This is another way of appropriate facilitation for the coachee. Kvalsund (2006), points out that the facilitating processes deals with creating situations where one is more able to understand oneself and one's action potential. When using video conferencing as a tool for a coaching session about the use of video conferencing, a meta-perspective comes into play. The coachee might get a feeling that videoconferencing actually can be used to create a meeting of the minds, which Rosen (2007) suggests that can be a possible outcome of video conferencing. In this video conferencing session the coach and coachee go through the goals the coachee had defined, and the coachee shares the experiences from the sessions with the other super-users. If necessary the coach comes back to follow up on issues that the coachee wants to work with. When all of the coachees feel that the time is right the time has come for step 5, which is the closing of the program.

### **Step 5: The coach and coachees meet in a multipart video conference**

When the coach and the coachee meet in the final part of the program, they all meet via video conferencing. The coachees are encouraged to share their experiences so far, and might learn that many of them have worked with the same issues. By doing this, the mutuality principle in coaching comes into play. According to Kvalsund (2005), a key value that is important when dealing with the dimensions in relations is the consciousness and intention to carry out a

project that involves mutuality. The coach encourages the super-users to continue using each other for keeping their skills sharp, and to feel free to contact the coach if they have any questions or wish to continue with private coaching sessions. In many ways the super-users can be looked upon as qualified video conferencing coaches for users after having ended this coaching program. Finally, the coach challenges the coachees to come up with candidates who could be relevant for program nr. 2 which deals with coaching regular users.

### **Program 2: Coaching users**

The second program is intended for people who want to know more about the possibilities and limitations with video conferencing at NTNU. In general, the program could be suitable for anybody, but I think it would be especially important if some key personnel at NTNU could attend it. These people include: 1) the Principal, 2) Faculty leaders 3) the Chief of the Information Division. All these people are highly ranked people who are role models for others. If these people started using video conferencing more frequently after the course, and they used their skill and influence to make a demand for video conferencing among others at NTNU, this could be viewed as one way to work with what Rosen (2007) points out as the benefits of enlisting champions. Also, I think it would be beneficial for NTNU if people who are known as heavy users of plane travel to attend many one-day meetings in other cities, and if the administrative staff of the leadership attended this coaching program. With the completion of the coaching program, the attendees would have learned the benefits, possibilities and limitations with video conferencing. This insight might work as a catalyst for changing attitudes, and integrating collaboration tools into work styles is an important part of what Rosen (2007) claims is needed in order to instill a culture of collaboration. It would also be appropriate for lecturers who are to conduct distant educational courses via video conference attended this program in a “special edition version”, which would also deal with how to maximize the learning process by taking into consideration the interpersonal limitations of a video conference. Just as in program 1, each of the steps in the program should take no more than an hour. The presentation of the steps in this program includes aspects of program 1, so it may seem repetitive, however, I have chosen to present it because of the importance of this user group. In program 2 I choose not to refer to as much theory as I have done in program 1 in order to stick mainly to the program.

### **Step 1: A physical meeting in Auditorium R6, Gløshaugen campus**

When up to five users have accepted the invitation to join a coaching program the first meeting can take place. At this first meeting, the coachees meet physically in R6. After they have introduced themselves and shared their relationship and experience with the use of video conferencing, the coach goes through some basic ABCs of video conferencing before dialing up first one super-user. This super-user introduces him/herself before a second super-user is added to the session. After this the third super-user is dialed up and introduced, and so on. If it is possible, it would be beneficial if there is one coached super-user available for each coachee, but this is not a must. When all the super-users have introduced themselves, the coach informs the coachees that these super-users also have gone through a coaching program, and that they are resource personnel who will play an essential role in the program. It is important that the super-users feel confident in taking on responsibility for parts of the activities in this program as this will ensure that the users get sufficient help and appropriate support throughout the entire program. After the introduction of the super-users, the coachees will get an outline of how the work will proceed, both in regards to future meetings and individual coaching sessions. At the end of the session the coachees are asked to write down on a piece of paper what they feel that they want to learn more about in order to grow into being a competent and confident user. The coach collects these notes and goes through them before the second meeting/step 2.

