Sharing IT knowledge within a Swedish bank

A survey based case study of IT related training, help functions and communication

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Delning av it-kunskap inom en svensk bank

En enkätbaserad fallstudie av it-relaterad utbildning, hjälpfunktioner och kommunikation

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ABSTRACT
An efficient, functioning IT environment is vital to many companies, even to those not calling themselves IT companies. How to assimilate the IT skills needed and get the IT department to share their knowledge with the rest of the organization can, however, be difficult. The aim of this thesis is to find differences between how a company’s IT department employees and other employees experience and use IT training and IT help functions. The aim is also to identify and make suggestions on what artifacts and help functions can be further developed in order to enhance learning and sharing of IT knowledge.

A case study was conducted at the Swedish bank Handelsbanken. The employees’ experiences and use of IT related training, artifacts and help functions were studied through a survey that was complemented by interviews and observations. A Mann-Whitney U test was conducted on the survey answers. The result shows differences between the IT department employees and other employees in three areas: IT introduction, wish for more IT training and frequency in calling the IT help desk.

Further, the result indicates that the new employee orientation, the internal handbook, e-support and IT help desk all have room for improvements.

Keywords: Artifacts for sharing IT knowledge; Sharing IT knowledge; IT training; IT help functions; IT problems; IT department employees; Non IT department employees; E-learning; E-support; Written instructions; Video tutorials

SAMMAMFATTNING
En effektiv, fungerande it-miljö är nödvändig för i stort sett alla företag, även för dem som inte benämner sig själva som it-företag. Hur företagen kan ta till sig de it-kunskaper som behövs och få it-avdelningen att dela med sig av sin kunskap till resten av organisationen, kan dock vara svårt. Syftet med detta examensarbete är att hitta skillnader mellan hur ett företags medarbetare på it-avdelningen och andra medarbetare i organisationen upplever och använder it-utbildning och it-hjälpfunktioner. Syftet är också att identifiera och ge förslag på vilka tjänster och hjälpfunktioner som kan vidareutvecklas för att främja lärande och delning av it-kunskap.


Nyckelord: tjänster för delning av it-kunskap; delning av it-kunskap; it-utbildning, it-hjälpfunktioner; it-problem; it-avdelningsmedarbetare; icke it-avdelningsmedarbetare; e-learning; e-support; skrivna instruktioner; video instruktioner
Abstract – An efficient, functioning IT environment is vital to many companies, even to those not calling themselves IT companies. How to assimilate the IT skills needed and get the IT department to share their knowledge with the rest of the organization can, however, be difficult. The aim of this thesis is to find differences between how a company’s IT department employees and other employees experience and use IT training and IT help functions. The aim is also to identify and make suggestions on what artifacts and help functions can be further developed in order to enhance learning and sharing of IT knowledge.

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1. INTRODUCTION
To take advantage of employees’ skills is important in any company in order to make it as profitable as possible, but knowledge sharing within a company can be difficult (Ackerman, Pipek, & Wulf, 2003). Information and communication technology (ICT) can be used to support knowledge sharing, for instance the use of an intranet. The staff that is not working at the IT department of the company also uses the company's IT systems and they need to understand how the systems work in order to carry out their work successfully. Knowledge transfer between the IT department and other departments can therefore help to make the company more efficient (ibid.).

A new employee can bring new knowledge to the company (ibid.) and should as quickly as possible gain access to and understand the systems needed to carry out their work (Acevedo & Yancey, 2011). Instructions and support from the IT department can be part of the introduction and the everyday work (Ackerman et al., 2003).

Even a company that is not solely an IT company can heavily rely on IT systems. An example of such a company is the Swedish bank Handelsbanken. Handelsbanken was founded in 1871 and currently has nearly 12,000 employees and operates in 25 countries, with six regional head offices in Sweden (www.handelsbanken.se, 2016). Since the early 1970s, Handelsbanken's organization is strongly decentralized (ibid.). Handelsbanken has one IT department for the whole bank, divided into subdepartments specialized within different fields of IT. Today Handelsbanken's staff uses a variety of IT systems. For the staff who do not work at the IT department it can be difficult to obtain and assimilate information on how to fix IT problems, despite the fact that there are three help functions at hand: the internal handbook, e-support and IT help desk. The internal handbook can be found at the intranet and contains written instructions on how to handle different systems and complete IT tasks. The internal e-support can be found as an icon on the desktop or under the start menu. E-support can be used to report systems that are not working, change password and also watch video tutorials and read written instructions on how to complete different IT tasks. The IT help desk is always open and the number can be found in the internal telephone book. Handelsbanken also offers their employees internal e-learning courses in different areas, but currently not in IT.

In this thesis, a study is carried out at Handelsbanken on how the IT department uses the mentioned artifacts and help functions in order to share their knowledge with the rest of the company. The aim is to find differences between how a company’s IT department employees and other employees experience and use IT training and IT help functions. Further, to identify and make suggestions on what artifacts and help functions can be developed in order to enhance learning and sharing of IT knowledge.

The research questions for the thesis are:
• Are there any differences between how employees from Handelsbanken's IT department and other Handelsbanken’s employees, receive and use Handelsbanken’s IT training and IT help functions?
• What artifacts and help functions, used by the IT department, can be further developed in order to help non IT department employees to enhance learning and sharing of IT knowledge?

The hypothesis is that there are differences between how Handelsbanken's IT department employees have received and use IT training and help functions, compared to other employees.

2. THEORY AND RELATED RESEARCH
In this section theory and research are presented. Definitions and explanations of concepts, perspectives, theories and related studies are brought up and will later be used in the discussion.

