



Training and Development of IT Professionals in Employment

The objectives and benefits of corporate-sponsored training

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**Faculty of Industrial Engineering, Mechanical Engineering and
Computer Science
University of Iceland
2011**

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60 ECTS thesis submitted in partial fulfillment of a
Magister Scientiarum degree in Computer Science

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Reykjavik, December 2011

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Bibliographic information:

Ragnildur Helga Ragnarsdóttir, 2011, Training and Development of IT Professionals in Employment– The objectives and benefits of corporate-sponsored training, Master's thesis, Faculty of Industrial Engineering, Mechanical Engineering and Computer Science, University of Iceland.

Printing: Háskólaprent
Reykjavík, Iceland, December 2011

Abstract

IT employees must necessarily acquire new skills and knowledge throughout their professional life since the field of information technology is constantly developing, both in the technical and the organizational sense. IT companies invest a great deal of money in educating their employees to deal with their ever changing environment, in the hope of shortening development time, reducing project failures, etc. The purpose of this study was to examine the state of training at Icelandic IT companies and try to answer questions such as how important employees consider training, how effective the training is and how beneficial it is. To gain answers to these and other questions, a questionnaire was sent out to the IT employees at two Icelandic companies and interviews were conducted with department managers at one of them. The main results show that training is valued as an important tool to sustain and add knowledge, but it is not followed through – either by employees' setting goals regarding the training they receive or by evaluation or accountability after the training.

Keywords: Continuous education, Training assessment, Information Technology, Professional development, Questionnaire

Útdráttur

Starfsmenn á sviði upplýsingatækni (UT) þurfa nauðsynlega að öðlast nýja hæfileika og þekkingu í gegnum starfsferil sinn þar sem heimur upplýsingatækni er í stöðugri þróun, bæði í tæknilegum og skipulagslegum skilningi. UT fyrirtæki fjárfesta mikla fjármuni í að mennta starfsfólk sitt til að takast á við síbreytilegt umhverfi, í von um að stytta þróunartíma, draga úr mistökum o.s.frv. Tilgangur þessarar rannsóknar var að athuga stöðu þjálfunar hjá fyrirtækum sem starfa á sviði UT og reyna að svara spurningum á borð við hversu mikilvæga starfsmenn telja þjálfun í starfi, hversu markviss hún er og hvernig hún gagnast. Til að fá svör við þessum og fleiri spurningum var notast við spurningalista sem sendur var á almenna starfsmenn tveggja íslenskra fyrirtækja og viðtöl sem voru tekin við deildarstjóra annars fyrirtækisins. Helstu niðurstöður sýna að þjálfun er álitin sem mikilvægt tól til að viðhalda og bæta við þekkingu, en henni er lítið sem ekkert fylgt eftir – hvorki með markmiðasetningu starfsmanns áður en hann tekur þátt í þjálfun né með mati að lokinni þjálfun.

Lykilorð: Símenntun, Mat á þjálfun, Upplýsingatækni, Fagleg þróun, Spurningalisti

Dedicated to two sisters

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Acknowledgements

Special thanks go to my supervisor, Ebba Þóra Hvannberg at the University of Iceland, who always had time, whether for answering my constant e-mails or sitting down with me and giving me excellent advice. She has been extremely positive and encouraging towards my project. My gratitude also goes to the two companies that participated in my study by providing me with access to their employees and, where needed, some extra data.

I also want to thank Birna H. Ólafsdóttir, Valdís Ólafsdóttir and Ægir Pétursson for taking time to test and give good advice regarding my questionnaire.

The writing of this thesis has spanned two pregnancies; it is therefore safe to say that my two girls (one unborn) have had a highly motivating effect on me and filled me with the energy needed to both begin and end this project. Finally, this work could not have been done without the help and endless patience of my husband, Björgvin.

1 Introduction

The labour market is constantly developing, whether due to changes in the content of employment or to technical and organizational changes. This is especially true for workers in the field of information technology, which requires great flexibility from its employees. IT employees must necessarily acquire new skills and knowledge throughout their professional lives so as to meet successfully the needs of their job. Continuous education (hereinafter referred to as training), in the form of various training activities, e.g. seminars, conferences, etc., has for a long time been the subject of many studies, especially in the field of Human Resources – their aim being to examine motivation and cost-related issues. This is certainly an interesting area of research, but so too are questions such as how training is utilized; what the benefits and objectives of company training are, whether it is ever put to use, and if so, when. In my opinion, most companies do not have any structured evaluation of knowledge being learned and most of the training events that employees seek do not enhance their personal development – and are consequently not of any use in the company's environment.

The aim of this thesis is to study how training is implemented by companies in the field of information technology in Iceland, and where possible connect the results to other studies. Training implementation refers to issues like the objectives and benefits of IT training and employees' experience and view of the training compared to managers' views. Before formulating the research questions, various sources of materials regarding the subject were examined. Below, the key points from these sources are outlined, and subsequently the research questions are introduced.

According to Potter (2000) it is important to demonstrate a connection between the IT staff training costs and the benefits received. But companies need to determine which benefits to offer, in order to retain employees. To replace an employee costs the equivalent of 20% of one employee's salary and fringe benefits. Potter mentions that training is the number one requested item from IT employees when job hunting, ranking above flexible schedules and higher salaries.

Babu *et al.* (2004) said that in order to keep pace with the software industry's ever-changing knowledge and development requirements, companies face a big challenge in deciding how to train their employees. In that context, formal training is increasingly becoming recognized by companies. Not only is it critical to the success of their professionals but also their overall competitive position in the marketplace. But it is also important to be able to detect a difference in the employees who participate in training – failing to link training and development to some kind of improvement is a risk, not only for those responsible for training but also the company's performance in the marketplace. If no difference in employees' performance can be detected within three to six months after conclusion of the training, the reasons why must be explored.

Holton *et al.* (2003) concluded that instead of treating learning as an obligatory cost factor, today's progressive corporations are regarding it as a weapon in the battle for competitive advantage. While training is an instructor-led, content-based intervention, leading to desired changes in behavior, learning is a self-directed, work-based process, leading to increased adaptive potential.

According to Coverstone (2003), a knowledgeable and skilled IT staff is required to support a company's business processes successfully with adequate IT services. Companies attempt to focus their intellectual capital in a direction that supports both long and short-term business objectives. Usually this is done by some corporate training programs. A company's short-term goal would be to train the IT employees in skills that support its immediate business needs, while the long-term goal would be to increase the value of its knowledge capital. Often, how things get done reveals more about the culture and political climate within a company than about which employee is trained in what skills. Training is a good choice to increase the human capital of a company and support its organizational culture.

Bostrom *et al.* (2003) said that knowledge learned at various training events is often not transferred to the work situation and effective training is sub-optimal in most organizations. They suggest that the reason behind this is the lack of business focus in terms of application of IT skills to business processes. Also there is no understanding of what enhanced skills and better systems will do both for the individual and the organization. To solve this problem, the organization needs to have the capability to focus on the larger business picture by acknowledging that IT training should be considered in an integrative manner with organizational strategies. Organizations have to create and implement an effective IT learning strategy defined as a "pattern of IT actions for deploying resources to develop the repository of computer knowledge and skills in an organization's workforce".

Baddoo *et al.* (2008) constructed a new model of motivation in software engineering by using results from their previous systematic literature review. Motivation has a major impact on software quality and productivity. They point out that rewards and recognition are not a software engineer's number one motivational factor at work: rather, he is motivated by the nature of the job, e.g. challenging technical problems and peer interaction. Other factors mentioned are improvements in productivity and project delivery time and improved project success.

Lindvall & Rus (2002) wrote an interesting article about knowledge management. Knowledge management focuses on the individual as an expert and as the bearer of important knowledge that can be systematically shared within an organization. Because software development is quickly changing, the available resources are not increasing along with increasing needs, and because knowledge is diverse and steadily growing, organizations have a problem with identifying the content, location and the use of the knowledge. Management's worst nightmare is probably when new technology emerges that is supposed to make development efficient, but often results in serious delays. The reason for this, Lindvall & Rus suggest, is that engineers often resort to the "learning by doing" when not familiar with the technology instead of the organization's having a plan for how to master the knowledge.

Stephenson (1999) outlines the concept of capability in relation to education, training and business success. Individuals and organizations build up a store of knowledge and technical expertise and it becomes one of their most precious assets. Stephenson suggests that both individuals and organizations need the same qualities to survive and improve; therefore it would make sense for both parties to use a work-based learning strategy embracing, e.g. openness, responsibility and continuous learning. A work-based learning strategy must help people to be explicit about their learning goals, relate to long-term personal development, build confidence and provide an informal culture of support and official recognition of achievement.

Hughey *et al.* (1997) said that almost all companies provide some type of training for their employees, and at some it is a very formal process. The motivation though behind this training can vary considerably; some examples are genuinely committed to enhancing the skills and competencies of their workforce, while in other companies training is only conducted for appearance's sake. Despite this, the need for employee training keeps increasing in direct relation to the rapid technology changes, and companies are beginning to recognize that employee training have a profoundly positive impact on job satisfaction, productivity and ultimately profitability. It is, however, very important that the result of training is not only to enhance employees' skills and competence level: it should also complement and support the company's financial stability. To substantiate effectiveness of training, Hughey *et al.* suggest several areas to be addressed, e.g. the goals of training should be in line with the company's strategic plan, the impact of the acquisition of new skills and competences on productivity should be positive, and the company should have a comprehensive strategic plan that addresses the departments' goals and objectives by having employee training available. They also emphasize the importance of training evaluation, which must be done, both as regards the benefit for the individual employee and also as regards the appropriateness of the training itself: does it make a real difference?

Mathieson (2006) introduces the idea of a learning cycle, shown in Figure 1-1, which is an interesting contribution to the training discussion. At the start, the company's needs are identified. Then, in the next step, how a company would know if the training/development needs have been met is determined. This is a step normally taken at the end of the learning process, but doing this in the beginning eliminates the time and effort in justifying the needs when training is finished. By using a diverse range of methods to ensure sustainability, a learning intervention is designed. In this step the delivery method most likely to be effective is chosen, e.g. how the learning is to be applied to the job. The cycle ends with the evaluation step, where the performance indicators identified at the outset are measured, e.g. when training employees on all their personal competencies the result should show an increase in their overall personal competence levels as agreed by their manager.

Learning cycle

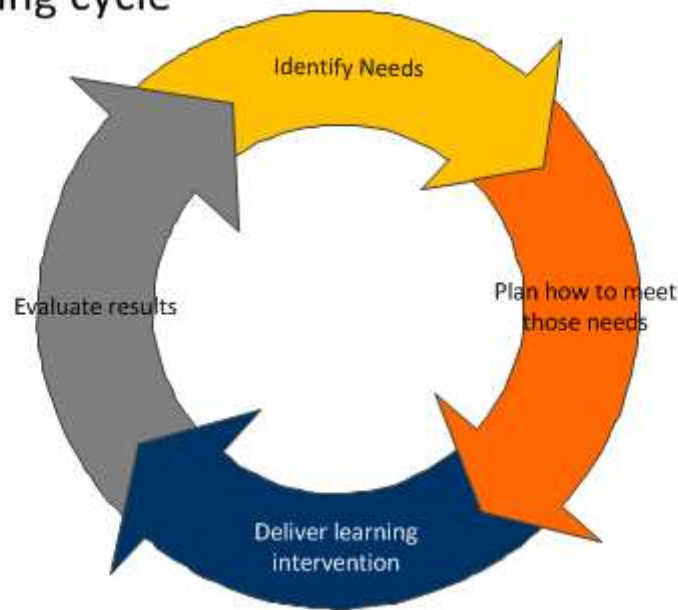


Figure 1-1 Learning cycle

Blanton *et al.* (2005) said that when IT managers are faced with goals that may not have been met by the company's current IT employees, a problem arises over how to bridge the gap between the new requirements and the IT personnel's ability. He suggests that the managers must decide between four options; internally developing the existing IT employees, hiring new employees to bridge the gap, outsourcing to a third party or a combination of all three. It often makes the most sense, when the gap is narrow and time is of the essence, to choose internal development of the existing IT employees.

1.1 Research Questions

The subject of the study is vast, so narrowing it down was necessary. While reading through the literature mentioned in previous section regarding the subject, it became clearer what the main focus of the study should be. This study will try to answer five questions:

- How important is training?
- What is the extent of training?
- How relevant is the training?
- How beneficial is the training?
- Where do employees seek solutions for either immediate problem solving or long term problem solving?

In the following sections, each question is explained in more detail.

1.1.1 How important is training?

Training is often viewed as a luxury or some kind of a bonus for a job well done. Therefore training is repeatedly the first item to be cut when companies' budgets are under pressure. By now though, it should be clear that money is lost if employees do not have the right skills or knowledge to participate in or finish certain projects – not to mention the effect this has on job satisfaction and morale. Training within companies should be considered as an investment, not as a luxury. Despite this, the degree of change in an employee's performance as a result of training does not always meet management's expectations, despite investing large budgets in the training (Coverstone, 2003).

This question aims at identifying the importance of training: how important IT education is to the employees, whether the opportunity of having training was a factor when they decided to apply for their current job, and how IT employees consider training on the job – what affect it has on the company in the long term and the employees' overall status on the job market.

1.1.2 What is the extent of training?

Can it be said that a certain amount of training is the right amount? Probably not: the amount of training must surely be related to the needs that arise within the company at any given time, e.g., when projects begin that call for the use of new knowledge or, as has been mentioned earlier, in the form of an employee privilege (e.g. as a bonus for a job well done).

The aim of this question is to see how many people have had training over specific time period and how the knowledge gained by those employees has been transmitted to other employees. It would also be interesting to find out the reasons why some employees have not received any training yet and their opinion of those who have.

1.1.3 How relevant is the training?

The number of training events does not necessarily give evidence of how relevant training is; nor does it say if the employee who receives training is satisfied, either with its quality or its purpose. Relevant training implies compliance with a specific plan for each employee; introducing a formal training plan. If a formal training plan has been implemented in a company it is assumed that the employee has made a plan ahead, in cooperation with his manager, to ensure continuous education on the job. Hughey *et al.* (1997) suggest a formal strategic plan that not only addresses the department goals and objectives, but also includes both short-term and long-term timetables to ensure meaningful results. The plan should also be formalized and agreed by company personnel at all levels. This plan should serve as a reference point for determining the success or failure of training, and they suggest that several questions must continually be asked: Have the employees learned something new? Do their new skills have positive impact from a cost/benefit perspective? How can training be made more effective?

Coverstone (2003) emphasizes that even if employees' training objectives are effectively carried out, the overall business objectives may not be achieved.

According to Kirkpatrick (1998) it is important for companies to recognize that results such as increased production, improved quality, decreased costs, reduced frequency and/or severity of accidents, increased sales, reduced turnover, and higher profits are the reasons for having training programs. Therefore, the final objectives of the training program need to be stated in these terms.

But does a formal training plan exist in IT companies? If not, do employees feel that such a plan is necessary? What are the training efforts in the companies and who is responsible for training?

1.1.4 How beneficial is the training?

Training is motivational; it can increase job satisfaction and reduce boredom. It also shows the employee that he is a valuable asset for the company – valuable enough for it to invest in him and his development.

But how beneficial is the training, and when does training come in useful? Does it come in useful? What actions are taken to ensure that the training yields the maximum benefit? Does training yield benefits after the trainee returns to the job? What causes training not to yield benefit or what delays the achievement of the benefits of training?

This research question attempts to answer these and other questions.

1.1.5 Where do employees seek solutions for either immediate problem solving or long-term problem solving?

Where do IT employees seek knowledge when trying to solve problems in the short term and the long term? Are there any differences between companies? Do companies take any measures to keep track of the knowledge gained by employees on their own – as a part of their long term or immediate problem solving?

This research question addresses knowledge management in companies – IT employees are experts in harnessing knowledge that they acquire on their own or receive elsewhere. The challenge faced by most companies consists of knowing how to keep track of this huge knowledge base that lies in their employees and monitoring how the knowledge is spread and used to avoid other employees' making the same mistakes over and over, resulting in slower development time and more costs. According to Lindvall & Rus (2007), avoiding mistakes reduces re-working, and repeating successful processes increases productivity. Team members acquire valuable individual experience that other teams do not benefit from, so organizations must find a way to apply process knowledge gained in previous projects to future projects.

New and improved ways of solving problems are always popping up and employees are constantly making important decisions on building or acquiring software. However, many companies still lack some kind of infrastructure to help people make informed decisions. A lot of people make decisions by hearing what solutions have worked for others 'around the water cooler' or on discussion boards, but accessing a helpful set of good or bad decisions

other employees have made in some systematic way still seems to be a daunting task (Shull, 2007).

1.2 Overview

The structure of this thesis is as follows: Chapter 2 describes the research methods used to collect data for the study, along with a description of the participants involved in the study. Chapter 3 introduces the results of the study in detail, broken down into sections, each devoted to one of the research questions. Chapter 4 discusses the results as regards to each research question and also the data credibility as a whole. Chapter 5 concludes the thesis with lessons learned and suggestions of future work to be done.

2 Research Methods

This is a primary study, i.e. no data was available beforehand regarding the research subject, and therefore it was necessary to begin from scratch in designing and collecting data, which then had to be analyzed. In the context of this study, it was felt that a questionnaire, on the one hand, and more in-depth interviews, on the other, would be appropriate. The main purpose of the questionnaire was to obtain the employees perspective of the research subject, while the purpose of the interviews was to obtain a detailed managers view.