### **Step 2: A private coaching session with the user at the users' office**

The coach visits each and every coachee at his/her office. The reason why this person's office is chosen is because a person's office is most commonly a place where that person feels confident and secure. At this meeting the coach goes through what the coachee has set up as areas that he/she wants to work with in order to reach the coachee's desired goals. At the start of each relationship it is important that the coach listens to what the coachee feels passionate about, and thus gets useful insights about him or her. Some coachees might have some experience with video conferencing, and others might not. It is important that the coach levels with the coachee, and for some coachees it might be relevant to start with low impact situations like using Skype with video to either call a family member or a colleague at work. The coach visits each and every coachee at least one time before moving on to step 3.

**Step 3: The coachees communicate with each other via video conferencing**

The coach puts the coachees in contact with the super-users, and encourages the coachees to connect with the other coachees via video conferencing. The super-users will give them the support they need in order to get to know their ways around the buttons and how to share content. The coach will encourage the coachees to conduct at least three test-sessions in order to gain experience. Some coachees might want a private coaching session in addition to or in connection with these test connections. When the time is right the coachees are ready to move on to step 4, which is the final step of this program.

**Step 4: The coach and coachees meet in a multipart video conference**

The coach and all of the coachees meet via a multipart video conference. In this meeting the coachees share and discuss their experiences. The coach encourages the coachees to continue using the video conferencing facilities with of the support super-users. The coachees are also invited to feel free to contact the coach if they have any questions or wish to continue with private coaching sessions.

## **10. Summary**

My first research question dealt with what human factors are involved in NTNU's current lack of the extensive use of video conferencing. I argue the human factors are of tremendous importance. Human factors play a large role in shaping and defining the culture at NTNU, and so far this culture has not embraced extensive use of video conferencing. My second question dealt with how one could hope to achieve an increase in video conferencing activity at NTNU by introducing and offering a coaching program. I argue that introducing such a program at NTNU could result in getting more happy and confident users. As these users are the building blocks of the culture, one could hope to achieve a change in the collaboration culture. Perhaps even a culture of disciplined collaboration could emerge.

The variety of sources I have used, have all been helpful in both giving me a good insight about what the present situation is like at NTNU, why this is so, and how one can deal with the challenges that are identified.

Video conferencing activities at NTNU can be traced back to 1992. At this time the technology was associated with not only low audio and video quality, but it also gained a reputation for being unstable and therefore unreliable. With the recent introduction of HD-video conferencing systems that are IP-based, the systems of today provide both excellent video and audio. In addition to this the systems have grown to be reliable and offer possibilities of sharing content. In other words, it has a great potential for being used as a rich digital collaboration tool. Many private companies embrace this potential, but at NTNU the possibilities do not seem to be exploited in the same way. From the interviews with the key informants I had chosen for this thesis, it seems as if the reasons for the low number of video conferencing activities at NTNU can be traced down to challenges associated with leadership/strategy, marketing, and users. According to collaboration theories these challenges are present because the culture at NTNU has not yet embraced the possibilities associated with this kind of digital collaboration. I have suggested that coaching of users can be a way to deal with these challenges, and that coaching offer many benefits that regular training programs don't.

## 11. Conclusion

Writing this thesis has been a very useful learning experience for me. The inspiration to write this thesis came from my aspirations about wanting to find out what it really takes to increase the use of video conferencing activities at NTNU. Little did I know when I started the writing that volcanic ash would turn out to be biggest influence ever for increased video conferencing activity at NTNU. In many ways the volcanic ash outburst actually triggered my hunger even more for finding out more about what was really going on at NTNU. Because of the big demand of video conferencing during the ash days, there had to be more users that learned and knew about the video conferencing services at NTNU than what one could guess by simply looking at the statistics. It seemed that many people at NTNU somehow had video conferencing as a plan “B”, a plan that they never really intended to use – unless they were forced to.