2.1 Sharing Knowledge
Knowledge is an important resource to any organization (Ackerman et al., 2003). Knowledge transfer can be used as notation for the communication process that involves both knowledge sharing and knowledge absorption (Liu, Wu, Xuan, 2010). It is a complex process and depends on the recipients’ learning attitudes within the organization (ibid.).
To be able to share knowledge within the organization it is important to enhance learning and make the most of the organizational knowledge (Ackerman et al., 2003). Ackerman et al. (2003) present three different types of knowledge sharing:

1. Knowledge retrieval – individuals learn from the organization, with the purpose of retrieving organizational knowledge.
2. Knowledge exchange – individuals learn from other individuals, with the purpose of exchanging individual knowledge.
3. Knowledge creation – knowledge sharing among individuals with the purpose of generating new knowledge. The new knowledge can be a combined result, generating from organizational, individual and shared knowledge.

There are mainly two ways in which the knowledge sharing can take place:

1. Direct – people with different kinds of expertise can communicate and help each other to generate new knowledge (not necessary new for all the participants).
2. Mediated – the experts have created artifacts that may initiate new knowledge to others (ibid.).

Communication can be described in two ways, by transfer or by sharing a certain message (Heide, Johansson, Simonsson, 2012). In organizational communications, there is a difference between internal communication (within the organization) and external communication (outside the organization). Some researchers argue that these two types are linked so closely together that they cannot be said to be different types and in practice it can be difficult to characterize the type of the communication taking place. Who is communicating with whom can however determine in which way the communication is taking place: face to face, by phone, by email or by the intranet (ibid.).

A study by Elkjaer, B. (2005) conducted at a municipality organization, shows that deliberate organizational change (digital administration) can create both progress and obstacles towards organizational learning. Tension that arises with a change may trigger inquiry and critical thinking, which can lead to organizational learning. However, for that to happen the employees need to be able to work in an organization where uncertainty is part of the everyday working life and where many things (sometimes contradictory) are happening at the same time (ibid.).

The use of information and communication technology can make a difference when it comes to knowledge sharing (Hendriks, 1999). To understand how it makes a difference, we need to study more than the technology and understand the motivation behind knowledge sharing. The key to successful knowledge sharing is that the personal ambition should match the group ambition (ibid.).

Traditional knowledge management solutions, such as the intranet, might not always be dynamical (Heide et al., 2012). Even though the intranet can be a way of reaching out to all employees, it might be difficult to change the structure to meet new demands. This can prove to be an obstacle for both sharing and learning within an organization (ibid.).

2.2 Learning

Illeris (2011) presents three perspectives on learning: Skinner’s behaviorist approach, Piaget constructivist ideas and Vygotsky’s sociocultural theory. The behaviorist approach is characterized by giving the learner a direct reward when the desired behavior occurs. In the constructivist ideas, one of the keywords is assimilative learning. Assimilative learning is when new knowledge is integrated with what the learner already knows. In the sociocultural theory, the importance of the social community in which the learning takes place is highlighted. A good social community facilitates learning (ibid.).

Cox (2015) presents two theories of adult learning: Knowles’ theory of andragogy and Mezirow’s theory of transformative learning. Andragogy is a constructivist approach to adult learning. It is based on the theory that new learning is based on previous understandings (ibid.). The andragogy perspective goes hand in hand with Piaget’s theory of assimilative learning, but Piaget studied children, not adults (Illeris, 2011). Cox (2015) presents Knowles’ lists of six characteristics of adult learning:

1. The need to know – adults need to relate new learning to real world problems and need to recognize the need for the learning.
2. Adults are self-directed – as people mature they become more self-directed and take responsibility for their own decisions.
3. Adults have an abundance of prior life and work experience that can act as a catalyst to inspire learning but also hinder learning.
4. Adults learn when they are ready and have a need to learn – the relevance of learning is key. Adults seek programs when life or work suggests a need to learn something new.
5. Adults are life-centered in their orientation to learn – adults like to see the use of their learning, how the new knowledge can help them solve tasks.
6. Adults can respond to external motivators but for the most part they are internally motivated. For instance a higher salary can work as motivator but usually an internal motivator is more dominant.

Transformative learning is the type of learning that creates significant changes in the learner's assumptions; when the learners need to examine their assumptions in a critical way and change their frames of reference (ibid.). This is usually met by resistance, as people have a tendency to reject ideas that do not fit in with their assumptions (ibid.).

2.3 Artifacts and Media for Learning and Help

New technology has made it possible to have online courses or learning activities, so called e-learning, where time and place is no obstacle (Hamid, 2014). To promote the use of e-learning and make use of it, focus cannot only be on making it accessible, attention also needs to be given to the content development. Even in e-learning environments the basics of a teacher–learner situation need to be implemented (ibid.). A study in a school environment showed that understanding users’ and instructors’ attitudes toward learning technology is vital to enable learning to be more effective, efficient, and appealing (Liau, Huang, & Chen, 2007).

When computer based tools become more complex, the required computational skill become more specialized and situated (Ackerman et al., 2003). Previous research shows that at a workplace, computer users rarely get training in how to use the system and that printed instructions and online help are used to a small extent. Users instead rely on informal collaborative opportunities in order to develop their situated computer skills (ibid.).
One way of helping a user with a problem is by demonstrating how to fix it (ibid.). Recorded demonstrations are often used as part of an introduction but can also be a way of communication between users about how to do a specific task (ibid.).

A comparison study of paper-based and video tutorials for software learning, conducted on 5th and 6th graders learning to use Microsoft Word, shows that children using only the paper-based tutorial did not do as well as the other children in the study (van der Meij & van der Meij, 2004). Bearing in mind the study participants were on average 11.8 years, the result cannot be generalized to adults. However, it proves that video tutorials were helpful for that age group and opens up the question if the same phenomena apply to adults.