To have a clear picture of what kind of data the questions in either the questionnaire or the interviews should produce, they were linked to the research questions. In this way it would be certain that the questionnaire was reliable and valid, in terms of the attributes it was designed to measure. Using Mindjet MindManager, each question in the survey was connected to a research question. An example of what survey questions were connected to the research question ‘‘How important is training?’’ can be seen in Figure 2-1. A total of 6 survey questions were aimed to help answer this particular research question.

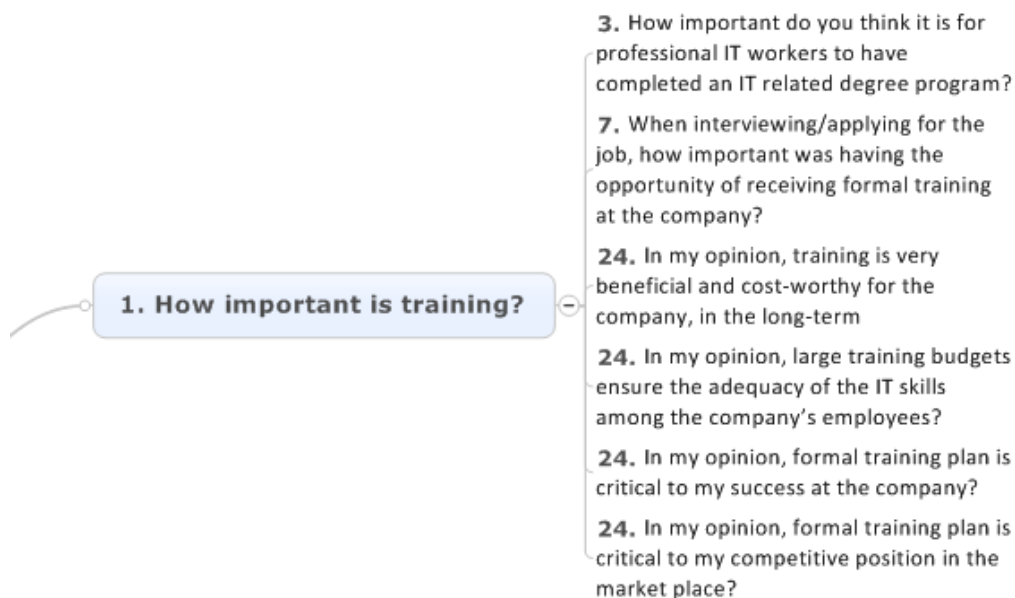


Figure 2-1 Example of research questions linked to the questionnaire.

The rest of the map can be viewed in Appendix – Question Mapping (English).

The study was conducted at two companies in the Reykjavik area. Both are quite large, taking into account number of employees, yearly profits and market share. They differ in

that one is a financial company with a large IT department, whilst the other is solely an IT company. These companies will be referred to as D-IT (IT Department) and C-IT (IT Company) respectively.

2.1 Questionnaire – Online Survey

2.1.1 Description of method

“A questionnaire is a cost effective way to collect data, from large numbers of population.” (Clarke and Jack, 1998).

Although easy to execute, questionnaires cannot produce usable data and a good response rate without careful planning. The anonymity a questionnaire provides also encourages more honest and frank answers than, for example, interviews or focus groups, and helps reduce bias. A clearly-defined target audience, well-designed questions with a clear purpose and the quantitative data they produce make questionnaires a powerful data collection tool (Marshall, 2004). That said, the obvious drawback of depending on a questionnaire to produce high quality data, is that it delivers “shallow” data from a large number of people, but contains little or no “deep” detailed data (Feng, Hochheiser and Lazar, 2010).

2.1.2 Structure of questions – The model

When designing and writing the questionnaire, the article “IT Training assessment and Evaluation: A Case Study” by Dr. Paul D. Coverstone was relied on the most. In his paper Dr. Coverstone examines the “as-is” state of IT staff skills and training at a large government utility organization, in order to provide greater context and clarity of the case. His study looked at the phenomenon in the context of corporate sponsored IT education and training. After conducting his case study he concludes with recommendations that focus on a plan for training evaluation as well as a systematic assessment of the results (Coverstone, 2003).

Dr. Coverstone categorizes his questions into three categories: general questions, specific IT training questions and finally questions he used when interviewing a supervisor group within the company. Most of these questions could be used directly in this study.

Furthermore, some questions were found in Kirkpatrick’s *Evaluating training programs* from a case study conducted at Intel Corporation. The questions were used in a self-report survey that collected data on employee’s perceptions of both post- training intervention behavior and the training influences of the work environment. The value in collecting such self-reports was to answer the question, “If not, why not?” referring to behavior transfer when training is completed.

The complete questionnaire used for this study can be found in Appendix – Questionnaire (Icelandic) / (English).

2.1.3 Additions to D-IT questionnaire

In addition, D-IT also provided a list of all educational events their IT employees had attended during the years 2007 – 2011. The list included events to which each department within IT had sent a representative and the dates and number of time units spent at the event. After careful classification of each event, the total number of events became clear; 285 in total. The purpose of this data was to get the employees to evaluate the events or courses they had attended, so the number of events was reduced to 134, based on the amount of time units and the total number of employees attended. The events were then classified into the following categories:

- Technical courses
- Technical conferences
- Business related courses
- In-house courses
- Personal development

2.1.4 Participants

The survey was sent to employees working at the IT department of D-IT and to two divisions within C-IT. These divisions are the largest IT divisions in the company. The set of employees at D-IT consisted only of employees who had a permanent working contract, excluding summer employees and contractors. In both companies the employees had a widely diverse background as regards education and experience, and varied both in age and seniority.

2.1.5 Data collection

After an informal study of some of the online survey sites that are available, and also after seeking counseling from colleagues, the web-based survey solution company Survey Monkey (www.surveymonkey.com) was chosen. The advantages of using an online survey include cost efficiency, faster delivery, and quicker response time. Also, online surveys make it much easier to design complex routing and/or skip logic.

The disadvantages, on the other hand, are technical related issues, for instance SPAM, the danger that the user will submit answers more than once and the common denominator for all surveys, the researcher not being present to clarify questions.

The survey was sent out on July 12th 2011, with a deadline for submission of August 12th 2011, for D-IT. On August 10th, a reminder was sent out, and because of summer vacations the original deadline was extended by an extra 3 days. For C-IT, the survey was sent out on September 12th 2011, and left open for one week. Because C-IT was given the survey in September, with no summer vacation factor weighing in, the time-frame was shorter.

2.1.6 Piloting

An important part of creating and designing a questionnaire is to pilot it before it is sent to the respondents. Checking the reliability and validity of the questionnaire is important to remove any flaws, e.g. confusing wording or instructions, and also to check that the data the questionnaire produces is usable. Obtaining these feedbacks from piloting helps the researcher to redraft or rephrase the questionnaire (Marshall, 2004).

It is recommended to pilot the questionnaire amongst people who come from the same background as those for whom the questionnaire is intended, and therefore three people were chosen from the original respondent group. These three individuals worked in different areas within the IT department of D-IT; one was a programmer in a development team, one was a software tester in another development team and the third was a business manager.

When the questionnaire was considered to be complete and properly installed on the online survey site, the pilot group was sent a link to the online survey, together with some guidelines on things to look for while testing the questionnaire.

The guidelines were as follows: (based on guidelines from surveymonkey.com)

- Do you understand the objective of the survey?
- Are there any questions that are uncomfortable to answer?
- Is the wording of the survey clear?
- Are the answer choices viable?
- Do any of the items require you to think too long or hard before responding? If so, which ones?
- Which items produce irritation, embarrassment, or confusion?
- Do any of the questions generate response bias? If so, which ones?
- Do the questions reflect the purpose of the survey?
- Is the survey too long?

There were a couple of minor suggestions or considerations about few of the questions, besides the general spelling and wording adjustments along with some tips about the survey setup. Responses in one question had to be changed, because the original ones that were used in the pilot were too confusing.

2.2 Interviews

2.2.1 Description of method

The purpose of interviews is to develop deeper knowledge about the subject in hand, or one specific person or institution. They can also be used to illustrate a more general phenomenon. In this study, their main purpose was to serve as an auxiliary method in conjunction with the questionnaires (Kvale, 1996).

Interviews of course have their pros and cons. While questionnaires mostly obtain “shallow” data, interviews have the ability to “go deep”. Although the interviewer has prewritten, specific questions he must ask, the flexibility in interviews enables the interviewer to re-order questions or come up with new, previously unthought-of questions, all based on the interviewee’s responses. The obvious con is that this flexibility can get out of hand, potentially ending in unbounded discussions (Feng, Hochheiser and Lazar, 2010).

2.2.2 Structure of questions – The model

Dr. Coverstone’s (2003) last category of questions intended for interviews was used as a model for the questions used in these interviews. Also, some of the questions from the online survey were added to the interview questions, to give some further information about training.

The questions can be viewed in Appendix – Interview questionnaire (Icelandic) / (English).

2.2.3 Participants

Interviews were conducted with four IT department managers at D-IT. In addition to having different numbers of subordinates for whom they were responsible, they also had widely diverse backgrounds in terms of education and experience, and varied both in age and seniority.

2.2.4 Data collection

The interviews were conducted in a closed meeting room, located at D-IT. Beforehand, a meeting request was sent via email with the given time-frame of half an hour. First the interviewees were told that the interview would be recorded and that their names would be treated as confidential. Before they answered the written questions, the interviewees were asked to state how long they had been employed, how many subordinates they had and whether or not they had ever conducted structured employee interviews. Also, the interviewees was asked to think of a specific scenario before answering the last three questions, which would help them to put the questions in context with real life.

A sound recording program included in Windows OS was used to record the interview, thereby giving me more freedom to listen carefully to the answers and to ask follow-up questions. At the end of the interview, the managers were asked if they could be contacted later if further questions arose when listening to the recordings.

2.3 Summary

Data was gathered by means of online surveys and interviews. Subjects at two companies answered similar questionnaires, and four division managers of one of the companies were interviewed. Questions were formulated mainly by using two sources, a case study and self-report survey, and then installed at an online survey site. The questionnaire was then piloted and presented to the subjects at different times.

3 Research results

This chapter presents the results of the study. Initially, a few research questions were presented in Chapter 1.1, which the questionnaire and interviews were intended to answer. There are five research questions in total, and a section in this chapter will be devoted to each. First, however, we take a look at the participants' demography. The research sample in D-IT consisted of 93 employees, and 70 answered (response rate: 75%). In C-IT there were 135 employees in the sample and only 53 answered (response rate: 39%).

The results are presented in both written and graphical format.

3.1 Participant characteristics

Participants were asked about various details such as their gender, age, education and period of employment. More than two thirds of the respondents were male, and the most common age distribution (accounting for 48% of the total) was 21 – 35 years. This can be seen in Figure 3.1. Four respondents did not want to state their gender and nine refused to state their age

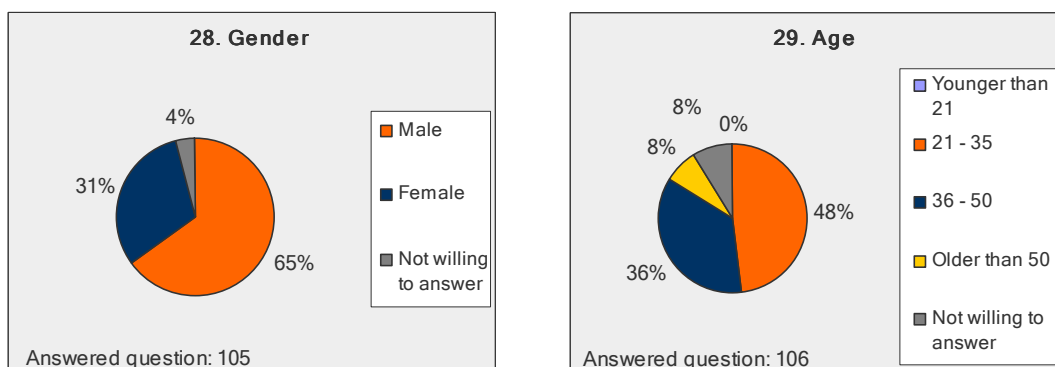


Figure 3-1 Gender and age of participants

Seventy-five participants had completed a university degree related to either Information Technology (IT) or Computer Science (CS). Of the 48 participants who had not completed any degree in these areas, only 19 had completed a university degree in some other subject.

As Figure 3-2 shows, the largest single group of participants, 38%, had been employed at their current company for more than 3 years and 24% of participants had been employed for longer than 6 years. Seventeen per cent of participants had been employed for less than one year at their company.

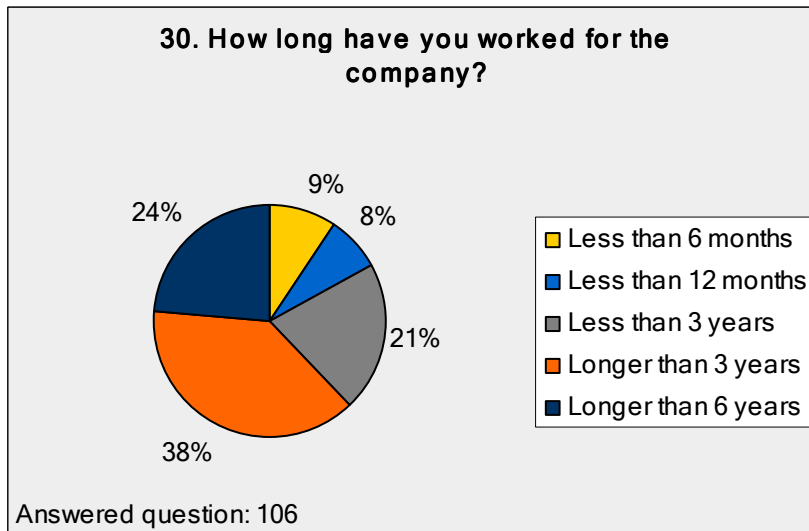


Figure 3-2 Seniority

3.1.1 Summary

Two thirds of respondents were male, and just under half were between the ages of 21-35 years old. A total of 75 respondents had completed a university degree in either IT or CS, and most had been working at their company for longer than 3 years.

3.2 How important is training?

This section attempts to answer the first research question, i.e., how important training was for the employees. Respondents' views were sought on topics including, e.g., the importance of education amongst IT workers, whether the possibility of training was a factor when they applied for their current job at the company and whether training was beneficial and cost-effective for the company. Respondents were also asked to say whether a formal training plan was important for their success at the company and their competitive position in the job market.

Employees were asked how important they thought it was for professional IT workers to have completed an IT related degree. Sixty-one per cent thought it was fairly important, while only 5% considered it not very important (Figure 3-3). During the interviews, only one department manager at D-IT said it was extremely important for IT workers to have completed an IT related degree, two said it was rather important – one adding although that it was not entirely necessary. One said it was not very important.

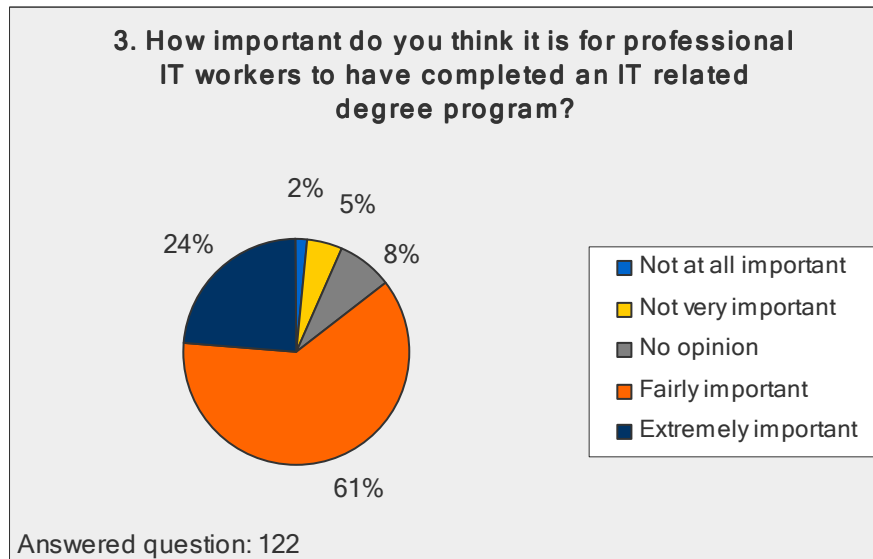


Figure 3-3 Importance of professional IT workers having completed an IT related degree

Sixty-eight per cent of respondents said that the opportunity of receiving formal training at the company had been a fairly important or very important factor, or an important factor, in their decision to apply for the job (Figure 3-4).