When working with this thesis I have discovered that it is not only the lack of strategy from the leadership, or lack of marketing that are reasons for the low use of video-conferencing. The core of the problem seems to be that there is no culture for digital collaboration at NTNU today. It turns out that the employees at The Norwegian University of Science and *Technology* [my italics], have little information and support when it comes to changing their habits and learning to use technology for certain types of collaborative work. In many ways this can be traced back to the fact that they haven’t had a supportive culture in which to change. Still, it seems ironic that the most popular student program at NTNU in 2010 is communications technology, with an increase of 42% since last year (Gullestad, 2010). The “digital natives” will soon start entering the doors at the different campuses around NTNU and perhaps they will also be catalysts for change. In this thesis I feel that I have opened a door that reveals that it is the leadership and *employees* that one has to focus on in order to change the status quo of digital collaboration at NTNU, and that the key to this door is the introduction of coaching programs. Rosen (2007) also stresses the point that when leading in a collaborative culture, one of the key elements that has to be dealt with delicately is that one should coach and guide rather than insist. The importance of the grass roots buy-in and a gradually built demand for collaborative tools and approaches are also important aspects of what the leadership at NTNU must realize and somehow incorporate into effective strategies. In this thesis I have shown that there are many challenges to overcome, and that they can be

summarized into three key aspects: 1) leadership/strategy, 2) marketing, and 3) users. I think that NTNU should be able to overcome many of these challenges that we find today if only NTNU starts working in the right places. First of all one can build both trust and confidence in the leadership and its staff's relationship to video conferencing by implementing coaching programs such as the two I have outlined above. When those persons in leadership are both happy, competent and frequent users of video conferencing an internal change within the organization will result if in turn their experiences are communicated to the organization as a whole; both through marketing, modeling and word of mouth. As the people in the leadership at NTNU are strong role models they will inspire others at NTNU, and hopefully the leadership will finally be able to encourage and show interest in the work of The Environmental Board. With the support of the leadership, The Environmental Board could finally construct and initiate strategies that deal with how NTNU wants to work in order to save time, money and the environment by increasing the use of video conferencing. In developing a strategy that will encompass all of the challenges related to increasing the use of video conferencing a detailed plan based on these and other research findings would help the leadership in achieving its goal. The following aspects would be important to include:

- 1) New studios should be built so that the employees at NTNU will have the same opportunity to easily conduct a video conferencing session,
- 2) Competent people, like the employees of the Multimedia Centre, need to be consulted when building these studios in order to make sure that they are suitably equipped,
- 3) Every new video conferencing studio has at least one super-user,
- 4) The people who are selected as super-users are willing to attend a coaching program,
- 5) Every employee will be offered the possibility to attend a user coaching program,
- and 6) The Information Division needs to be used in order to market the services successfully.

Even though my overall suggestion in this conclusion is more utopian than realistic, the reality seems to be that several challenges have to be dealt with simultaneously in order to instill a culture of collaboration at NTNU. Hopefully change will eventually come, and I hope that one day the employees at NTNU will have video conferencing as their natural "Plan A" instead of "Plan B".

It would be interesting if one were able to look into the future. Rosen (2007) points out that today we struggle to collaborate as effectively at a distance as we do in the same room, but tomorrow the challenge might become the reverse. As people get more accustomed to collaborating at a distance, meeting in the same room might seem awkward. If so, perhaps one

of my grandchildren or great-grandchildren will one day write a thesis dealing with coaching in and for collaboration in physical meetings.

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## Appendix A

### Interview questions

- 1) *Can you describe your relationship and experience with videoconferencing?*
- 2) *What would you say are the biggest challenges NTNU has to overcome when it comes to using videoconferencing?*
- 3) *What do you suggest is done in order to overcome these challenges?*
- 4) *How could you workplace contribute in order to get an increased usage of videoconferences at NTNU?*
- 5) *What effects on the use of videoconferencing do you think the spreading of the ash from the Icelandic volcano Eyjafjallajökull might have had?*

## Appendix B

### Forespørsel om å delta i intervju i forbindelse med en masteroppgave

Jeg tar videreutdanning innen organisasjon og ledelse (MOL) ved NTNU, og skriver for tiden min avsluttende masteroppgave. Temaet for oppgaven er bruk av videokonferanse ved NTNU, og jeg skal undersøke om coaching kunne vært benyttet for å flere til å benytte seg av denne type tjeneste. Jeg er interessert i å finne ut om hva som er status quo i forhold til dagens bruk og rutiner, og høre hvilke erfaringer og tanker ulike nøkkelpersoner ved NTNU har i forhold til å få enda flere til å benytte seg av denne type kommunikasjon.