One way for an organization to bring in new knowledge is by hiring new staff (Ackerman et al., 2003). When hiring new staff, the organization needs to be able to introduce the newcomers to their workplace and the organizational way of doing business. The newcomers need to be able to develop into full members of the organization and in order to make that possible, the newcomers must know who the experts are in the company, where they are located and how to approach them when help is needed. Remembering that the experts’ time is valuable, using the experts for regular training sessions might not be an option for every organization (ibid.).

New employee orientation programs are a way to introduce a new employee to an organization and are shown to socialize newcomers and increase their knowledge (Acevedo & Yancey, 2011). Technical skill training is meant to increase new employees’ knowledge, skills and abilities. It should have a close connection to the new employee work tasks (ibid.). In western organizations, the new employee starts with learning functional specialty. In order for an employee to develop skills that cut across functions, he or she has to climb the corporate ladder. In Japan, however, a new employee is introduced to the whole organization by getting to see different departments as part of the new employee orientation (ibid.).

An organization can also have a mentorship program to introduce the newcomers (Ackerman et al., 2003). The mentor typically introduces the newcomer to formal rules, the intranet, meetings and of course to other colleagues (ibid.).

2.4 Subcultures at IT Departments

Functional IT is key in most organizations, which makes the individuals that work with IT support an important resource to an organization (Guzman, Stanton, Stam, Vijayasri, Yamodo, Zakaria, Caldera, 2004). Guzman et al. present previous research that indicates that communication problems between the employees at the IT department and other employees across the organization exist. The communication problems are explained by lack of communication skills, especially when it comes to writing. The employees at the IT department do not always have an understanding of how their skills relate to the organizational success (ibid.).

One explanation to these communication problems is that the IT employees have their own subculture and therefore have difficulties communicating with employees that are not part of the same subculture (ibid.). Within an organization different subcultures can exist and an organization does not need to be homogenous in nature (ibid.). According to Trice (1993) a subculture can arise among people who share the same ideologies and expertise and also have the same way of expressing those. A culture is often dynamic and individuals can add new behaviors to the group, but some cultures are more resistant to change than others (ibid.).

Guzman et al. (2004) results show that one issue within the organization is the lack of adaptation and that the different subcultures need to learn how to coexist. When a specific task or problem arises, the different subcultures need to adjust to each other and be able to work together, not against each other (ibid.). To view the entire IT workforce as a homogenous group of individuals is also problematic because the IT workforce is made up of different IT professionals such as programmers, analysts and network specialist (Kaarst-Brown & Guzman, 2005).

Today experts will not remain experts by simply holding on to the knowledge they have, experts also need to be involved in learning and creation of new knowledge (Ackerman et al., 2003). To be able to quickly gain new knowledge in order to solve unexpected problems, might in fact be in the expert’s work description. In order for experts to learn and develop they need opportunities to meet other experts with different perspectives and maybe from other organizations as well (ibid.).

3. METHOD

The chosen method to collect data is mainly through a survey, which is complemented by interviews and observations. The selected survey method makes high demands on the respondents to have time to participate and to want to share their views (Ejlertsson, 2014). A high response rate on the surveys is key to get a valid result. The survey method was chosen because it is a way to collect quantitative data from many responders and the data can be used to carry out a statistical comparison between two groups (ibid.).

To construct the survey, interviews with the employees in charge of the systems and help functions were conducted. A pilot study of the survey was conducted on 30 people working at the IT department. This particular group was chosen because they all worked at the IT supdepartment where the thesis work took place, making them all aware of the project and willing to give feedback. Based on the feedback received, changes were made before the study began.

A random sample of 372 people working at Handelsbanken in Sweden (working at a branch office, IT department or internal departments) was chosen to take part in the survey. Participants from all six regional banks were asked to take part. The reason for not including all employees in the survey, was because of company guidelines regarding survey distribution, which allowed for no more than 400 participants.

A risk with the chosen method is that randomly chosen employees may not like to take part in the survey (Ejlertsson, 2014). By explaining the purpose of the survey, the employees can see their chance to express their opinion, which might help as motivation (ibid.). The employees that answered the survey were informed that the survey is completely anonymous and that the answers cannot be linked to them as individuals, which usually contributes to get more answers (ibid.). The survey was conducted using Handelsbanken’s internal survey system and the answers and statistics from the survey were stored in an internal database. The survey was distributed via email. A reminder was sent out two weeks after the survey was distributed and the survey was open for replies during a month. Due to technical difficulties a second reminder could not be sent out, which might have helped getting more answers.

To conduct the interviews, Lantz (2013) framework for how to structure interviews with different degree of interference, was
used. From Lantz’s (2013) framework a semi-structured approach was selected, where the interviewer asks a few open questions in a given order and then follows up with questions depending on the given answers (ibid.). This approach was used because it allowed the participants to talk openly and at the same time guide the participants to the subject area that was being investigated (ibid.).

The interviews contributed with more qualitative data and could give a deeper understanding than the more general picture given by survey. The interviews took place at a branch office (five people interviewed together in a conference room), and at an internal department (three people interviewed, one at the time by their workplace). The interview participants at the internal department were also asked to show the interviewer how they found and used the internal handbook and e-support. The interviews were recorded and the participants in the interviews were informed that their name (and other information that might reveal their identity) would be coded in such a way that their answers could not be linked back to them.