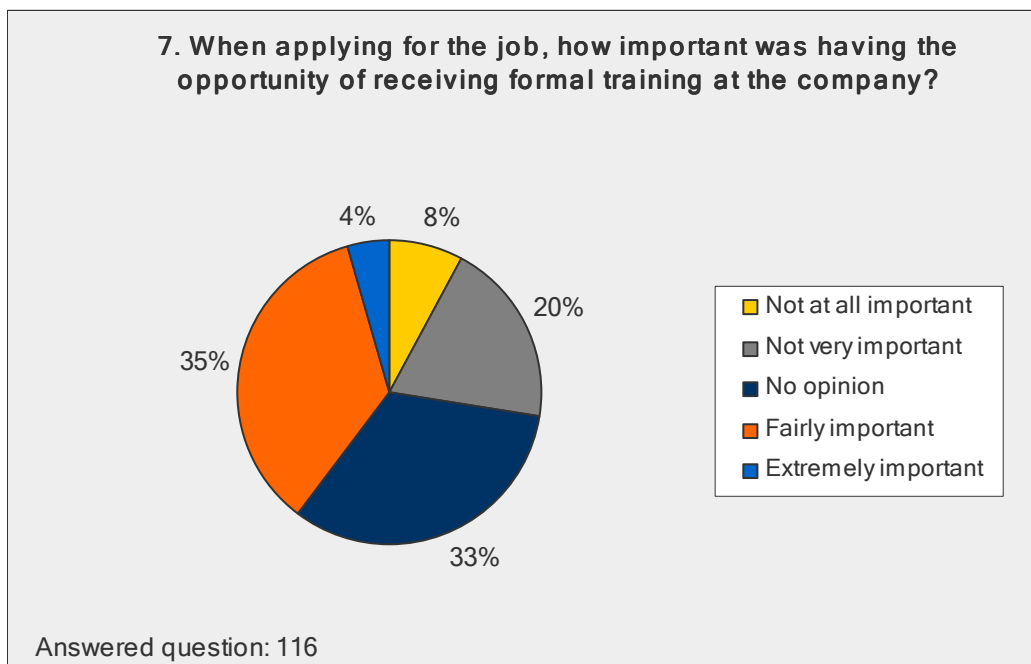


Figure 3-4 Importance of receiving training as a factor in deciding to apply for the job

Employees were asked to value four statements about their company and their personal development at the company. The majority, 105 out of 108 (97%), either agreed with, or strongly agreed with, the statement “In my opinion, training is highly beneficial and cost-efficient for the company in the long term”. The evaluation became more distributed when the employees were asked to state whether a large training budget would ensure adequacy

amongst the IT workers at the company, but only 63 either agreed or strongly agreed. Thirty-seven neither agreed nor disagreed and 7 disagreed.

If the two companies are compared regarding these two statements, there is a very small difference between responses – most employees either agreed or strongly agreed. Figure 3.5 shows the comparison between the companies regarding the first statement (that training is beneficial and cost-efficient for the company in the long term). Five per cent of respondents in D-IT said they neither agreed nor disagreed, but no one in C-IT chose that option.

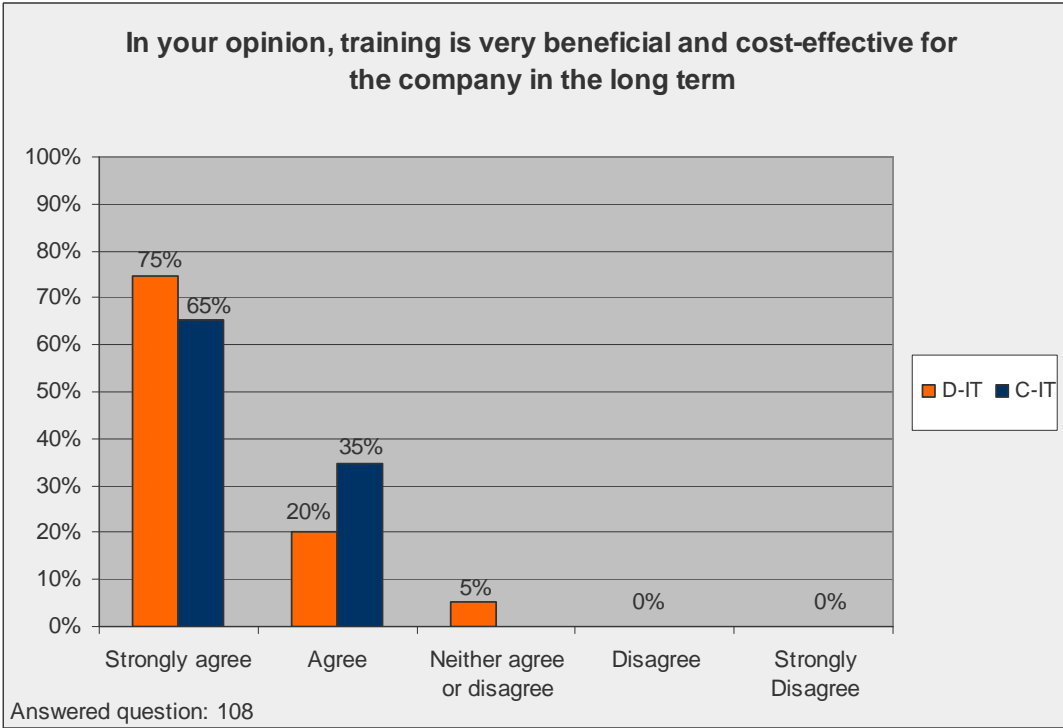


Figure 3-5 Is training beneficial and cost-effective for the company?– Comparison between D-IT and C-IT

Figure 3.6 shows the difference between the companies regarding the latter statement (that large training budgets would ensure adequacy amongst the IT workers). More employees at D-IT than at C-IT said they strongly agreed (34% compared with 16%), but more at C-IT agreed with the statement (39% compared with 27%) A few employees either disagreed, or strongly disagreed, with the statement.

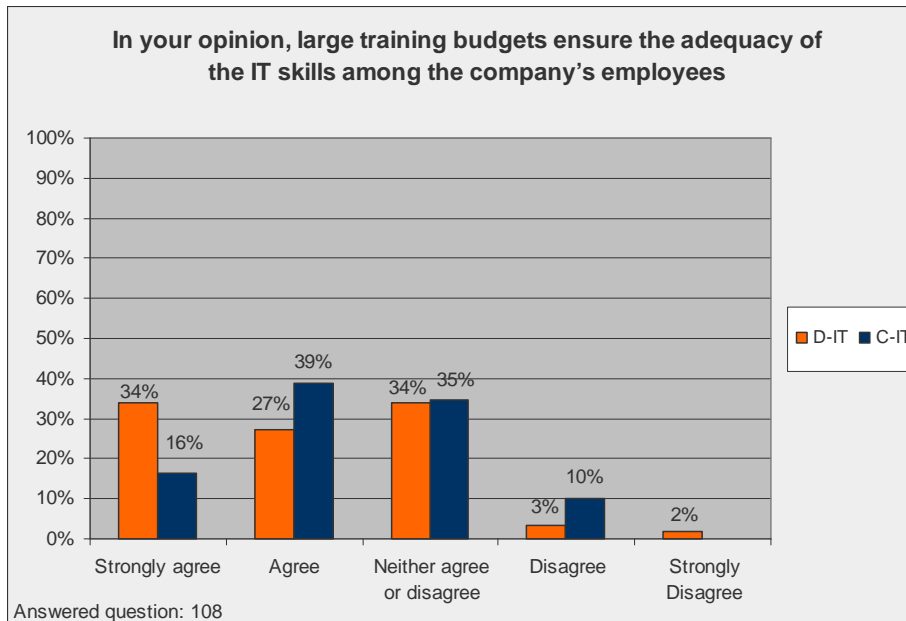
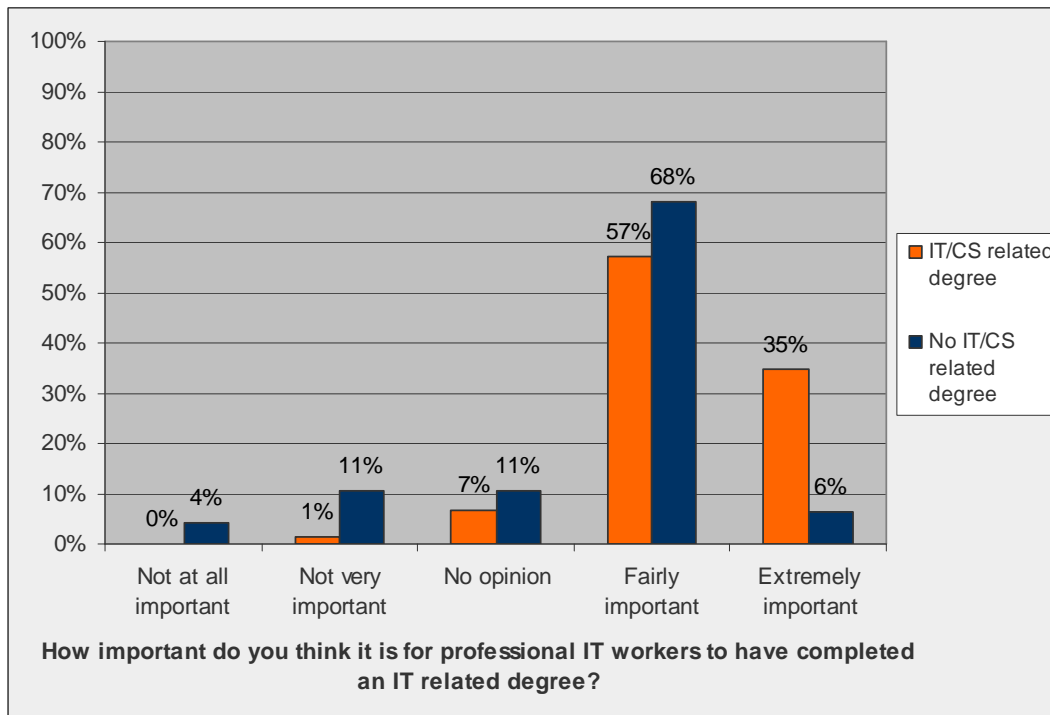


Figure 3-6 Do large training budgets ensure adequacy amongst IT employees? – Comparison between D-IT and C-IT

The last two statements at this point concerned employees' evaluation of formal training plans and the effect of such plans on their future success at the company and their overall competitive position. The majority, 98 out of 108 (91%), either agreed or strongly agreed to the statement that a formal training plan would be important for their future success at the company, and also the majority (99 out of 108) thought that such a plan would be important for their competitive position in general.

It is interesting to see when any connection exists between respondents' education and their responses to the two questions mentioned above; how important they thought it was for professional IT workers to have completed an IT related degree on the one hand, and how important a factor it was (when they decided to apply for the job) to have the opportunity of training at the company. This is done by crosstabulation in the SPSS software.

Ninety-two per cent of respondents who had completed a university degree related to IT or CS thought it was fairly important or extremely important that employees should have completed an IT/CS related degree. Sixty-eight per cent of those who had not finished a university degree related to IT or CS also thought it was fairly important that employees should have completed a degree. Responses are shown in Figure 3-7.



*Figure 3-7 IT/CS related university degree * Importance of IT professionals having completed a degree*

These correlations are statistically significant according to the Chi-Square significance test, for which the results are shown in Table 3-1. Chi-Square (called Pearson Chi-Square) is equal to 19.101 and the Degrees of Freedom (df) are equal to 4. The value in the column marked Asymp.Sig. (2-sided) is called p, and because in this case p is less than 0.05 we say that the correlation is statistically significant.

*Table 3-1 IT/CS related university degree * Importance of IT professionals having completed a degree. Chi-Square results*

	Value	df	Asymp.Sig. (2-sided)
Pearson Chi-Square	19.101	4	.001
N of Valid Cases	122		
N of Missing Cases	1		

Regarding whether a correlation exists between respondents' qualifications in IT/CS and whether the opportunity of training had been an important factor when they decided to apply for the job, it becomes clear that no significant correlation exists between the two questions. Table 3-2 shows the result for the Chi-Square test. P is much greater than 0.05.

*Table 3-2 IT/CS related university degree * Importance of receiving training when applying for the job. Chi-Square results*

	Value	df	Asymp.Sig. (2-sided)
Pearson Chi-Square	4.503	5	.479
N of Valid Cases	116		
N of Missing Cases	7		

If all respondents who either had a university degree in IT/CS or any other subject were grouped together (hereafter referred to as the *University Degree* group) and the correlation checked by compiling a cross table on the same questions as above, no significant correlation is found between their positions with regard to the two questions. Table 3-3 shows the Chi-Square results between the holding of a university degree and whether respondents thought it was important for IT workers to have finished an IT/CS related degree, and Table 3-4 shows the Chi-Square results between the holding of a university degree and whether the respondents had regarded the opportunity to receive training as an important factor when they decided to apply for their jobs.

*Table 3-3 University Degree * Importance of IT professionals having completed a degree. Chi-Square results*

	Value	df	Asymp.Sig. (2-sided)
Pearson Chi-Square	7.450	4	.114
N of Valid Cases	122		
N of Missing Cases	1		

*Table 3-4 University Degree * Importance of receiving training when applying for the job. Chi-Square results*

	Value	df	Asymp.Sig. (2-sided)
Pearson Chi-Square	3.226	5	.665
N of Valid Cases	116		
N of Missing Cases	7		

An examination was also made of a possible correlation between the question if respondents think a formal training plan existed for them within the company and two separate statements: whether they thought a formal training plan was important for their success at the company, on the one hand, and whether they thought such a plan was important for their overall competitive position on the job market on the other. Table 3-5 and Table 3-6 show that no significant correlation exists between these questions.

*Table 3-5 Does a formal training plan exist within the company? * Is a formal training plan important for employees' success at the company? Chi-Square results*

	Value	df	Asymp.Sig. (2-sided)
Pearson Chi-Square	4.115	4	.391
N of Valid Cases	108		
N of Missing Cases	15		

*Table 3-6 Does a formal training plan exist within the company? * Is a formal training plan important for employees' overall competitive position? Chi-Square results*

	Value	df	Asymp.Sig. (2-sided)
Pearson Chi-Square	1.620	4	.805
N of Valid Cases	108		
N of Missing Cases	15		

3.2.1 Summary

Respondents who had completed an IT/CS related university degree almost all agreed that it was important for IT professionals to have completed a degree in that area. When applying for their current job, 61% of respondents had not felt it was very important to have an opportunity of training at the job. This is a high percentage, given that most IT workers feel that training is an important aspect of their job. Maybe it is not such an important factor when it comes to career choices.

Most respondents thought training was beneficial and cost-efficient for their company, and the majority either agreed or strongly agreed with the statement that a formal training plan was important for both their future success at the company and their competitive status overall.

3.3 What is the extent of training?

This section attempts to answer the second research question i.e. what is the extent of training? First, how many respondents underwent training and how many training events they attended is addressed. The rest of the section focuses on those who did not undergo any training, the reasons why they had not undergone training so far and whether they benefited from others who did undergo training.

Ninety-seven people, or 84%, underwent some kind of training provided by the company in the previous four years (2007-2011). 'Provided' here includes instances where the training was proposed by the company, the employees were encouraged to take it and it was paid for by their company.

Of those who underwent training, the majority (64%) attended 1-3 training events during the time period; 20% attended 3-5 events and 16% attended 5 or more events. Overall, the majority was satisfied with the quality of the training they had received; 74% of respondents were fairly satisfied or extremely satisfied with the training quality, as Figure 3-8 demonstrates.

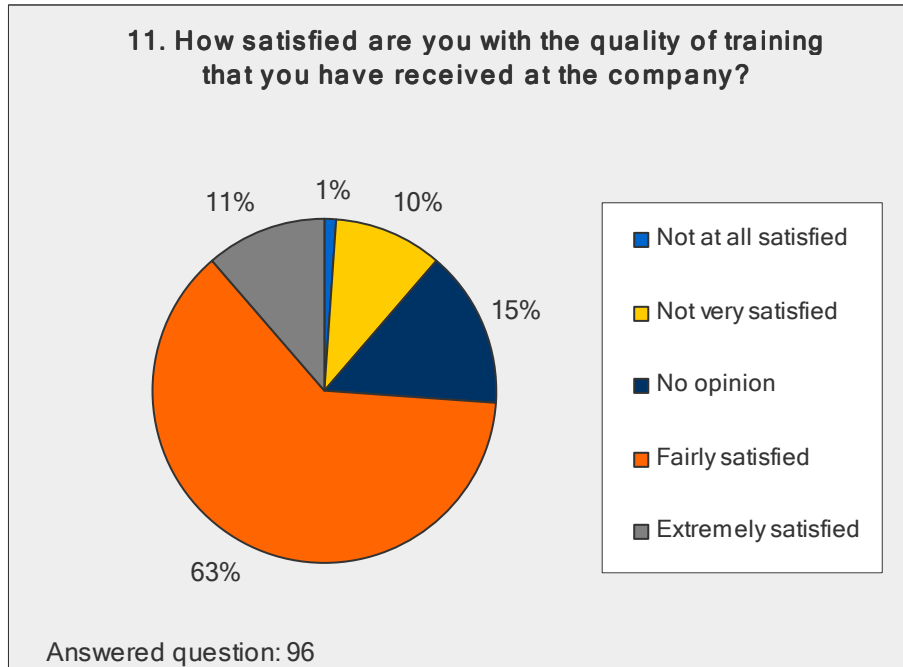


Figure 3-8 Quality of training at the company

Those who answered that they had not undergone any training during the given time period were asked to suggest the reason why they believed they hadn't received training so far. Eighty-two per cent thought that their short period of employment was the major factor. Figure 3-9 presents these results, along with other factors mentioned. Of the 18% who thought other factors weighed more than the given ones, only two submitted their own suggestions; one factor they named was their work load and the other was poor management.