For å finne ut av dette, ønsker jeg å intervju tre-fire personer som er ansatt ved NTNU. Spørsmålene vil dreie seg om hva man ser på som den største utfordringen i forhold til bruk av videokonferanse ved NTNU, og hvilke tiltak man kunne gjort for å få bukt med disse utfordringene.

Jeg vil bruke lydopptaker og ta notater mens vi snakker sammen. Intervjuet vil ta omtrent en time, og vi blir sammen enige om tid og sted. Det er frivillig å være med og du har mulighet til å trekke deg når som helst underveis, uten å måtte begrunne dette nærmere.

Jeg ønsker i utgangspunktet å kunne bruke både ditt navn, din stilling og din organisatoriske tilhørighet i oppgaven. Dette vil føre til at den informasjonen du gir vil bli gjengitt i oppgaven, som vil være et offentlig dokument. Om du ikke ønsker at jeg skal bruke informasjon som gjør at du kan identifiseres direkte, så kan jeg anonymisere identiteten din ved å gi deg et fiktivt navn, samt generalisere din stilling/posisjon. Jeg håper uansett at jeg får lov til å nevne din organisatoriske tilhørighet, da de ulike personene jeg intervjuer har forskjellig organisatorisk tilhørighet, og jeg mener at dette i seg selv er et interessant poeng i oppgaven.

Lydopptakene med intervjuene slettes når oppgaven er ferdig, innen utgangen av 2010.

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Hvis det er noe du lurer på kan du ringe meg på 91897274, eller sende en e-post til martin.gaustad@ntnu.no

Du kan også kontakte min veileder Eleanor Allgood ved Pedagogisk institutt på telefonnummer (735) 98275.

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Med vennlig hilsen  
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Lillian Byes veg 5  
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#### **Samtykkeerklæring:**

Jeg har mottatt informasjon om studien av bruk av videokonferanse ved NTNU og ønsker å stille på intervju.

Velg og signer under enten alternativ 1) eller 2)

1) Jeg gir samtykke til å bruke både fullt navn, stilling og organisatorisk tilhørighet:

Signatur ..... *M. Gaustad* ..... Telefonnummer ..... *91897789* .....

eller

2) Jeg ønsker at navn og stilling anonymiseres, men synes det er greit at organisatorisk tilhørighet kommer frem:

Signatur ..... Telefonnummer .....

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① Jeg gir samtykke til å bruke både fullt navn, stilling og organisatorisk tilhørighet:

Signatur Olav Pål Holt Telefonnummer 91897827

eller

2) Jeg ønsker at navn og stilling anonymiseres, men synes det er greit at organisatorisk tilhørighet kommer frem:

Signatur ..... Telefonnummer .....

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1) Jeg gir samtykke til å bruke både fullt navn, stilling og organisatorisk tilhørighet:

Signatur Anne L. George ..... Telefonnummer 99 32 0073 .....

eller

2) Jeg ønsker at navn og stilling anonymiseres, men synes det er greit at organisatorisk tilhørighet kommer frem:

Signatur ..... Telefonnummer .....

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*Velg og signer under enten alternativ 1) eller 2)*

1) Jeg gir samtykke til å bruke både fullt navn, stilling og organisatorisk tilhørighet:

Signatur Franz Berg Telefonnummer 91821655

eller

2) Jeg ønsker at navn og stilling anonymiseres, men synes det er greit at organisatorisk tilhørighet kommer frem:

Signatur ..... Telefonnummer .....