During the thesis work, some observations were made by the author. The author was part of the situations observed and the observations took place at an IT sub department at Handelsbanken. The employees that were part of the observation did not know what was being observed, however the author always informed others taking part that she was doing her thesis work at Handelsbanken about their IT workplace. This corresponds to a second-degree observation with a high degree of participation (Bjørndal, 2005). All names and other information that might reveal the participants’ identity have been removed, in order to protect their privacy (Bjørndal, 2005). This method was chosen because it can shed some light on real situations, but at the same time protect the privacy of the participants. The observer kept a journal during the observations, where notes and quotes were written down.

All the collected data, including quotes, have been translated from Swedish to English by the author. The hypothesis is tested by a statistical Mann-Whitney U test, using the software SPSS. A Mann-Whitney U test is a nonparametric test (that do not require a normal distribution) and tests the null hypothesis, that the distribution between two independent groups are the same. This test is done on data from the surveys where the participants that work at the IT department are viewed as one group and participants that work at a branch office or at an internal department are viewed as the other group. To be able to carry out a Mann-Whitney U test, the answers from the survey have been transformed from the multiple-choice answers to an ordinal number scale. Where the participants were asked to rate how often they use a help system, “never” was given the lowest number and “daily” the highest (see table 1).

<table>
<thead>
<tr>
<th>Choice</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>0</td>
</tr>
<tr>
<td>Less than once every 6 months</td>
<td>1</td>
</tr>
<tr>
<td>Once every other month – once every 6 months</td>
<td>2</td>
</tr>
<tr>
<td>Once every other week – once ever month</td>
<td>3</td>
</tr>
<tr>
<td>Once every third day- once a week</td>
<td>4</td>
</tr>
<tr>
<td>Once every two days</td>
<td>5</td>
</tr>
<tr>
<td>Daily</td>
<td>6</td>
</tr>
</tbody>
</table>

Where the participants were asked yes or no, “yes”=1 and “no”=0. In those cases where the participants chose “Do not remember” the answer has been viewed as missing. Where the participants were questioned what kind of instructions they prefer, written instructions or video tutorials, 0=“written instructions”, 1=“video tutorials” and “equally good” was viewed as missing. The question about whether they tried solving IT problems themselves, before calling the help desk, was original a multiple-choice answer where the participants could choose more than one option. If one or more of the options “yes, asked a colleague”, “yes, search for/read instructions in the internal handbook”, “yes, looked for solution using e-support”, “yes, other”, the answer is viewed as “yes”=1, while “no, I call right away” = 0.

The data collected by the survey is not only quantitative, since the participants also could add comments to their answers and some questions were open questions. The result is used together with the data collected by interviews and observations to get a picture of how the staff experiences their IT workplace, help functions and IT training and what can be improved. In order to answer the second research question, an analysis is carried out on the survey answers, the interview material and the material from the observations on how the staff uses the help functions.

4. RESULTS

Out of the 372 employees at Handelsbanken who were asked to take part in the survey 238 people did (which corresponds to 64%). 171 persons were working at branch offices in Sweden, 27 persons were working at internal departments within Handelsbanken and 40 persons were working at an IT department at Handelsbanken.

Figure 1.1 Shows the distribution between the survey participants workplace within Handelsbanken.

<table>
<thead>
<tr>
<th>Choice</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branch offices</td>
<td>17%</td>
</tr>
<tr>
<td>Internal department</td>
<td>11%</td>
</tr>
<tr>
<td>IT department</td>
<td>72%</td>
</tr>
</tbody>
</table>

Table 1. How the multiple-choices options were coded to a ordinal number scale.

The non-responders, those who were asked to take part in the survey but were unable or chose not to, consist of people from all groups. The distribution between the responders and non-responders workplaces was expected to be the same, but is slightly different. The employees at the IT department and the employees at the Regional Bank Northern Sweden had a higher participation rate than expected, while employees at internal departments and at Regional Bank Stockholm had a lower
participation rate than expected. The internal non-responses were quite high on some of the survey’s open questions, regarding if the participants had any suggestions for improvements or liked to highlight something that works well. The multiple choice questions were made mandatory and therefore had no internal non-responders.

Part of the transcription from the interviews is presented in the following subsections. The author has chosen them to highlight the areas of the survey and contribute to a deeper understanding of the answers. In the transcriptions the interviewer is marked with an I, branch office employees are marked with B and then an ID number, the person interviewed from an internal department is marked with an A and an ID number. In the observations presented the IT department employee are marked with a C and an ID number.

4.1 Differences and Similarities Between IT Department Employees and Other Employees

26 per cent of the survey participants, not working at the IT department, stated that they got an introduction to Handelsbanken’s IT-systems, when they started to work at Handelsbanken. Among the IT department employees, 46 per cent stated that they got an introduction to Handelsbanken’s IT systems.

51 per cent of the non IT department employees wished they had had more education on how the Handelsbanken’s IT systems work when they first started to work at Handelsbanken. 22 per cent of the IT department employees wished they had had more education on how the Handelsbanken’s IT systems work when they first started to work at Handelsbanken (see figure 3).

Handelsbanken has an internal handbook, with manuals and instructions on how to do different IT tasks. 29 per cent of the non IT department and 33 per cent of the IT department employees, stated that they did not know where to find the handbook (see figure 4).

When asked “how often do you use the internal handbook?”, 35 per cent of the IT employees and 49 per cent of the non IT department employees, stated that they never use the handbook (see figure 5).

When questioned what kind of instructions, written instructions or video tutorials, the staff preferred a higher percentage of both non IT department employees and IT department employees prefer written instructions. 46 per cent of the non IT department employees prefer written instructions over video tutorials and 16 per cent prefers video tutorials over written instructions. Among the IT department employees, 55 per cent stated that they prefer written instructions and 7 per cent video tutorials (see figure 6).
When asked “how often do you call the IT help desk?” 74 per cent of the IT employees and 58 per cent of the non IT department employees, stated that they never call, call less than once every 6 months or call between once a month to once every six months (see figure 9).