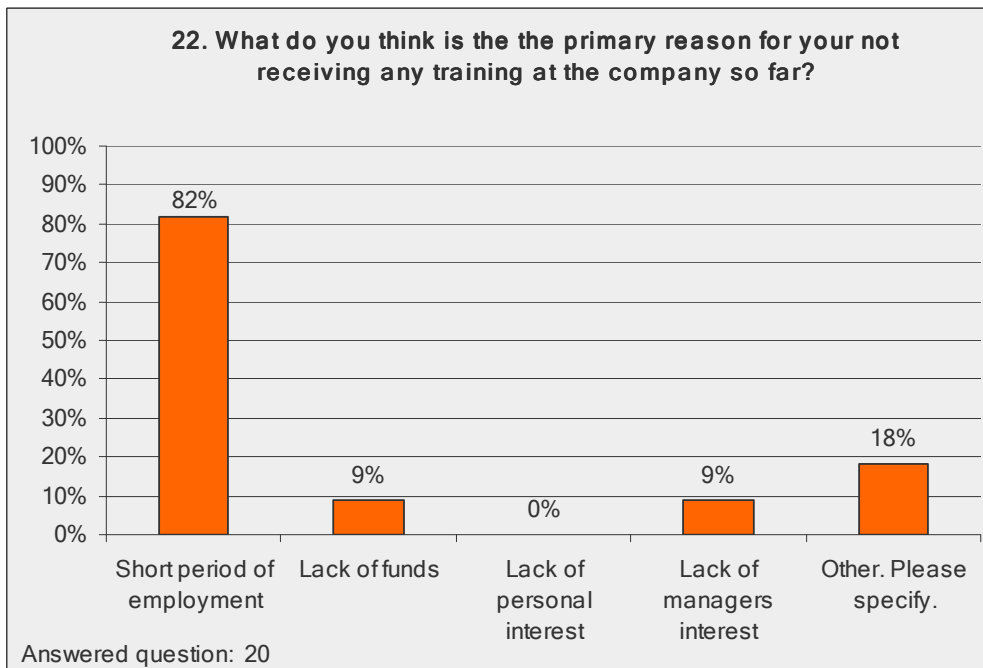


Figure 3-9 Primary reasons for employees not receiving any training so far

Additionally, respondents who had not received any training were asked to give their opinions of those employees that had. First, they were asked to state whether they thought their colleagues had communicated or transferred their new-found knowledge well to others. Of the 19 who answered, 10 said they neither agreed nor disagreed.

Second, they were asked to state whether they thought they had benefited from their colleagues who had undergone training in certain fields. Of the 18 who answered, 8 said they neither agreed nor disagreed with the statement. Only 3 respondents (17%) disagreed with the statement.

An examination was made of the correlation between how long the respondents had worked for the company and whether they had undergone any training over the previous 4 years, with a cross table. According to the results, the likelihood that an employee will undergo training is greatest (95%) if he has worked for longer than 3 years at the company. The likelihood of receiving training is 82-88% if the employee has worked for the company for 1 – 3 years, and it is fifty-fifty in cases where employment has lasted for less than one year. Figure 3-10 shows the results.

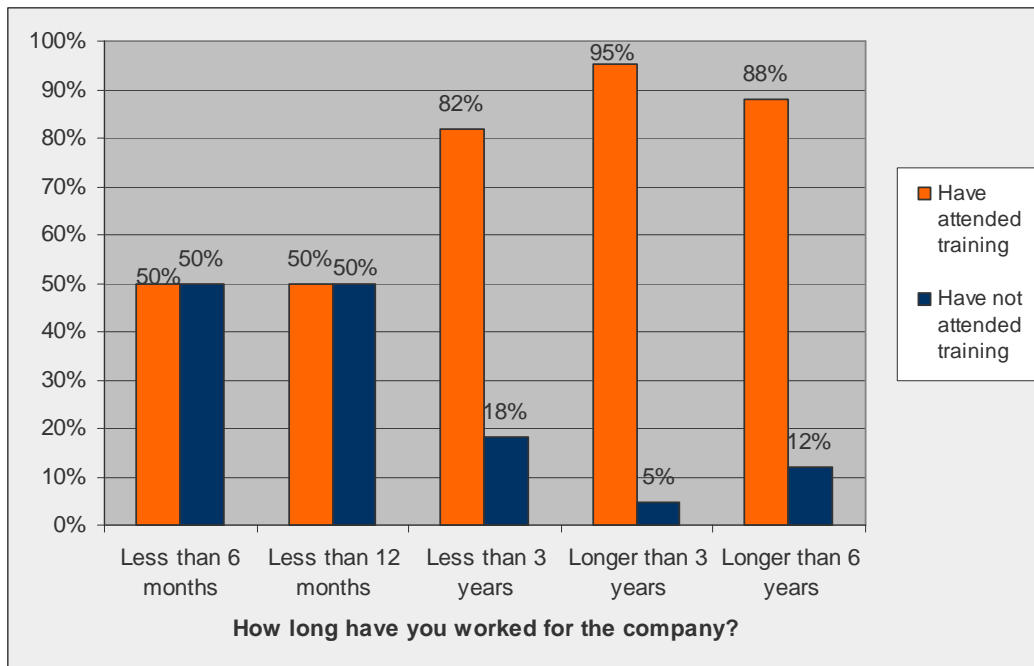


Figure 3-10 Have employees attended any training program * Seniority.

These results are statistically significant according to the Chi-Square significance test, as Table 3-7 shows.

Table 3-7 Have employees attended any training program? * Seniority. Chi-Square results

	Value	df	Asymp.Sig. (2-sided)
Pearson Chi-Square	18.643	4	.001
N of Valid Cases	106		
N of Missing Cases	17		

3.3.1 Summary

Eighty-four per cent of respondents had received training over the previous 4 years, with an average of 3-5 training events. The majority were satisfied or fairly satisfied with the quality of the training.

The likelihood of receiving training increased with longer employment at the company. This correlates with what respondents who had not received any training thought was the main reason why they had not received any training yet. Most of these respondents were also rather undecided when asked if those who had undergone training had transferred their new knowledge well to the others and whether their training yielded benefits for those who had not undergone the training themselves.

3.4 How relevant is training?

This section attempts to answer the third research question i.e. how relevant is training? Issues including the companies' training efforts, training responsibility, training quality and personal development etc. are addressed here.

Employees were asked how they would describe their companies' training efforts. The majority, 67%, felt that their company was positive towards training but failed to follow it through. Twenty-three per cent, on the other hand, said that training was followed through (Figure 3-11). When asked the same question, the department managers of D-IT were not unanimous in their opinion. Two managers thought the training effort was good, while one said it could be more efficient and one described it as being weird and suggested that money was a limiting factor.

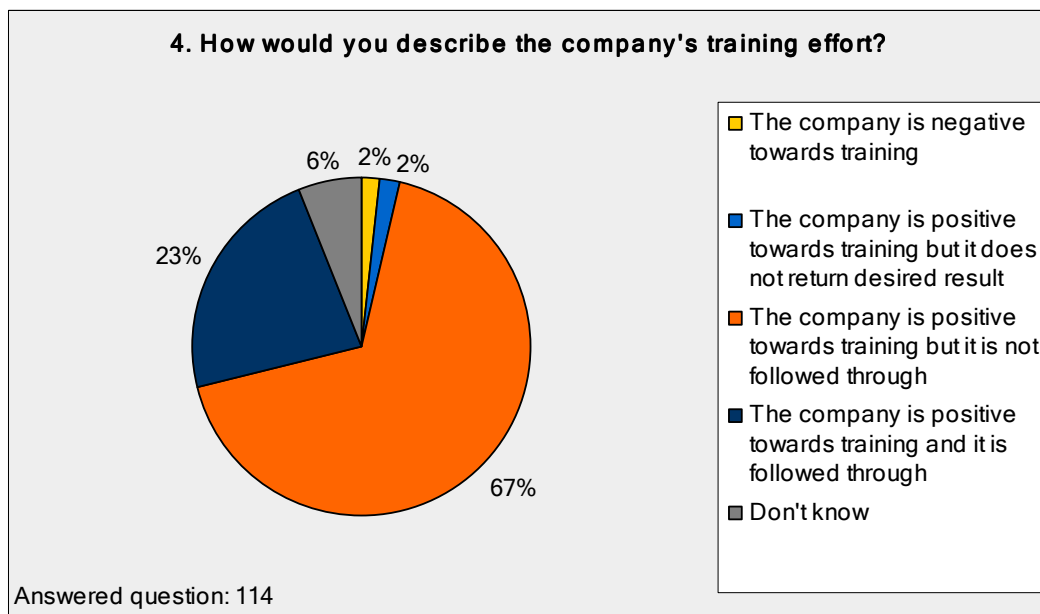


Figure 3-11 Companies' training efforts

When asked if they thought that a formal training plan existed for them within their company, 83% of employees answered no (Figure 3-12). To ensure that employees were not confused about what a formal training plan is, an explanation of the term accompanied the question (for the complete questionnaire, see Appendix – Questionnaire (Icelandic) / (English)). This result goes hand in hand with what the majority of the department managers at D-IT said in their interviews; 3 out of 4 stated that no such training plan existed.

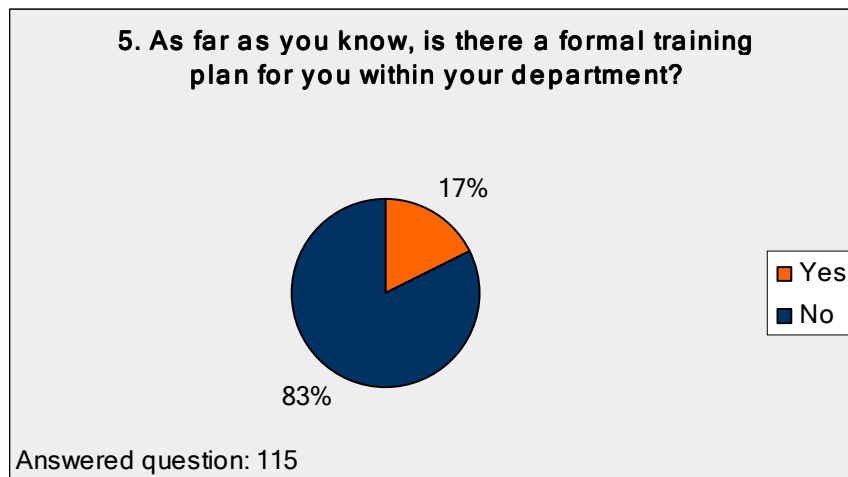


Figure 3-12 Formal training plan

When asked who the employees thought should be responsible for training on the job, 64 of 112 respondents felt that both the employee and the company should be responsible. Thirty felt that the responsibility lay solely with the employee rather than the companies.

Department managers at D-IT indicated a similar view. Three out of four said that it was mainly the employee's responsibility to know when training was needed; the employee should know what was expected of him and therefore take steps to avoid stagnating. The company's responsibility was to react to those needs, to help the employee to identify gaps in their skills, to analyze their training needs and be informative on what kind of training was available at any given time. Only one manager thought that the responsibility lay solely with the company.

A few statements were valued regarding job development and the future outlook for the employees at their companies. Just under half (47%) agreed with the statement that they had a chance of career development at the company. On the other hand, their response when they were asked to indicate whether they expected a long career at the company was more spread between the 'agree' and 'neither agree nor disagree' categories (34% and 39% respectively). The majority agreed that they were optimistic as to their future within the company, while just under half agreed that they could recommend the company as a good place to work. A total of 114 employees responded to these statements.

Employees were asked to indicate the three training areas they thought were most important for their personal development over the next two years. Almost all answered that technical training was the most important training area, followed by leadership training and time management training. Figure 3-13 shows the results.

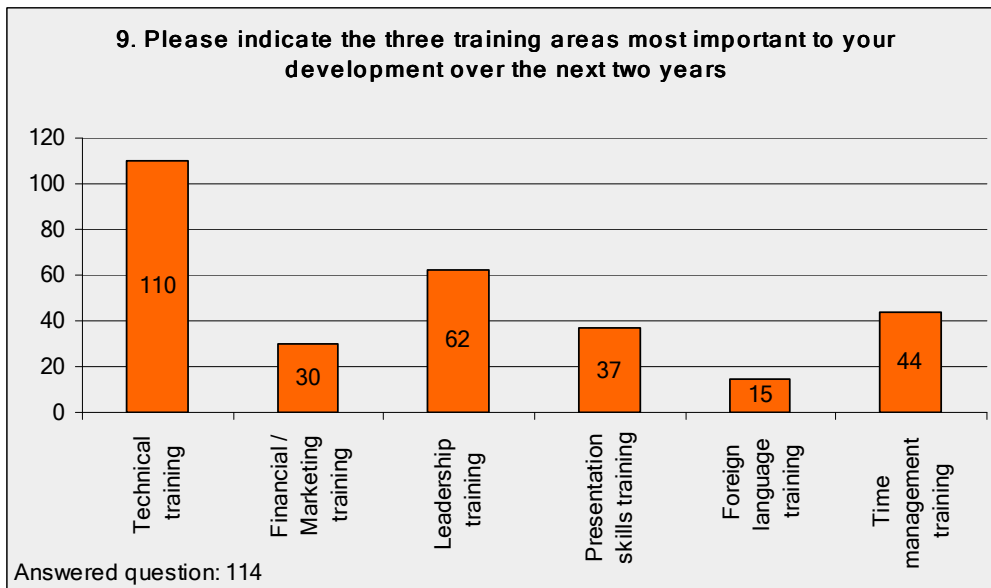


Figure 3-13 Training areas most important over the coming years

When the two companies are compared, it is clear that there was no great difference regarding areas of personal development, although in D-IT presentation skills training takes the lead over time management training, but by a very small margin. More employees at D-IT considered foreign language training a good choice. Figure 3-14 shows the comparison between the companies.

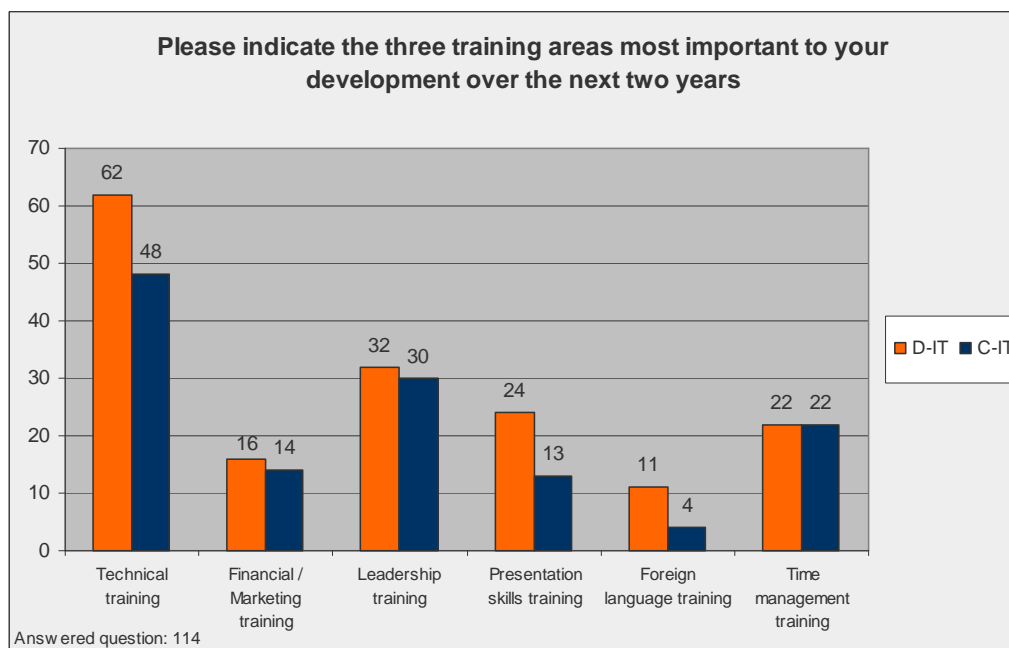


Figure 3-14 Training areas most important over the coming years – Comparison between D-IT and C-IT

The department managers at D-IT all agreed on technical training being the most important training area for their subordinates. Others mentioned time management training,

leadership training and finance - / marketing training as well. One mentioned the need for some kind of project management training as an additional choice, and one thought documentation training would be of good value for his subordinates.

An examination was made of the correlation between the two statements where respondents were asked to indicate their agreement on their opportunities for job development at the company, on the one hand, and whether they were optimistic about their future success at the company on the other. If an employee strongly agreed to the first statement there was a 77% chance he would also be optimistic about his/her future success at the company (Table 3-8).

*Table 3-8 Opportunities for career development * Future success at the company optimism. A crosstabulation.*

		I have real opportunities for career development in the company					
		Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total
I am optimistic about my future success at the company	Strongly agree	77%	18%	5%	0%	0%	100%
	Agree	6%	70%	22%	2%	0%	100%
	Neither agree nor disagree	4%	56%	32%	8%	0%	100%
	Disagree	0%	13%	25%	62%	0%	100%
	Strongly disagree	0%	17%	33%	33%	17%	100%

These results are statistically significant as Table 3-9 shows.

*Table 3-9 Opportunities for career development * Future success at the company optimism. Chi-Square results*

	Value	df	Asymp.Sig. (2-sided)
Pearson Chi-Square	121.683	16	.000
N of Valid cases	114		
N of Missing cases	9		

3.4.1 Summary

Overall, companies are positive towards training but it is not followed through and they have not yet established a formal training plan for their employees, according to the respondents. The majority thought that both the employees and the company shared a joint responsibility for training, which, to judge by the results, should be focused mainly on technical training over the next two years.

Employees who said they had a chance of career development at their company were more optimistic about their future success at the company.

3.5 How beneficial is the training?

This section attempts to answer the fourth research question i.e. how beneficial is the training? It focuses on participants who had undergone some kind of training provided by their company over the previous four years (2007-2011), and addresses issues such as training review, when and if new skills/knowledge came in useful and whether there were any barriers preventing new knowledge from being used properly.

Participants who have undergone training were asked to value the statement that, before training took place, the employee discussed his/her aim in attending the training event with their manager, by indicating their level of agreement. Of the 93 who answered, 32 (38%) neither agreed nor disagreed with the statement. Responses were divided fairly equally between agree or disagree, 24% and 22% respectively. Most of the department managers at D-IT were unanimous about always having a discussion with their subordinates before they sought any kind of training; one said this was sometimes done and sometimes not.