**Figure 6.** Shows the distribution between the employees’ answers to the question “What kind of instructions do you prefer?” The percentage within the group is shown on the y-axis and the answers are displayed on the x-axis.

E-support allows employees to report systems that are not working, order new passwords and also contains written instructions and video tutorials on how to complete different IT tasks. When posed the question “how often do you use e-support”, 10 per cent of the IT employees and 17 per cent of the non IT department employees, stated that they never use e-support (see figure 7).

**Figure 7.** Shows the distribution between the employees answers to the question “How often do you use e-support?” The percentage within the group is shown on the y-axis and the answers are displayed on the x-axis.

The IT help desk, always open, is where employees call to get help solving any IT related problems they might have. Among the survey participants, the majority stated that before calling the IT help desk they tried to solve the problem themselves. 88 per cent of the non IT department employees and 89 per cent of the IT department employees tried to solve the problem themselves before calling. Asking a colleague was the most common precaution, but searching and reading instructions, watching tutorials and looking for known errors at the intranet, were also mentioned (see figure 8).

**Figure 8.** Shows the distribution between the employees answers to the question “Before calling the IT help desk, do you usually try solving the problem by yourself?” The percentage within the group is shown on the y-axis and the answers are displayed on the x-axis.

A Mann-Whitney U test (see table 2) shows that there is a significant difference between the IT department employees and non IT department employees, regarding if they got an introduction to the IT systems, if they would have liked more IT training when they started and regarding how often they call the IT help desk. In the other areas no significant difference was discovered.

**Table 2** Shows the result from a Mann-Whitney U test on the data collected by the survey. IT department employees are viewed as one group and non IT department employees are viewed as the other.

**Hypothesis Test Summary**

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Test</th>
<th>Sig.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 The distribution of received_IT_training_when__started_to_work_at__Handelikedbank is the same across categories of are_IT_employee.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.037</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>2 The distribution of would_haveliked_more_IT__training_when_started is the same across categories of are_IT_employee.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.001</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>3 The distribution of how_often_call_IT__help_desk is the same across categories of are_IT_employee.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.031</td>
<td>Reject the null hypothesis.</td>
</tr>
<tr>
<td>4 The distribution of how_often_use_e-support is the same across categories of are_IT_employee.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.500</td>
<td>Retain the null hypothesis.</td>
</tr>
<tr>
<td>5 The distribution of how_often_use_internal__handbook is the same across categories of are_IT_employee.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.601</td>
<td>Retain the null hypothesis.</td>
</tr>
<tr>
<td>6 The distribution of prefer_type_of_instructions is the same across categories of are_IT_employee.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.134</td>
<td>Retain the null hypothesis.</td>
</tr>
<tr>
<td>7 The distribution of try_solve_problem_before__calling_IT__help_desk is the same across categories of are_IT_employee.</td>
<td>Independent-Samples Mann-Whitney U Test</td>
<td>.867</td>
<td>Retain the null hypothesis.</td>
</tr>
</tbody>
</table>

Asymptotic significances are displayed. The significance level is .05.
4.2 What Artifacts and Help Functions Can Be Further Developed to Enhance Learning and Sharing of IT Knowledge?

When asked to specify what kind of education they would have liked, an overview, introduction and specific knowledge for the systems relevant to them, were mentioned. When the employees were asked in what form they would have liked to receive the education, e-learning, interactive demo versions of the systems and a mentor, were suggested. One employee who started at the bank 2003 put it this way:

“I wished I would have gotten a mentor and a simple walkthrough of the systems, preferably together with other newly employed”.

Another bank branch employee, who started work at Handelsbanken 1994 expressed a similar opinion, but would have liked the introduction to consist of an e-learning course:

“A fast walkthrough of Handelsbanken’s most important or most commonly used systems for bank branch employees would have been good. Surely good in other areas as well. Preferably as an e-learning course”.

Having an assigned mentor available for questions, was brought up as a good example of how Handelsbanken’s internal education has become better in more recent years.

“Like we do with students or trainees these days– designate one person who acts as a mentor at the office, who takes the time needed and see to that the newly employed can access the systems and offer support on how they work…” – Branch office employee, started to work at Handelsbanken 2000.

When asked to state why they prefer written instruction, both groups stated that a written instruction allows you to read and follow at the same time, you can print it out and then go through each step, navigate with ease and at your own pace.

“It is easier to follow and do at the same time.” – Branch office employee, started to work at Handelsbanken 1998.

When asked to specify why they prefer video tutorials, the opportunity to watch and discuss together was brought up. Another advantage that was brought up with video tutorials was that at the same time as you watch someone showing you how to complete a task, you can get an answer to why you need to do it in a certain way. Written instructions were said to often be designed as step-by-step how to, but lacking information about why. The why aspect was stated to make the instructions more memorable and therefore an important part of the instruction. Some of the employees that stated that they have no preference between written instructions and video tutorials, commented that they like to have both types available.

“I would like to have both, they complement each other” – IT department employee, working at Handelsbanken since 2015.

The interview with bank branch employees confirms that the internal handbook can be hard to find and also address that not all employees know it exists:

I: Do you know where to find the internal handbook for IT instructions?

B1: ...m
B2: No...
B3: Well, I do. ... It’s at the intranet under instructions.
B1: What kind of instructions does the handbook contain?

I: Instructions on how your IT workplace works. Like instructions regarding the printer and computer software.
B2: How nice that, that exists!
B3: [looking at B2] I use it quite often. When you ask me about something regarding IT, I usually look it up there.