Forty-five per cent of the employees who have undergone training said they were required to provide a review of the training experience. When the two companies are compared the answer pattern turns out to be quite different. As Figure 3-15 shows, 66% of those answering from D-IT say that they were required to provide a review, while only 15% say the same thing at C-IT. The difference is significant.

The department managers addressed this issue in their interview, and the reason behind this huge difference became clearer. D-IT has a special education division that, amongst other things, is responsible for getting employees who have attended some kind of training event to host a presentation for their colleges. Despite this role of the education department, 34% of D-IT's respondents had not provided any review of their training experience.

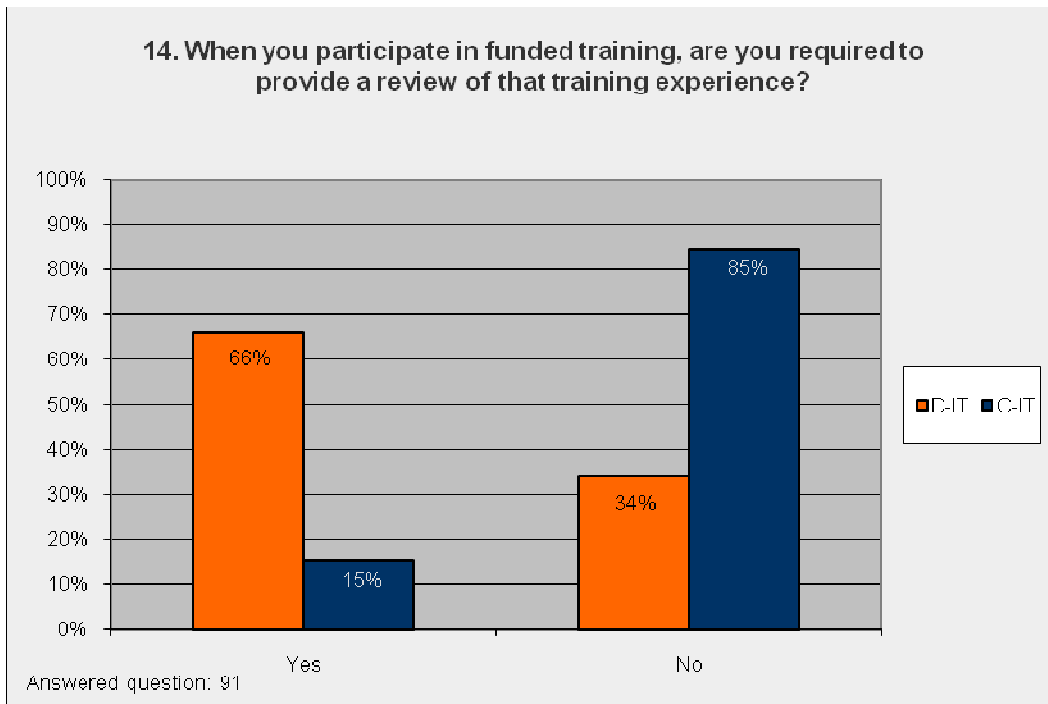


Figure 3-15 Review of training experiences - Comparison between D-IT and C-IT

When asked if their boss held them accountable for demonstrating added competencies after training, 59% said no (Figure 3-16). On the other hand, all department managers, except one, said that they do hold their subordinates accountable – but when asked how they enforce this they answered that it was not enforced in any formal way.

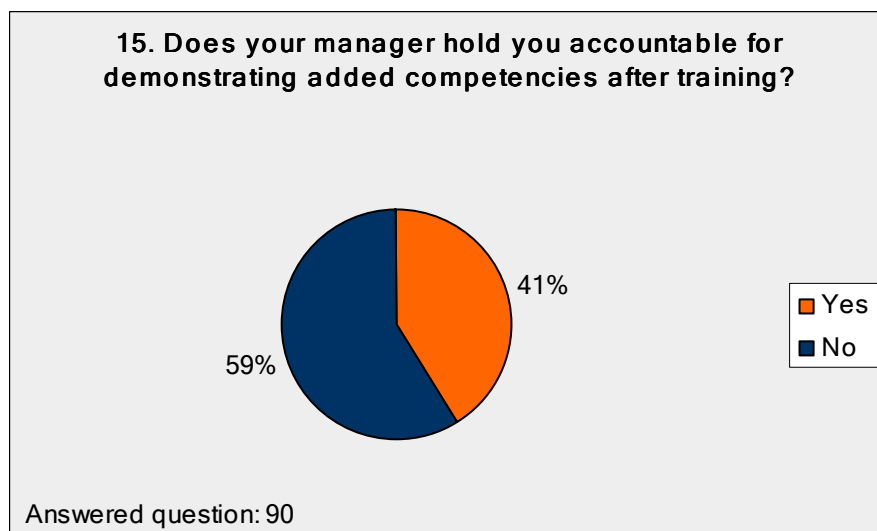


Figure 3-16 Accountability for added competencies after training

Respondents were asked to suggest a timeframe in which they had been able to use their new-found knowledge or skills on the job. Forty-eight per cent said they had done so immediately, 13% said within a month and 12% within a week. Twelve per cent said they had not used their knowledge yet (Figure 3-17).

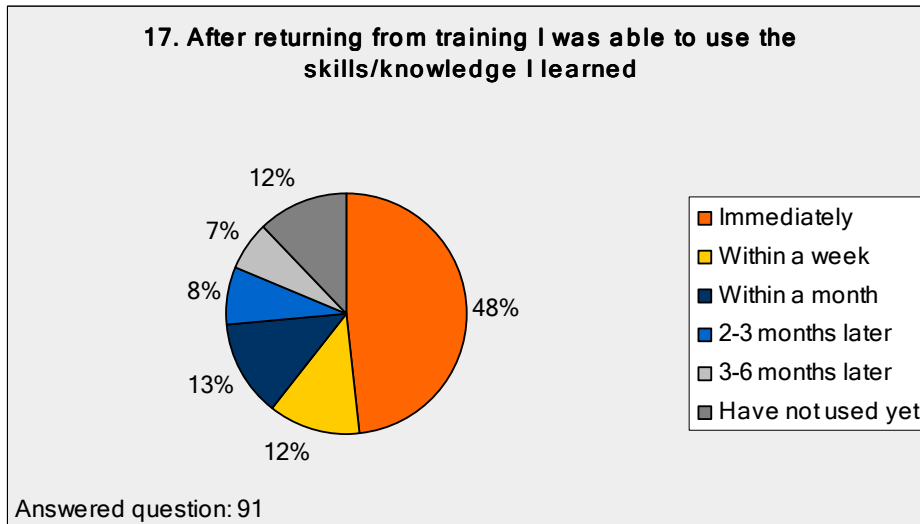


Figure 3-17 Time periods in which employees were able to use new skills/knowledge

Participants who answered that they had at some point used their knowledge were asked if there had been any issues keeping them from using their newly gained knowledge properly, to which 18 out of 83 agreed or strongly agreed.

Those who answered either 'agree' or 'strongly agree' were asked to state the reasons why they had been unable to use their knowledge properly, in which 28%, thought they had not had the opportunity yet. Twenty-four per cent chose to mention other factors than those listed as possible reasons; one saying that using the new knowledge was not expected during working hours and another one said that other projects had higher priority. Twenty-three per cent indicated that their working environment had changed since they had gained their knowledge (Figure 3-18).

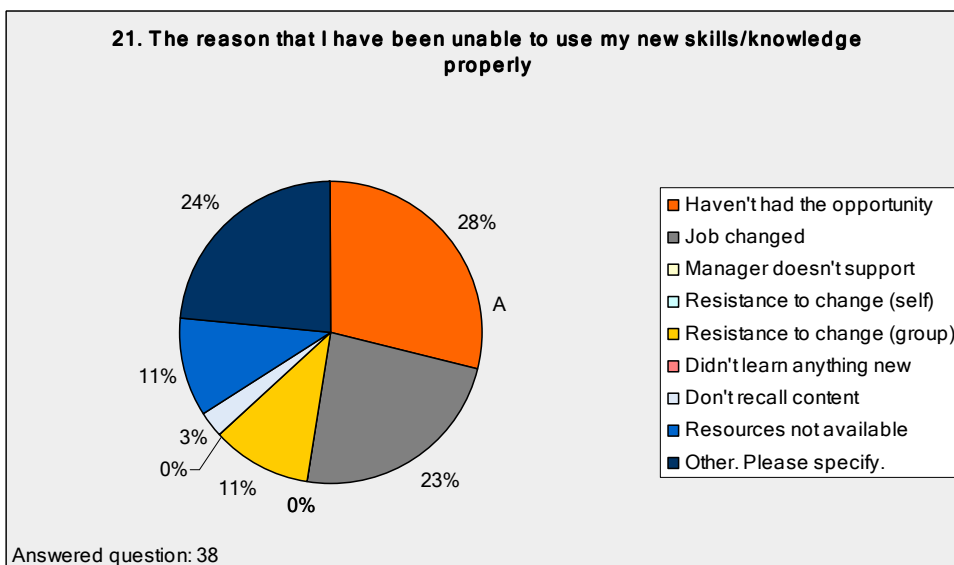


Figure 3-18 Reasons why employees have been unable to use their new skills/knowledge

Those participants who answered that they have not yet used the knowledge they learned in training were asked additional questions. These questions were tailored to obtain an understanding of why the new knowledge had not been used so far. Fifty per cent said they had not had the opportunity yet, 42% said they had been too busy or had had more urgent priorities at work than using their knowledge. No one answered that their boss had discouraged the employees from using the knowledge and no one mentioned alternative reasons (Figure 3-19).

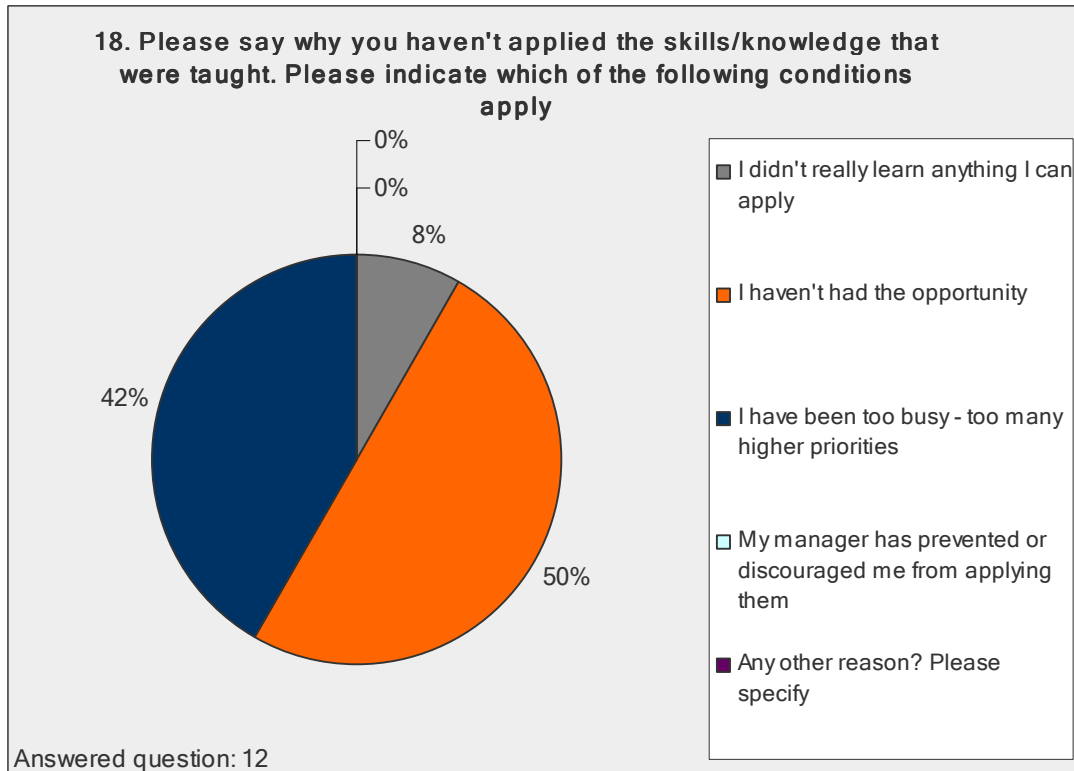


Figure 3-19 Reasons why employees had not applied their new skills/knowledge.

The majority (73%) agreed that they planned to use the knowledge and skills they learned in the future.

An additional data was used in D-IT's survey to value the benefits of training. The data was a sample from all educational events that IT employees at D-IT had attended during the years 2007-2011. The events were classified into five categories and the employees were asked to value them based on how the event met the employee's idea of professional development. Figure 3-20 shows the total number of events.

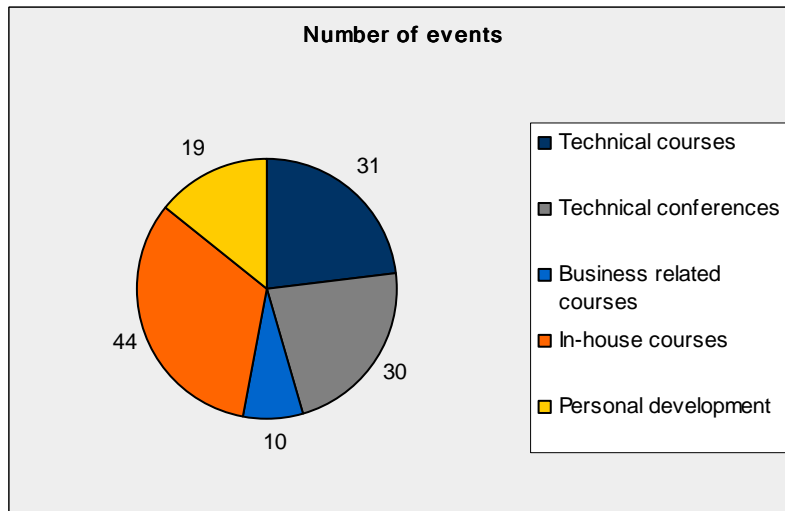


Figure 3-20 Number of training events

Of the 317 ratings given, only a total of 6% of the training events received the rate of being bad. Most courses in personal development received the rate of very good, but most business related courses received excellent rate. Average ratings can be seen in Figure 3-21.

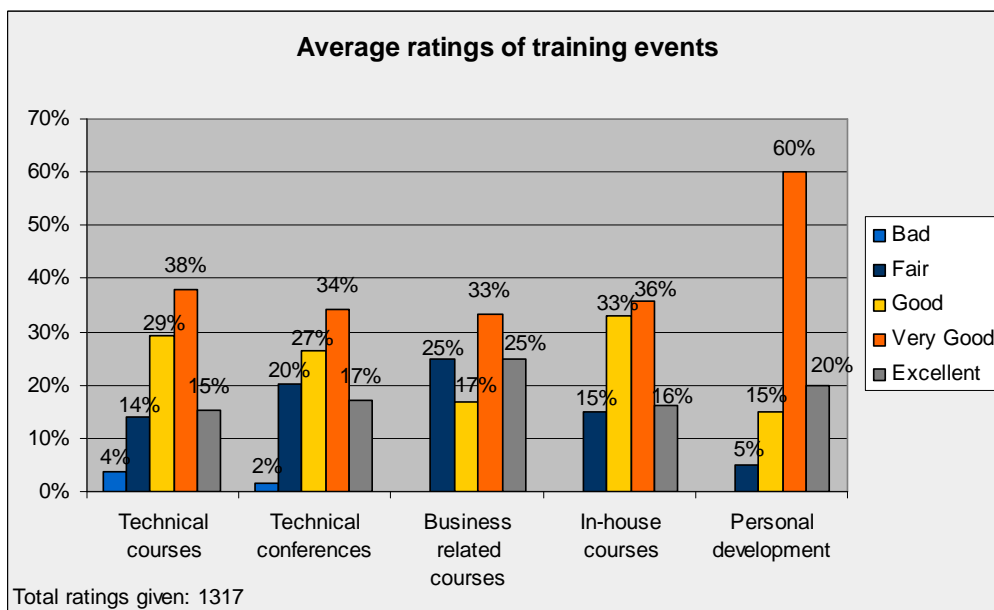


Figure 3-21 Average ratings of training events

Crosstabulation was used to explore where a correlation existed between the responses to the two issues: whether, before training, the participants had discussed their goal in attending the training with their managers and when they had been able to start using their new-found knowledge. As Table 3-10 shows, the correlation is not statistically significant according to the Chi-Square test, as the value p is 0.382.

*Table 3-10 Manager-Employee discussion about training goals * When could the employee start using new skills/knowledge. Chi-Square results*

	Value	df	Asymp.Sig. (2-sided)
Pearson Chi-Square	10.695	10	.382
N of Valid Cases	91		
N of Missing Cases	32		

3.5.1 Summary

Discussing employees' goals in attending a training event seems not to have been practiced in either company. Training reviews were much more common in D-IT than in C-IT, which is most likely explainable in the light of the fact that D-IT had a special educational division. Added competencies employees gained by training were not monitored by managers. Lack of opportunities to use the new knowledge gained by training and more urgent job priorities are the main reasons why some employees had not used their knowledge yet.

3.6 Where do employees seek solutions for either immediate problem solving or long term problem solving?

This section attempts to answer the fifth and final research question i.e. where do employees seek solutions for either immediate problem solving or long term problem solving?

Overall, most employees gain knowledge in the short run by using online search engines or by asking other colleagues. The use of technical websites is just above 50%. The trend seems to be to use the search engines first; these typically lead employees to various technical sites. Figure 3-22 shows the overall results.

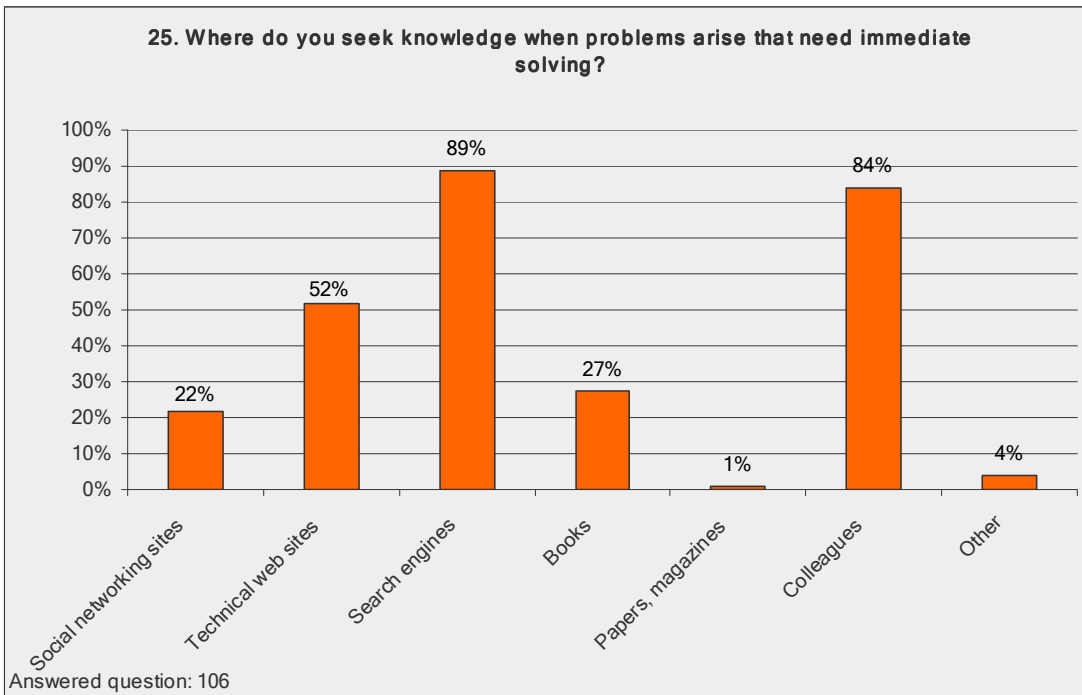


Figure 3-22 Immediate problem solving

By comparing the answers between the two companies, there is very little difference in how respondents seek knowledge in the short run – search engines and colleagues were the main resources of knowledge. The most interesting thing to note in the comparison is the fact that employees in D-IT more often sought knowledge in books than those at C-IT – the difference is 15%. Figure 3-23 shows the comparison between the two companies.

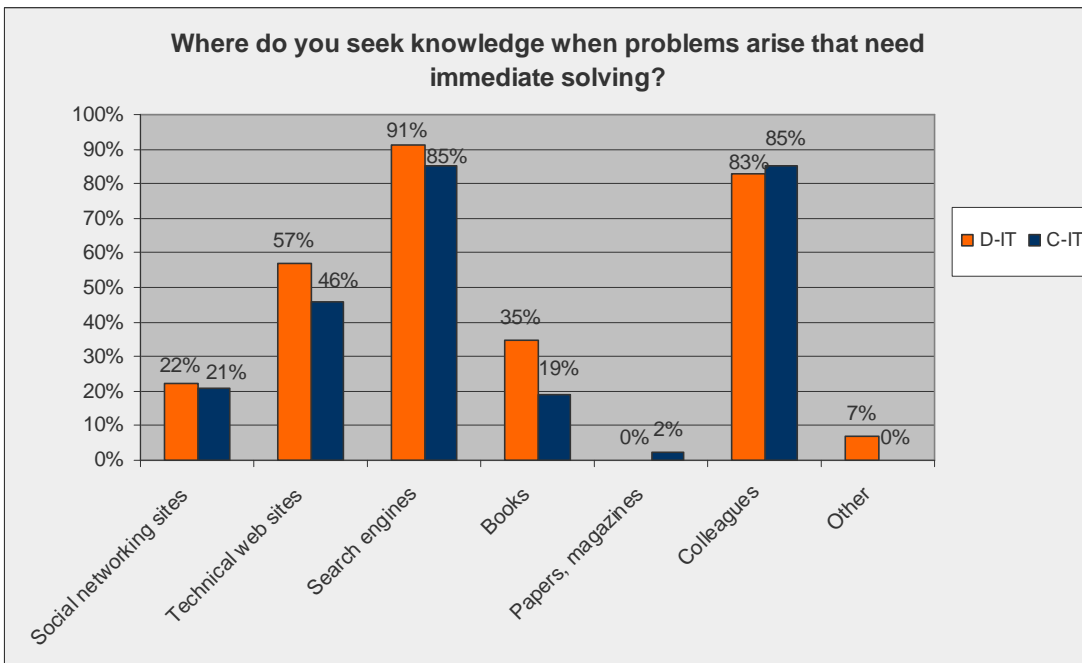


Figure 3-23 Immediate problem solving – Comparison between D-IT and C-IT

Those who chose social networking sites or technical sites were asked to name these sites in free text. Thirty-nine respondents did so and the results are not surprising. Table 3-11 shows the top 5 mentioned social networking and technical websites.

Table 3-11 Top 5 social networking – and technical websites used for immediate problem solving

Web	Number
Microsoft related web pages, such as: <ul style="list-style-type: none"> • msdn.com • technet.com • premier.microsoft.com 	19
google.com	10
stackoverflow.com	8
Oracle related web pages <ul style="list-style-type: none"> • oracle.com • asktom.com • oracle forums • oracle support 	7
muso.com	3

When asked where employees sought knowledge for long-term use at the job, a more even distribution of answers becomes noticeable. Although search engines were still the most popular choice, books, other colleagues and technical sites were not far behind. Social networking sites were used to a similar extent, while the use of papers and magazines rose sharply, from 1% before to 16%. Figure 3-24 shows the result.

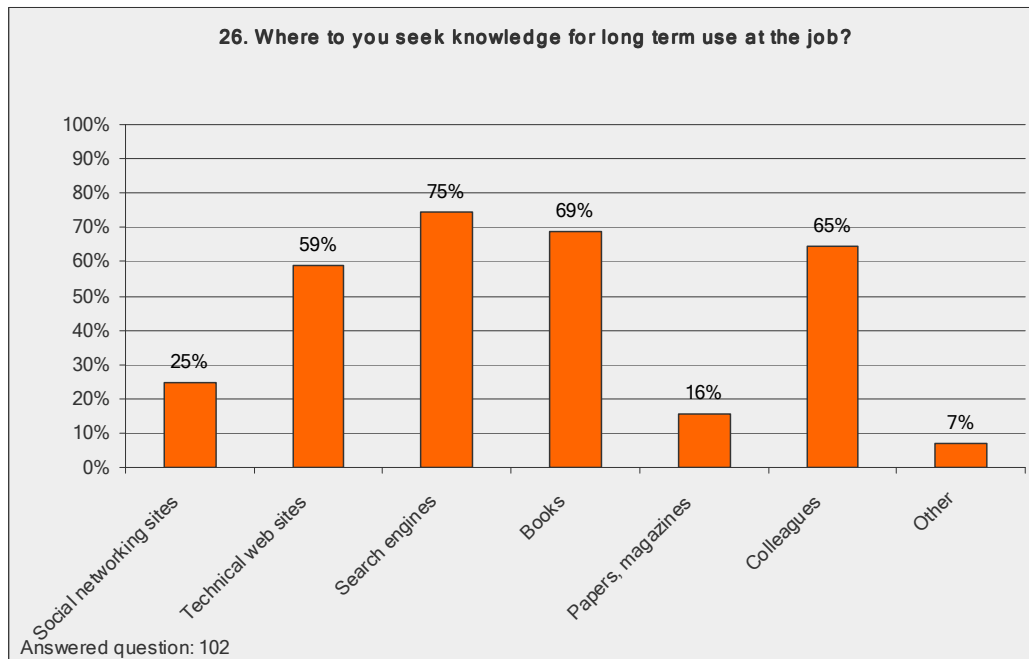


Figure 3-24 Long-term problem solving

No huge changes were noticeable when the two companies were compared as regards the seeking of knowledge in the short run or for the long term. The most obvious change was that search for knowledge using books now becomes more even as Figure 3-25 shows.

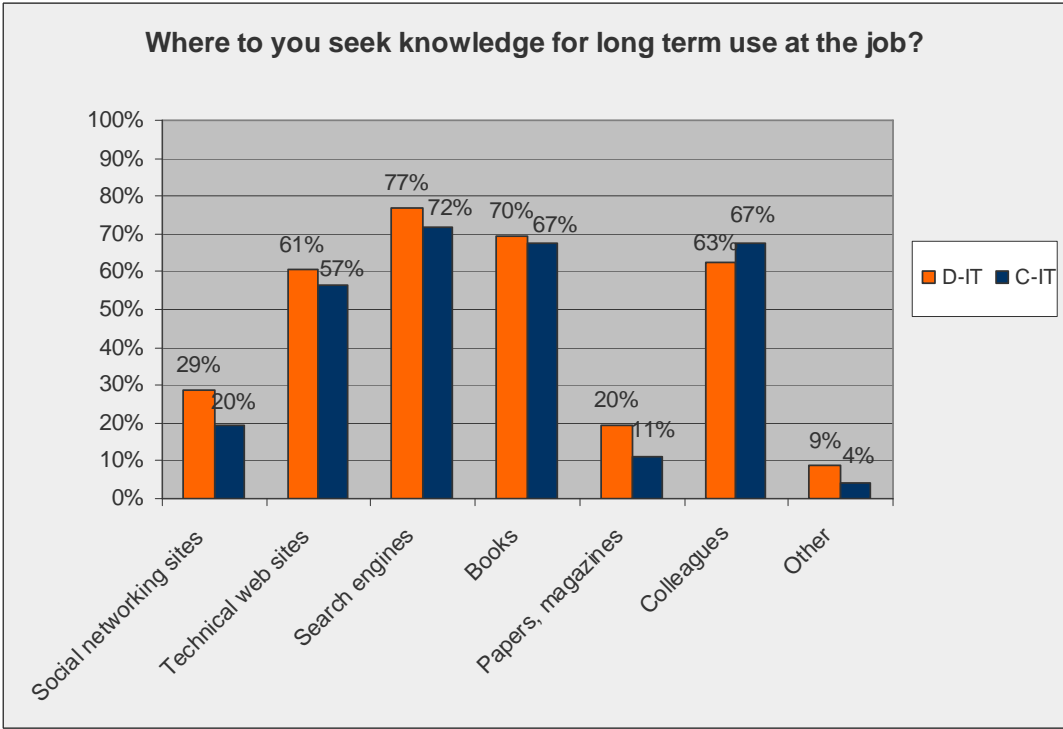


Figure 3-25 Long-term problem solving – Comparison between D-IT and C-IT

There was an obvious difference though in the social networking and technical sites employees mentioned using free text. Microsoft-related sites were still at the top, but after that, mentions were more evenly distributed. It seems that for the long-term, employees used more specific sites e.g. special programming sites like codeproject.com and other similar sites.

Finally, employees were asked to evaluate a few statements regarding problems solved by other employees and their access to the solutions. The statement that solutions to problems made by other employees are accessible to other employees was valued first, and the answers were relatively distributed between categories of agreeing, neither agreeing nor disagreeing and disagreeing – the range lay between 21% and 29%. When valuing if there is a consensus amongst the companies’ employees that the knowledge and solutions employees gain were accessible to other employees, the majority agreed or neither agreed nor disagreed. Seventy-nine per cent either agreed or strongly agreed with the statement that colleagues were enthusiastic about guiding and sharing knowledge and experience with one another.

3.6.1 Summary

Search engines were the most popular tool used to solve on the job problems that needed immediate solution or when building up knowledge for the long term. Books played a larger role in solving problems in the short run at D-IT, and other colleagues were a

valuable source of knowledge at both companies – and it seemed that employees were also enthusiastic about sharing skills and knowledge with each other.

4 Discussion

This chapter discusses the study results, where possible, comparing them to the results of a foreign study that was introduced earlier (in Chapter 2.1.2). The chapter is divided into sections, each of which is focused on one research question, and ends with a discussion of the data credibility.

4.1 The importance of training

The results of the part of the study that addressed the importance of training showed that both those who had completed a university degree and those who had not thought it was important or extremely important for professional IT workers to have completed an IT-related degree. Sixty-one per cent of respondents didn't think that the opportunity of receiving formal training had played an important role in their decision to apply for their current job at their company. The majority of respondents agreed, or strongly agreed with the statement that training is beneficial and cost-effective for their company, although the level of agreement dropped quite a bit when valuing the statement that large training budgets ensure the adequacy of the IT skills among the company's employees. The vast majority of respondents agreed, or strongly agreed, that a formal training plan was important for their future success at their company and important for their overall competitive position.

Table 4-1 and 4-2 show the two groups of participants in Dr. Coverstone's study, mentioned earlier in Chapter 2.1.2, one consisting of managers and professionals, the other of IT employees and contractors. Additionally, interviews were conducted with three unit coordinators (a first level supervisor position). Coverstone used two questionnaires, one intended for the managers/professional set and another one for what he calls the IT Team (IT employees/contractors set).

Table 4-1 Participants in Dr. Coverstone’s study from 2003- employees only questionnaire (Coverstone, 2011)

Respondents	Total staff	Avg. No. Responding	% Represented
Managers	14	9	64%
Professionals	72	22	31%

Table 4-2 Participants in Dr. Coverstone’s study from 2003- skills questionnaire (Coverstone 2011)

Respondents	Total staff	Avg. No. Responding	% Represented
Employees	86	35	41%
Contractors	37	14	38%

If our results are compared to Dr. Coverstone’s (2003) results, an interesting difference emerges between the two studies. In the earlier study made by Dr. Coverstone, only 1/3 of both managers and professionals thought it was very important or vital for an IT professional to have an IT/CS related degree – while in my study, 86% of respondents thought it to be fairly or extremely important. Also, three quarters of the department managers thought it was important. It is difficult to say what causes this difference in opinion. It is possible that the higher educational status of the IT employees at D-IT and C-IT, versus the organization in Dr. Coverstone’s study could be a factor: only 40% of the IT employees had completed an IT/CS related degree – whereas 62% of the employees in our study had completed such a degree. The results from crosstabulation shown earlier in Figure 3-7 demonstrates a correlation between having completed a university degree in IT/CS and the importance of IT professionals having a degree. It is also interesting to see in the same figure that 74% of those who had not completed an IT/CS related degree thought it was either fairly important or extremely important to have completed an IT/CS related degree. Maybe the difference between the two studies lies in different organizational culture – education is valued more in D-IT and C-IT.

As mentioned previously, 61% of respondents thought the opportunity of receiving training was not an important factor in their decision to apply for the job. This is perhaps quite a high percentage, given that most IT workers feel training to be an important, even vital, aspect of their job. According to Potter (2000), training is the number one requested item from IT entry-level and experienced staff when job hunting and it scores over flexible schedule and higher salaries. Why then did only one third of respondents think it was fairly or extremely important? Is this a notion that Icelandic IT employees have not engaged in yet or is it considered such an obvious part of the job as not even to be worth mentioning when interviewing for a job?

Not all respondents agreed with the statement that large training budget would ensure adequacy amongst the workers at the company – 45 of 108 said they strongly disagreed, disagreed or neither agreed nor disagreed. According to Coverstone (2003), large training budgets are no guarantee of the adequacy of the IT skills amongst companies’ workers. *“Despite what would appear to be adequate training dollars expended, the degree of*

change in worker performance as a result of training does not always meet management expectations.”

The existence of a formal training plan was viewed as important for employees' future success at the company and their overall competitive position on the job market. Here, one can wonder why a formal training plan is so important: this is clearly something that was not previously available so it is hard to imagine why so many thought it was important.

4.2 The extent of training

Results related to the research question “What is the extent of training?” show that 84% of respondents had undergone some kind of training during the past four years, with 3-5 training events undergone by each. Seventy-one out of 97 respondents who had undergone training were fairly or extremely satisfied with the quality of the training they received from the company. Among those who had worked for less than a year at their company the likelihood that they had undergone training was 50%, and this likelihood increased with longer periods of employment. Of those who had not received any training during the last 4 years, the vast majority identified their short period of employment as the main reason for this. Most of these respondents were rather non-committal when asked if their colleagues who had received training had either transferred their new knowledge well to others or if it had been beneficial for those who had not had training.

There is no right amount of training that IT employees should receive given any time period. No information exists that can say whether these results represent a high or low amount of training was received. When viewing these results, one wonders if period of employment should be a factor in deciding if or when an employee receives some kind of training – is training then considered a bonus for a job well done instead of being an important tool the company uses to ensure the best and fastest solutions to problems and build up a competitive group of employees? One of the department managers at D-IT addressed this issue in the interview, pointing out that receiving training was sometimes used as a bonus.

Only one employee mentioned lack of money as the main reason for not receiving training – a point also made by one of the department managers in D-IT. Overall, compared to the answers, money did not seem to be that great a barrier when it came to training.