During the interview with an employee at an internal department at Handelsbanken, it turned out that the e-support, like the internal handbook, was not easy to find for the employees.

I: Do you use e-support?
A1: Yes I do. I used it to order a new password.
I: Can you show me how you did?
A1: Sure... let me just look it up [Clicking around the intranet]
A1: ...I thought it was here. That’s strange... [Continues clicking around and going back and forth from the start page]

I: Let me just search [Uses the search box and types in “E-support”. Scrolls through the answers. Clicks on one, then goes back to the search results.]

A1: Haha, I found it just fine the last time, this is so strange!!... [Clicks on one of the search results, on which the path to e-support is specified]

A1: Ahh.. I need to click on Start not through the intranet...[Follows the specified path and finds the E-support]
A1: Well, well here we are.

Another problem with e-support was expressed by an internal department employee, working at Handelsbanken since 2007:

“ It’s hard to get a status update on the matter”

The inability to get help immediately was also stated as a problem with the use of e-support:

“It is easier to call and get help immediately; we who work at branch office need help with problems at once.” – Branch office employee, working at Handelsbanken since 1988.

Getting help immediately can however be hard with complex IT problems, even when the employees call the IT help desk. How the IT help desk handles a situation when an IT department employee’s basic system stopped working, was shed some light through an observation:

I: I cannot access my email or the intranet for that matter.
C1: Have you called the help desk?
I: I have, they told me to use the new password, which I now have and have changed, but still I can’t access anything. Like all my emails are gone, I have no start page, no nothing.
C1: Call again, there is probably something wrong with the authorizations, since you moved between departments.

After four calls to the help desk, five calls from different IT and internal departments, the problem was resolved. An IT department employee, hearing the story, put it this way:

C2: This is not something unique. It happens, sadly, it should not have to really...

When someone calls the help desk and the help desk cannot help, what happens? The user, say a branch office employees trying to help a customer, doesn’t usually know where the error is, just that it is not working and needs to be fixed a.s.a.p. The user doesn’t know if it is the server, the internet connection or whatever, that’s not working. That is the help desk’s task to find out. Then the help desk staff goes through known solutions to the problem, but then if
none of them work, which is usually the case with unexpected errors, the help desk forwards the matter to a department specialized in that kind of error. However it can be hard for the help desk to forward it to the right IT sub department. Then the matter is at risk of going back and forth from different departments, everyone saying “nothing is wrong with my system”.

Then after a while it might end up on someone’s desk that can see the whole picture. Who understands where the errors lay. But before that no one likes to touch it. The log kept about the matter might not be updated or in the worst case closed, if the help desk felt confident with the first forwarding of the matter. Then when the user is calling back, checking up, still unable to work, the help desk might go through the same solutions “have you tried restarting your computer?”, but hello?! If that was the solution it would have been done the first time. The help desk needs to take full responsibility for the matter to be resolved and needs training to see the whole picture. They need to get out to the branch offices, see how they work and get an understanding of the impact of an error. The help desk is brilliant at solving easy known problems, like changing password, but when it gets more complex, it get so much harder.

One of the most common comments on how the IT help desk can be improved was shorter waiting time and more feedback on how the problem is being handled. That the IT help desk staff use a “different language” has also been described as an obstacle by some branch office employees. One employee, who started to work at Handelsbanken 2011, put it this way:

“Sometimes I feel like we talk different languages and it is hard to understand”

A branch office employee, working at Handelsbanken since 1991, describes that the help desk staff does not always believe the caller:

“I would like to be believed when calling, not questioned as much”

In the interviews with branch office employees, the employees’ attitudes for new IT solutions were given some light:

B3: I think it’s a shame we don’t shut down…shut down the old ways of doing something... I mean that we don’t shut them down and force us to use the new ones instead. So you can’t use the printer and have to use the signing tablet, for instance.

B3: So they force us? Constrains?

B3: Yes, because that how it was, when we got a new system. No one used it; everyone kept using the old one, even though the new one was better. But then we had a major error and only the new system worked. Then everyone had to use the new system and then I said “why haven’t we done this before?” It took us two days, and then we threw the old system out. Sometimes I feel like they should dare, then of course I don’t know why they don’t dare, to shut the old systems down. Cut the old systems and force us to use the new one.

5. DISCUSSION

In this section the two research questions are discussed divided into subheadings, followed by a critical discussion about the chosen methods and suggestions for future research.

5.1 Differences Between IT Department Employees and Other Employees

A significant difference between the IT department employees and non IT department employees was found, regarding if they got an introduction to the IT systems, and if they would have liked more IT training when they started to work at Handelsbanken. One explanation for why Handelsbanken has been given the IT department employees more IT training when starting, could be that adults have high demands of seeing the relevance of learning new things (Cox, 2015). The IT department employees might easier see the relevance and make connection to previous experience, compare to the non IT department employees. That would make the IT department more open towards IT training, and if the training is well received, it is easier to motivate the making of it. For the non IT department employees a transformative learning, a change of their reference might be needed and can therefore be met with resistance (Cox, 2015).

The lack of IT training for non IT department employees, goes hand in hand with the previous research presented by Ackerman et al. (2003), that computer users rarely get training in how to use the systems. However the significant difference between the two groups, regarding if they liked more IT training, shows that the non IT department employees would have liked more IT training when they started to work at Handelsbanken. The employees can, looking back, see relevance on how it might have helped them today. This result points towards that it would be worth developing IT training for non IT department employees, while the IT department employees are happy with the amount of training they received.

A significant difference between the two groups of employees was also found regarding how often they call the IT help desk. That could to some extent be explained by the fact that IT department employees have a superior knowledge on how to solve IT problems themselves. To be able to quickly gain new knowledge in order to solve problems that never been anticipating, might in fact be in the IT departments employees’ work description (Ackerman et al., 2003). Who is communicating with whom, determinates how the communication can take place, with or without the help of artifacts (Heide et al., 2012). For IT department employees a direct communication within the department, directly to the experts, can be established. For the non IT department employees a mediated one, calling the IT help desk, is used to a significant higher extent.

5.2 Similarities Between IT Department Employees and Other Employees

No significant difference between the IT department employees and the non IT department employees, were found regarding how often they use e-support and the internal handbook with IT instructions. However the result shows that internal handbook is used with less frequency, compared to the use of e-support. That could be explained by the fact that e-support has more functionally than the written handbook. E-support offers written instructions but also video tutorials and the ability to report errors and change password. The result might also indicate that the ability to have both video tutorials and written instructions is appealing for both groups. That is supported by the fact that both groups to a high extent stated that they had no preference between written instructions and video tutorials and comments on how the two complement each other. It might also indicate that video tutorials can be useful for adults and not only for children as shown by van der Maj & van der Maj (2004).

No significant difference between the IT department employees and the non IT department employees was found regarding if they tried to solve their IT problems themselves, before calling the IT help desk. Both groups succeed to a high extent (88 %, respectively 89 %) to solve the problem before calling the help desk. This shows that both groups try to fix their problems themselves, with
help of other colleagues, handbook instructions and video tutorials. However the success rate of solving the problem without the IT help desk seem to differ, as the IT department employees called the IT help desk significantly less than other employees. Once again this can be explained by the way of communicating, with or without the use of artifacts. That is, according to Heide et al. (2012), determines by who is communication with whom. For IT department employees a direct communication within the department is easier to establish while for the non IT department employees a mediated one, using a phone to call the IT help desk, is used to a significant higher extent.

A higher percentage of the employees that are not working at the IT department preferred video tutorials over written instructions, however no significant difference between the two groups was found. Even though the preferred format is the same, different departments might speak different languages, as expressed by a branch office employee and supported by the study of Guzman et al. (2004), which could make the instructions and video tutorials harder to understand for non IT department employees, having to call the help desk with higher frequency.

5.3 What Artifacts and Help Functions Can Be Further Developed to Enhance Learning and Sharing of IT Knowledge?

From the results it is clear that many of the employees are positive towards taking an e-learning course in how the basics systems works. This is a known format to the employees and the attitudes towards using it has only been mentioned as positive ones. As shown by Liaw, Huang, & Chen (2007) the learner’s attitudes towards the learning technology is vital for enabling learning. An e-learning course can be designed in such a way it will give direct reward, when the employees choose the right option, which according to Skinner would encourage that behavior (Illeris, 2011). An e-learning course could also bring up examples and use demo versions of the systems, which gives the employees something they can relate to and opens up for assimilative learning (Illeris, 2011). It can also make them see the relevance of learning which is especially important for adults (Cox, 2015). Video tutorials can easily be watched together, as mentioned by a branch office employee, which emphases the social aspect of learning. According to Vygotsky (in Illeris, 2011) the social community in which the learning is taking place is vital. The IT department should therefore take e-learning, as a format, into consideration for IT training and knowledge sharing. The use of e-learning also has the advantage of making it possible for the employees to enroll in the education at a time and place that suits them (Hamid, 2014).

Developing an e-learning course for new employees, could be one way of improving the introduction of Handelsbanken’s IT workplace and IT systems to new employees. In addition, the results also show that having a mentor when starting at the new workplace is important, which goes hand in hand with Ackerman et al. (2003). Developing a new orientation program, where the new employees not only get situated training, in the form of e-learning, but also get to see different departments, can according to Acevedo & Yancey (2011) help develop skills that cut across function and can therefore be seen as a way of enhancing knowledge sharing between different parts of the company. When starting a new job, the new employee has a natural need for learning new things and the relevance and use of all kinds of training is easily seen by the employee. According to Cox (2015) this makes the introduction of new employees a golden opportunity for adult learning.

The IT staff in charge of developing instructions for the handbook and e-support needs to take the intended users into account. How they present the instructions and what type of language is used, is important to make the help functions work. The barriers between the different departments can in some ways be explained by the different subcultures of the departments (Trice, 1993). The IT department employees might lack a bit of communication skills and have a different way of expressing themselves as presented by Guzman et al (2004).

Even though the handbook and the e-support can be hard to find, 89 per cent of the non IT department employees say they try solving the problem themselves, before calling the internal IT help desk. That indicates that the employees have an interest in being able to solve IT problems without calling for help, but it can also be interpreted as reluctance towards calling the IT help desk. Not being believed, as one branch employee stated, and the experience of long waiting time, can have created a resistance towards calling the IT help desk. Asking colleagues for help that are not IT experts, might only waste precious time and resources. If instructions or other ways of reporting an error are available and used as intended, it might however save time and resources. Bearing that in mind, branch office employees feel they cannot always rely on the use of e-support, because they might have a customer on hold while trying to solve the IT problem. E-support does not offer a status report and there is no way for the user to know when the problem might be fixed. From the interview with an internal department employee we also learned that finding the e-support can be tricky and if you cannot find the help function, you cannot be expected to use it. From the survey result and interviews with branch office employees it was clear that the internal handbook was also hard to find. This shows that in this case the intranet, where the handbook can be found and new software is presented, is not dynamical, as stated by Heide et al. (2012) and acts as a hindrance for knowledge sharing and learning. Making the e-support and internal handbook easier to find, is key for enabling future use of them.