4.3 The objective of training

The main results in this section showed that both companies seemed to be positive towards training, but that it was not followed through and no formal training plan for each employee had been established – although highly sought after, according to results from Section 3.2. Technical training was the number one most popular type of training mentioned when employees were asked about personal development over the coming year, followed by leadership and time management training. The majority of respondents thought that both employees and the company had a joint responsibility for training, and the department managers at D-IT agreed. Forty-seven per cent of respondents agreed with the statement that they had a real opportunity of career development within the company, while

more responses were given to the 'neither agree nor disagree' category when employees were asked if they expected a long career within the company. Most were optimistic of their future within the company but only nearly half of respondents would recommend the company as a good place to work. Employees who thought they had a chance of career development at their company were more optimistic about their future success at the company.

In Dr. Coverstone's case study, when asked how they would describe their company's IT training effort, 74% of managers and professional staff said that training occurred too late to be effective. Most thought training was *ad hoc*, not pre-planned. In my study I did not offer the same possible answers, but in my interviews it was stated that training could be more efficient, but overall the training effort was considered good or very good. Twenty-three per cent of respondents in the survey thought that the company's effort was positive and training was followed through. It would have been interesting to find out more about this, e.g. how it was followed through in their opinion and why this was not so obvious to the rest of the employees? My first guess is that some people consider giving a presentation as constituting a follow up on their training.

In Dr. Coverstone's case-study, employees were asked if there existed a formal IT training plan within the company. Only 10% of respondents indicated any knowledge of such a formal training plan. Seventeen per cent of respondents in my survey indicated that such a plan existed – while 83% indicated no such plan existed. Three quarters of the department managers at D-IT said it did not exist. Here the limitations of a questionnaire become clear. It would have been interesting to find out why these 20 people said that a formal training plan existed – it can't be assumed that they all worked in the one department where the manager said a formal plan existed.

Employees in Dr. Coverstone's study were asked who they believed was more responsible for ensuring employee skills are improved, the employee or the organization. Eighty-six per cent of respondents believed it was more the responsibility of the organization than of the individual to maintain the IT skills of its employees. This conflicts greatly with results of my study, where 57% of respondents said it was a joint responsibility, but only 9% said it was more the company's responsibility or solely the company's responsibility; an interesting difference. A possible reason lies in a difference in the organizational culture.

Unit coordinators in Dr. Coverstone's study were asked to describe the roles and the responsibilities of the individual and those of the organization in ensuring that adequate skills are achieved. The general consensus was that the corporate training budget should cover the cost of training that directly benefits projects or specific organization knowledge needs, but when keeping up with industry changes and new technologies the IT professionals must take on the responsibility for satisfying their own professional knowledge needs. The department managers at D-IT were asked the same question. The majority said the responsibility was joint, laying with both the employee and the company: the employee's responsibility lay in finding within himself in what areas he needed further training, knowing what was expected of him and not stagnating, while it was the company's responsibility to draw this information out from the employee, work with him in finding the knowledge he lacked and analyzing his needs. Only one manager thought the responsibility lay solely within his department. Here the difference between the two studies is significant. In the companies in my study, all kinds of training expenses were covered by

the company, whether for training for a certain project in progress or about to begin, or just keeping the staff on their toes – quenching IT employees’ thirst for knowledge.

4.4 The benefit of training

The results show that 65% of respondents did not discuss their objectives for going to specific training events beforehand with their managers, and a huge difference was found between the two companies when it came to providing a review of the training experience. Fifty-nine per cent of respondents said that their managers did not expect them to demonstrate added competencies after training. Forty-eight per cent of respondents were able to use their new knowledge from training immediately after returning to work but 12% had not used it yet. The main reasons for not having used their new knowledge yet was that employees had not had the opportunity yet or they had been too busy, having too many more urgent priorities. Despite this, most were positive that they would benefit from their knowledge in the future.

When participants in Dr. Coverstone’s case study were asked if they are required to provide a review of their training experience, 81% said that no follow-up reviews were required after training participations. Only 55% of all respondents in my study indicated that this was done; however, 85% respondents at C-IT said that no review takes place after training, which corresponds more closely with Dr. Coverstone’s result. This is a matter of concern for C-IT – a training review is certainly missing. Also, despite the existence of the education department at D-IT, 34% of the employees had still not provided a review of their experience. Granted, some training consisted of hard-core tech courses, aimed to solve a specific problem in a short time, but still – all department managers at D-IT said that a review was provided, if not by the educational department, then in some small group of people or a ‘chalk talk’ (an informal lecture with data and diagrams shown on a blackboard).

When asked if employees were expected to demonstrate added competencies after training, 50% of both managers and professional staff in Dr. Coverstone’s case study indicated that no process for demonstrating competencies was in place. This is very similar to our research results, where 59% said they were not expected to give any demonstration. There was, however, a difference between the responses given by employees and department managers at D-IT: only 49% of the employees say they were expected to demonstrate their competence, but all managers, except one, said they expected their subordinates to do so. The problem seems to be that it is not enforced in any formal way.

According to Babu and Devaraj (2004), measuring training for effectiveness and efficiency remains a daunting task even though the training of technical employees is certainly not a new challenge. If no difference in participants’ performance is discerned within three to six months of the conclusion of their training, the reasons why must be explored and the issue should be taken up by senior ranks of the corporate management.

According to Kirkpatrick (1998), who created the four levels of training evaluation, there are different opinions amongst training and development professionals on what the term ‘evaluation’ means. It could mean:

- Measuring changes in behavior that occur as a result of training programs
- Determining what final results occurred because of training
- Comments sheets that participants complete at the end of a training program
- Measured by increased knowledge, improved skills, and changes in attitude.

Kirkpatrick believes these opinions are all right – and yet wrong, and therefore all four are necessary; none by itself is sufficient.

4.5 Immediate and long-term problem solving

The results show that online search engines are the most popular tool used to solve problems that need immediate solution and also when building up long-term knowledge. Colleagues and technical web sites are the second and third most popular methods used when seeking immediate solutions to problems, but books crawl up the ladder to second place when seeking long-term knowledge. Only 40 respondents out of 106 either agreed or strongly agreed that solutions to problems found by other employees were accessible to others, and slightly more (only 46) said they either agreed or strongly agreed that there was a consensus amongst the companies' employees that the knowledge and solutions that employees gained were accessible to other employees. The vast majority either agreed or strongly agreed that colleagues were enthusiastic about guiding and sharing knowledge with each another.

Because there was no consensus amongst the companies' employees that knowledge and solutions other employees gained were made accessible to others, it was natural that the majority should feel that solutions found by others were not accessible. Distributing knowledge between employees can be a great challenge, but something companies should see great purpose in having under control. According to Lindvall & Rus (2002) organizations should have a knowledge management strategy in place for implementing knowledge management systematically. They define these phases to be:

- Originate/create knowledge: Employees develop learning through learning, problem solving, innovation, creativity, etc.
- Passing knowledge informally: An important aspect of knowledge sharing culture and should be encouraged.
- Transform/organize knowledge: Knowledge should be organized, transformed or included in written materials and knowledge bases.
- Deploy/access knowledge: Knowledge should be distributed through education, training programs, automated knowledge-based systems etc.
- Apply knowledge: This should be the ultimate goal.

Implementing a knowledge management strategy can prevent things such as knowledge spill (e.g. when employees quit or retire) and duplication of work (which can be very time-consuming).

4.6 Data credibility

Overall, we think that the data gathered are fairly credible, especially when it comes to data collected from D-IT, where I received a good response rate. The response rate of C-IT's employees was rather low, possible reasons being that no reminder was sent out at any time and nor was any extra time given to answer, as was done with D-IT. Also, D-IT's employees had far more time to respond. The reason for this was that the survey was sent out over the summer when most employees – including myself – had summer vacations. In addition, interviewing the department managers certainly gives a one-sided view of the topic, but also weighs in as a strengthening factor for the results gathered by questionnaires at D-IT. The number of interviewees might be regarded as reducing the credibility. When structuring the study at the beginning interviewing a total of 12 persons at D-IT was the first thought. When taking a closer look at those 12 persons, it became clear that their input would not be of great value for the study; by no means all had subordinates or had anything to do with decision making when it came to training. After the structure within the IT department was simplified in the spring of 2011, 4 department managers became eligible in terms of having subordinates and being involved in training decisions. What also made their answers credible was that their periods of employment at the company ranged from 5 to 8 years, except for one who had only been employed for about 5 months when interviewed. That particular manager, however, had extensive knowledge from within the IT business, which must be considered as an advantage. Overall the interviewees' inputs were important, although it would have been interesting to interview department managers at C-IT for comparison. In my opinion it would not, however, have led to any major changes in the results.

What strengthens the survey is the fact that it was piloted before being sent out. This revealed various shortcomings and also produced good ideas for amendments, which in my opinion ensured that the questionnaire was as good as possible.

According to Shenton (2004), the credibility of a qualitative study can, e.g. be strengthened by deriving, where possible, the specific procedures employed, such as the line of questioning pursued in the data gathering sessions and the methods of data analysis, from those that have been successfully utilized in previous comparable projects. By using questions from Dr. Coverstone's case study and both having a questionnaire for IT employees and interviewing department managers, credibility was established. Another point made by Shenton is familiarity with the culture of participating organizations. Because I had worked at one of the companies for 7 years, a "prolonged engagement" between me and the participants had been established. This demonstrates trust between me and the participants, and therefore strengthens the study. Another factor mentioned by Shenton which strengthens the credibility of a study is *triangulation*, which involves the use of different methods, which form the major data collection strategies. The use of different methods in concert compensates for their individual limitations and exploits their

respective benefits. Using a questionnaire, conducting interviews, and having participation by informants within two organizations create a triangulation for credibility.

Finally, it is worth considering whether or not these study results could be extrapolated to other IT companies in Iceland. Wherever similar responses within the companies were collected, there is a greater possibility that the same goes for other IT companies. Employees of both companies had similar status in terms of IT/CS education, although more employees in D-IT had not completed any university degree. In both companies, the response rate was similar when it came to the possibility of career development within the company, the length of their career and optimism towards their success at the company. Technical training was the number one most important training area at both companies, and the numbers of employees who had attended training programs or conferences in the past four years were similar. Employees' responses concerning whether their managers had discussed with them their objectives in attending training before they did so, and the quality of training received, were similar. Finally, similar responses were given when it came to statements to the effect that training is beneficial and cost-effective for the company, that large training budget would ensure adequacy in IT, and that a formal training plan was important for the employees' success within the company and also for their overall competitive status

A few questions elicited rather different response patterns from the two companies. D-IT's employees responded "yes" with an overwhelming majority to the question whether employees were required to provide a review of their training experience (66% versus 15%), and there was also a difference in the evaluation of the training effort made by the two companies: it was regarded as being positive in both cases, but a larger set of D-IT's employees seemed to think the follow-up was deficient. More employees at C-IT believe that a formal training plan existed within their company (30% versus 8%) and an overwhelming majority of C-IT's employees said their managers did not hold them accountable for demonstrating added competencies after training. A small nuance was found between the companies' responses regarding the reasons why employees who had not used their new knowledge yet, had not used it: more employees at D-IT said they had not yet had the opportunity to use the knowledge, or to use it properly. Bearing in mind that very few employees answered these last-mentioned questions, this definitely reduces their credibility. An interesting difference was found between the companies when those employees who had not had any training yet were asked the reasons why; more employees at C-IT mentioned short period of employment but more at D-IT said the managers lacked interest.

Despite some differences between the companies in the answers given by their employees to the questions above, I believe they are not so significant as to make it impossible to extrapolate the overall results to other IT companies in Iceland. Of course there are always some differences between companies regarding, e.g., corporate culture and management styles, which will affect the results slightly.

5 Conclusion

The purpose of this study was to examine the state of training at companies operating in the field of information technology. The study foundations were reviewed and as a result five research questions were presented.

- How important is training?
- What is the extent of training?
- How relevant is the training?
- How beneficial is the training?
- Where do employees seek solutions for either immediate problem solving or long-term problem solving?

To gain answers to these questions, a questionnaire and interview were used as a data collection tools. Two Icelandic companies participated in the study: D-IT, with a fairly large IT department, and C-IT, which operates exclusively in the field of IT. The structure of the questions used in both the questionnaire and the interviews was derived mostly from a survey that had been conducted on a similar topic abroad and partly from a book about training evaluation.

5.1 Lessons learned

According to the data, it is fairly clear that even though companies operating partly or solely in the IT field make genuine efforts regarding training, their follow-up is not done adequately. As one department manager said, training is inefficient. As the literature has already stated, one of the most important factors in on-the-job training is that employees should state their goals in undergoing training in a more formal manner, preferably ahead of time. According to the data gathered, this is far from being the case: training is almost never preplanned. After training, managers should have a structured plan of how the effects of training are evaluated: Does work efficiency increase? Do projects get done faster? In other words, are there any benefits of investing company money in employee training? This is not carried out either, according to the data.

Because these issues mentioned above do not appear to be addressed in companies today, it might be said that training in Iceland is still viewed as a luxury, a compensation – it has been shown that training increases job satisfaction and is therefore a powerful tool for managers to hold on to valuable employees, perhaps with the justification in mind that it costs less than to hire a new employee.

According to the National Statistical Office (Hagstofa Íslands) there were 2,692 employees working in the software and consultancy part of the IT field in Iceland in 2008. Even though the set of respondents in my survey is not very large (4.5%), the data speaks for itself. On the basis of the similarity between the answers given in the two companies to many questions, this study gives some grounds for assuming that other IT companies have a similar state of training. The results are therefore a valuable input for consideration by those who handle training issues at Icelandic IT companies, whether they are human resource managers or department managers. Companies should even consider the possibility of establishing a position of a special training manager: according to Hughey *et al.* (1997) a position like that is a desirable asset. A training manager understands the staff's training needs and can easily relate employees' training goals to the company's strategic needs; he knows he is responsible for demonstrating training efficiency and he tracks progress that shows explicitly how the acquisition of new knowledge and competence has a positive impact on productivity and quality. This is an interesting area of operation which companies should seriously consider.

The study also provides a foundation for further research in this area, for those who would like to delve deeper into the subject of training, whether it be in information technology or any other profession. Most of the questions that were used in the questionnaire can be used without modification while others can easily be customized to fit any profession, and results can also be compared with those of this study. The study also demonstrates how little is known about this topic in Iceland, and therefore there are enough opportunities for further studies.

5.2 Future work

To demonstrate even more decisive results, it might have been better to have involved more companies in the study. Also, interviewing the department managers at C-IT would have strengthened the management voice in the study. Because D-IT has established a specific educational department, it will be interesting to explore further its significance, both in employee's answers and also in terms of the differences in the answers given in the two companies. Overall, the questions covered the essentials that was needed to gain from the study and also highlighted what was thought to be the most important to view in this context.

The next steps could be of two kinds. Firstly, research into what IT companies in Iceland are spending on employee training on a yearly basis, with adoption of a suitable method of measuring performance in ISK (Icelandic krónur). This is an interesting topic in itself. The most obvious step to take as a result of this study would be to implement some kind of a formal training plan at the companies participating. A formal training plan would consist of identifying employees' training needs and goals for the next couple of years, this being done in collaboration with management and aligned with the companies' needs. An evaluation plan would follow, structured by a specific, approved method and also an action plan will be implemented to respond to training events that do not produce the desired results within a specific time period. Intended results will be measured in ISK, provided that a cost study has been made previously. It will be interesting to compare data before

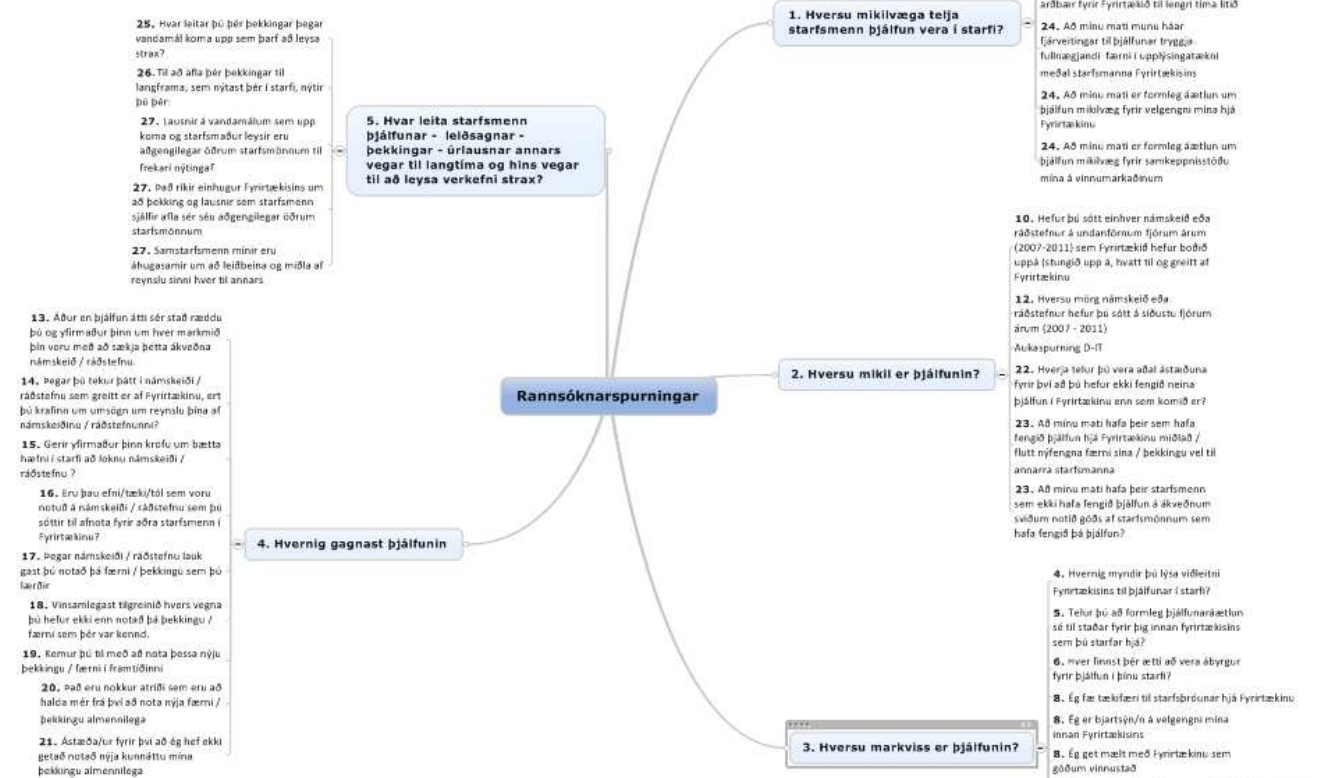
and after the formal training plan is implemented. A study of this latter type will be a large and time-consuming project.