The IT department should strive to have both written instructions and video tutorials accessible when instructing the employees how to do IT related tasks or how to solve common IT problems. One advantage a video tutorial was being said to have over a written instruction, is the way it opens up to watch and learn together, the social aspect can be important (Illeris, 2011). However Handelsbanken might also benefit from using fewer channels and systems. As mentioned by the branch office employee, forcing the staff to make use of the new systems and artifacts, might first be met with resistance, as transformative learning might take place (Cox, 2015) but then result in a more efficient way of doing things. Since the handbook and the e-support both give the employees opportunity to find written instructions, only using one of them might make it more accessible to the users. As of now the employees have to look at different places and neither the handbook nor the e-support, proved easy to find. To force the user to use the same system, with a proper search function, can make it more accessible. Elkjaer (2005) also showed that a deliberate organizational change can trigger critical thinking and organizational learning.

Internal communication within the IT department can also be improved. To solve the more complex IT problems, that can have a huge impact on the organization work capacity, the IT departments need to work together. Seeing the whole picture by knowing how the different systems depend on each other, rather than solely focusing on one small task, can help solving IT problems in a more efficient way. The IT department employees
are not one homogenous group but consist of different IT professionals such as programmers, analysts and network specialists (Kaarst-Brown. & Guzman, 2005). When a specific task or problem arises, the different subcultures need to adjust to each other and be able to work together, not against each other (Guzman et al., 2004). For regular users it might be hard to see which part it is that is not working when an error occurs. The IT department can likewise have a hard time understanding what impact an error has on the workplace and therefore on the bank’s customers. For knowledge sharing to be successful the personal ambition needs to match the group ambition (Hendriks, 1999) and the observation indicates that some have a higher ambition than others. The IT department as well as the other employees need to all strive for successful knowledge sharing. The IT department employees also need to learn from employees not working at IT department in order to better understand IT problems that might arise. Here visits to each other’s workplaces might help.

5.4 Generalizability and Critical Discussion of Method Chosen
In the thesis only one company, Handelsbanken was studied. Handelsbanken has a special structure with a decentralized organization but with one IT department. The result can probably only be applied to other companies with a similar structure and the same kind of help functions in place.

The data collected from the survey has been used to answer both research questions. The non-responders were as high as 36 per cent, which means that the responders could have portrayed a skewed picture. A comparison between the responders and non-responders showed that the distribution between where they worked (within which regional bank, internal department or IT department) did not differ significantly. A more thorough analysis, of who the non-responders were, could however have been carried out.

In order to carry out a Mann-Whitney U test, the collected data need to be coded from the multiple-choice answers to numbers. By keeping the data ordinal (not scaled, where for instance two is said to be half of four), comparison could be made. However it requires that data could be sorted on an ordinal scale and with some of the questions having “do not remember” and “no preference”, those answers had to be viewed as missing since it did not fit into the scale. If all questions instead had been asked in a way where the participants had to take a stand, from “totally agree” to “do not agree, at all”, no answers would have had to be viewed as missing. User testing, where the employees would have been asked to carry out specific tasks, could have given a deeper understanding on how the employees uses the IT systems, which steps that are problematic and if it differs between departments. Designing a task that is relevant for all type of employees was viewed as an obstacle to this approach, but with a greater insight of the employees work tasks, it can be carried out.

5.5 Future Research
Developing an e-learning course as an introduction for new employees will take time and cost money. Even though the result shows the demand is clearly there, further research could be made in order to see how and if an e-learning course would truly improve the employees IT training and ability to solve IT problems themselves. A study on how an e-learning course should be developed in order to enhance learning and sharing of IT knowledge could be carried out.

A cost efficiency study on the IT help functions can also be carried out. What is most cost efficient, calling the IT help desk or trying to solve the problem using written instructions and video tutorials? The IT help desk requires staff, but to develop and keep the instructions up to date also requires staff and for unexpected errors, an IT help desk might still be needed.

A similar study as this one could also be carried out at another company within the same field but with a different organizational structure. That would make it possible to draw conclusions on how the structure of a company impacts the companies IT training, the employees use of IT help functions and knowledge sharing between IT department employees and other employees.

6. CONCLUSIONS
This study shows that there are some differences between how Handelsbanken’s IT department employees and Handelsbanken’s non IT department employees experience and use Handelsbanken’s IT training and IT help functions. A significant difference between the IT department employees and non IT department employees was found in three areas:

1. IT department employees, to a significant higher extent got an introduction to the IT systems when they started to work at Handelsbanken, compared to other employees.
2. IT department employees, to a significant lower extent wished they had gotten more education on Handelsbanken’s IT systems when they started to work at Handelsbanken, compared to other employees.
3. IT department employees, call the IT help desk to a significant lower extent, compared to other employees.

The result points towards that it would be worth developing IT training for non IT department employees. An e-learning course, together with assigning a mentor for each new employee and the opportunity to visit different departments, is presented as ways to enhance learning and sharing of IT knowledge.

The help functions used today, the internal handbook, e-support and IT help desk, have been found to all have room for improvements. One suggestion is to gather all instructions in e-support. Fewer options on where to look for help and forcing the users towards one system, as a deliberate change can trigger organizational learning and even though it might be met with resistance first, will make it more efficient in the long run. The employees making the instructions and video tutorials need to bear in mind who they are making them for, trying to avoid language only understandable to IT department employees.

The IT help desk would benefit from better internal communication within the IT department, as well as better communication between the IT department and other employees. Working together to oversee the whole picture rather than solely focusing on small tasks, could be a successful way to work in the future. In order to be more efficient, the different subdepartments need to adjust to each other and be able to work together and share their specialized knowledge with each other.

Although the results are specific for Handelsbanken, they could to some extent be generalized to companies with the same organizational structure and the same kind of help functions in place.

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