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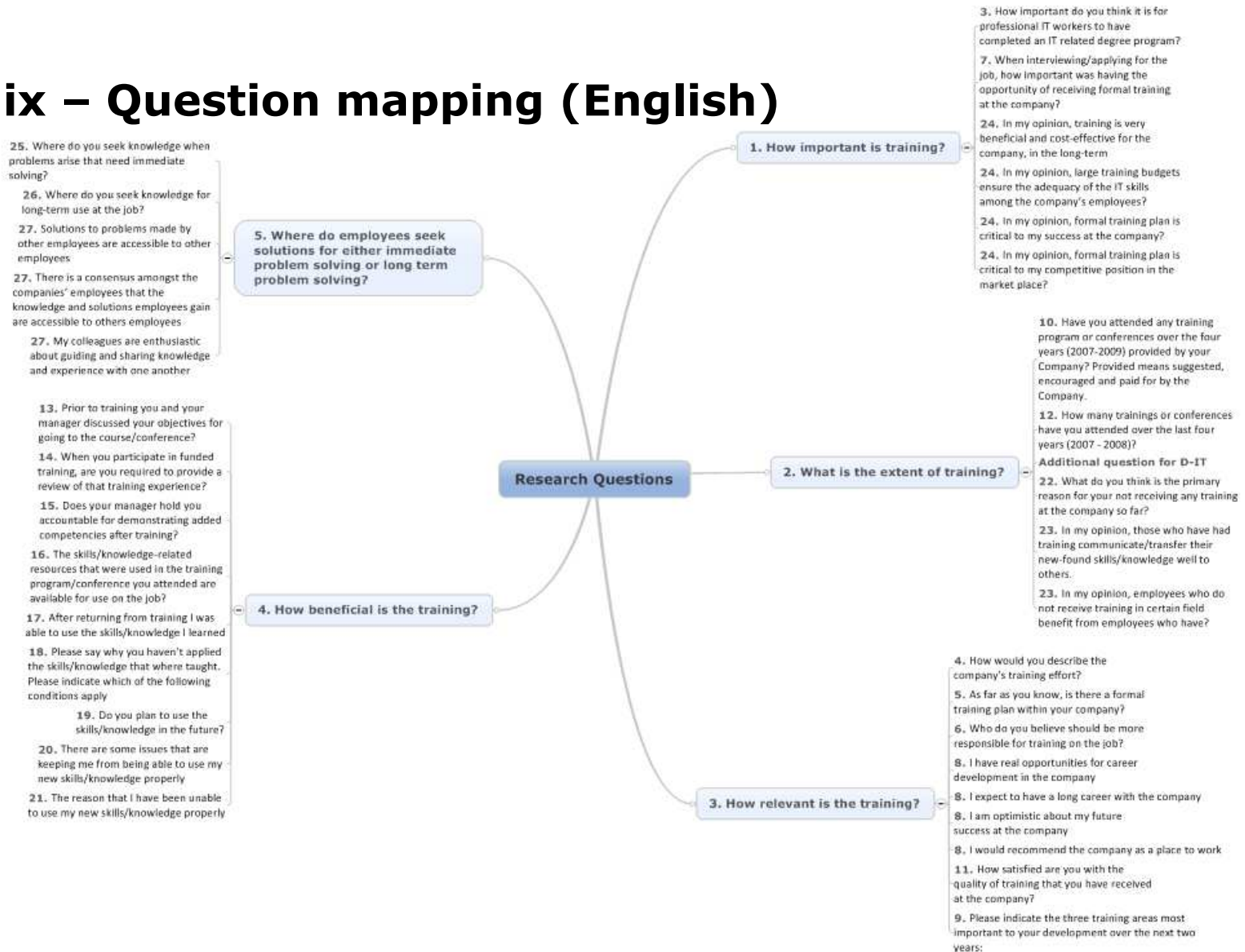
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Appendix – Question mapping (Icelandic)



Appendix – Question mapping (English)



Appendix – Questionnaire (Icelandic)

Inngangur													
<p>Takk fyrir að gefa þér tíma í að taka þessa könnun. Þitt framlag er mjög mikilvægt fyrir verkefnið mitt.</p> <p>Könnunin er nafnlaus og ekki er hægt að tengja einstaklinga við svörin.</p> <p>Ef þú hefur einhverjar spurningar eða athugasemdir varðandi könnunina endilega sendu póst á rhr1@hi.is</p>													
Menntun													
1	<p>Hefur þú lokið háskólagráðu tengdri upplýsingatækni eða tölvunarfræði?</p> <p><input type="radio"/> Já</p> <p><input type="radio"/> Nei</p> <p><i>Ef svarið er nei þá er farið í spurningu 2 annars beint yfir í spurningu 3</i></p>												
2	<p>Hefur þú lokið háskólagráðu í öðru fagi en upplýsingatækni eða tölvunarfræði?</p> <p><input type="radio"/> Já</p> <p><input type="radio"/> Nei</p>												
3	<p>Hversu mikilvægt telur þú að starfsmenn í upplýsingatækni hafi lokið námi tengdu upplýsingatækni?</p> <p><input type="radio"/> Alls ekki mikilvægt</p> <p><input type="radio"/> Ekki mikilvægt</p> <p><input type="radio"/> Enga skoðun</p> <p><input type="radio"/> Frekar mikilvægt</p> <p><input type="radio"/> Mjög mikilvægt</p>												
Þjálfun á vinnustað - Almennar spurningar													
<p>Athugið: Í samhengi þessarar rannsóknar, þegar notað er orðið þjálfun er átt við hvers kyns símenntun í starfi, hvort heldur er nám, námskeið (stutt eða löng), ráðstefnur hérlendis sem erlendis.</p>													
4	<p>Hvernig myndir þú lýsa viðleitni Fyrirtækisins til þjálfunar í starfi?</p> <p><input type="radio"/> Fyrirtækið er neikvætt gagnvart þjálfun</p> <p><input type="radio"/> Fyrirtækið er jákvætt gagnvart þjálfun en hún skilar ekki tilætuðum árangri í starfi</p> <p><input type="radio"/> Fyrirtækið er jákvætt gagnvart þjálfun en henni er ekki fylgt eftir</p> <p><input type="radio"/> Fyrirtækið er jákvætt gagnvart þjálfun og henni er fylgt eftir</p> <p><input type="radio"/> Veit ekki</p>												
5	<p>Telur þú að formleg þjálfunaráætlun* sé til staðar fyrir þig innan fyrirtækisins sem þú starfar hjá?</p> <p><input type="radio"/> Já</p> <p><input type="radio"/> Nei</p> <p>* Sé formleg áætlun til staðar er gert ráð fyrir að starfsmaður hafi gert áætlun fram í tímann við yfirmann sinn, til að tryggja símenntun í starfi. Hér er ekki átt við nýliðaþjálfun.</p>												
6	<p>Hver finnst þér ætti að vera ábyrgur fyrir þjálfun í þínu starfi?</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td></td> <td>Þú</td> <td>Meira þú heldur en Fyrirtækið</td> <td>Bæði ábyrg</td> <td>Fyrirtækið meira heldur en þú</td> <td>Fyrirtækið</td> </tr> <tr> <td>Ábyrgð</td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>		Þú	Meira þú heldur en Fyrirtækið	Bæði ábyrg	Fyrirtækið meira heldur en þú	Fyrirtækið	Ábyrgð	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Þú	Meira þú heldur en Fyrirtækið	Bæði ábyrg	Fyrirtækið meira heldur en þú	Fyrirtækið								
Ábyrgð	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>								

7 Þegar sótt var um núverandi starf, hversu mikið vægi hafði möguleiki á símenntun innan Fyrirtækisins á starfsvalið?

Alls ekki mikilvægt
 Ekki mjög mikilvægt
 Engin skoðun
 Frekar mikilvægt
 Afar mikilvægt

8 Vinsamlegast tilgreinið hversu sammála þú ert eftirfarandi fullyrðingum

	Mjög sammála	Sammála	Hvorki sammála né ósammála	Ósammála	Mjög ósammála
Ég fæ tækifæri til starfsþróunar* hjá Fyrirtækinu.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ég býst við að eiga langan starfsferil hjá Fyrirtækinu.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ég er bjartsýn/n á velgengni mína innan Fyrirtækisins.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ég get mælt með Fyrirtækinu sem góðum vinnustað.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* Með starfsþróun er átt við þróun í eigin starfi (persónuleg og fagleg hæfni) t.d. með aukinni ábyrgð eða verkefnum, einnig getur það þýtt flutningur milli starfssviðs eða eininga eða þróun í hæfni og betri stöður t.d. stjórnendastöðu.

9 Vinsamlegast takið fram þau þrjú þjálfunarsvið sem skiptir þig mestu máli þegar kemur að eigin framþróun á næstu tveimur árum

Hakið við

Tæknileg þjálfun	<input type="checkbox"/>
Fjármála-/Markaðsþjálfun	<input type="checkbox"/>
Leiðtogaþjálfun	<input type="checkbox"/>
Framsöguþjálfun	<input type="checkbox"/>
Tungumálaþjálfun	<input type="checkbox"/>
Tímastjórnunarþjálfun	<input type="checkbox"/>

10 Hefur þú sótt einhver námskeið eða ráðstefnur á undanföllum fjórum árum (2007-2011) sem Fyrirtækið hefur boðið uppá (stungið upp á, hvatt til og greitt af Fyrirtækinu) ?

Já
 Nei

Ef svarið er Já þá er haldið áfram í spurningu 11, annars er farið yfir í spurningu 22

Mat á þjálfun

11 Á heildina litið, hversu ánægð/ánægður ert þú með gæði þeirrar þjálfunar sem þú hefur fengið hjá Fyrirtækinu?

Alls ekki ánægð/ánægður
 Ekki mjög ánægð
 Enga skoðun
 Frekar ánægð/ánægður
 Mjög ánægð/ánægður

12 Hversu mörg námskeið eða ráðstefnur hefur þú sótt á síðustu fjórum árum (2007 – 2011)

1-3 námskeið/ráðstefnur
 3-5 námskeið/ráðstefnur
 5 eða fleiri námskeið/ráðstefnur

13 Áður en þjálfun átti sér stað ræddu þú og yfirmaður þinn um hver markmið þín voru með að sækja þetta ákveðna námskeið / fyrirlestur / ráðstefnu.

Mjög sammála
 Sammála
 Hvorki sammála né ósammála
 Ósammála
 Mjög ósammála

14	<p>Þegar þú tekur þátt í námskeiði / ráðstefnu sem greitt er af Fyrirtækinu, ert þú krafinn um umsögn um reynslu þína af námskeiðinu / ráðstefnunni?</p> <p><input type="radio"/> Já</p> <p><input type="radio"/> Nei</p>
15	<p>Gerir næsti yfirmaður þinn kröfu um bættu hæfni í starfi að loknu námskeiði / ráðstefnu</p> <p><input type="radio"/> Já</p> <p><input type="radio"/> Nei</p>
16	<p>Eru þau efni/tæki/tól* sem voru notuð á námskeiði / ráðstefnu sem þú sóttir til afnota fyrir aðra starfsmenn í Fyrirtækinu?</p> <p><input type="radio"/> Mjög ósammála</p> <p><input type="radio"/> Ósammála</p> <p><input type="radio"/> Hvorki sammála né ósammála</p> <p><input type="radio"/> Sammála</p> <p><input type="radio"/> Mjög sammála</p> <p>* Efni/Tæki/Tól: Hvers kyns námsefni sem stuðst var við í þjálfun; bækur, bæklingar, hefti, glæsur, hugbúnaður, vélbúnaður o.þ.h.</p>
17	<p>Þegar námskeiði / ráðstefnu lauk gast þú notað þá færni / þekkingu sem þú lærðir</p> <p><input type="radio"/> Strax</p> <p><input type="radio"/> Innan viku</p> <p><input type="radio"/> Innan mánaðar</p> <p><input type="radio"/> 2-3 mánuðum síðar</p> <p><input type="radio"/> 3-6 mánuðum síðar</p> <p><input type="radio"/> Hef ekki nýtt mér enn</p> <p><i>Ef hakað er við „Hef ekki nýtt mér enn“ þá er farið áfram í spurningu 18 og 19, allir aðrir kostir leiða svaranda yfir á spurningu 20</i></p>
18	<p>Vinsamlegast tilgreinið hvers vegna þú hefur ekki enn notað þá þekkingu / færni sem þér var kennd. Tilgreinið hver af eftirfarandi skilyrðum gilda</p> <p><input type="radio"/> Ég lærði ekkert sem ég get notað</p> <p><input type="radio"/> Ég hef ekki haft tækifæri til þess ennþá</p> <p><input type="radio"/> Ég hef verið óf upptekin/nn – hærrí forgangsröðun á öðrum verkefnum</p> <p><input type="radio"/> Yfirmaður minn hefur komið í veg fyrir eða dregið úr mér kjark mig við að nýta nýja færni.</p> <p><input type="radio"/> Aðrar ástæður? Vinsamlegast tilgreinið</p> <div style="border: 1px solid black; height: 30px; width: 100%;"></div>
19	<p>Kemur þú til með að nota þessa nýju þekkingu / færni í framtíðinni</p> <p><input type="radio"/> Já</p> <p><input type="radio"/> Nei</p>
20	<p>Það eru nokkur atriði sem eru að halda mér frá því að nota nýja færni / þekkingu almennilega</p> <p><input type="radio"/> Mjög sammála</p> <p><input type="radio"/> Sammála</p> <p><input type="radio"/> Hvorki sammála né ósammála</p> <p><input type="radio"/> Ósammála</p> <p><input type="radio"/> Mjög ósammála</p> <p><i>Ef svarað er Mjög sammála eða Sammála er farið yfir á spurningu 21. Aðrir svarmöguleikar færir svaranda yfir í spurningu 24.</i></p>

21	<p>Ástæða/ur fyrir því að ég hef ekki getað notað nýja þekkingu / færni almennilega</p> <p><input type="radio"/> Hef ekki haft tækifæri</p> <p><input type="radio"/> Vinnuumhverfi mitt hefur breyst</p> <p><input type="radio"/> Yfirmaður minn styður ekki notkun á nýrri þekkingu</p> <p><input type="radio"/> Viðnám gegn breytingu (sjálf/sjálfur)</p> <p><input type="radio"/> Viðnám gegn breytingu (hópur/deild)</p> <p><input type="radio"/> Lærði ekkert nýtt</p> <p><input type="radio"/> Man ekki efni námskeiðsins</p> <p><input type="radio"/> Efni/tæki/tól ekki í boði eftir þjálfun</p> <p><input type="radio"/> Annað. Vinsamlegast tilgreinið</p> <div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p><i>Svarendur sem lentu hér færast sjálfkrafa yfir á spurningu 24.</i></p>																								
22	<p>Hverja telur þú vera aðal ástæðuna fyrir því að þú hefur ekki fengið neina þjálfun hjá Fyrirtækinu enn sem komið er?</p> <p><input type="checkbox"/> Stuttur starfstími</p> <p><input type="checkbox"/> Skortur á fjármunum</p> <p><input type="checkbox"/> Skortur á áhuga hjá mér</p> <p><input type="checkbox"/> Skortur á áhuga hjá yfirmanni</p> <p><input type="checkbox"/> Annað. Vinsamlegast tilgreinið</p> <div style="border: 1px solid black; height: 15px; width: 100%;"></div>																								
23	<p>Vinsamlegast tilgreinið hversu sammála þú ert eftirfarandi fullyrðingum</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td></td> <td>Mjög sammála</td> <td>Sammála</td> <td>Hvorki sammála né ósammála</td> <td>Ósammála</td> <td>Mjög ósammála</td> </tr> </table> <p>Að mínu mati hafa þeir sem hafa fengið þjálfun hjá Fyrirtækinu miðlað / flutt nýfengna færni sína / þekkingu vel til annarra starfsmanna.</p> <p>Að mínu mati hafa þeir starfsmenn sem ekki hafa fengið þjálfun hjá Fyrirtækinu á ákveðnum sviðum notið góðs af starfsmönnum sem hafa fengið þá þjálfun.</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>		Mjög sammála	Sammála	Hvorki sammála né ósammála	Ósammála	Mjög ósammála		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>						
	Mjög sammála	Sammála	Hvorki sammála né ósammála	Ósammála	Mjög ósammála																				
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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																				
Mat á virði þjálfunar																									
24	<p>Vinsamlegast tilgreinið hversu sammála þú ert eftirfarandi fullyrðingum</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td></td> <td>Mjög sammála</td> <td>Sammála</td> <td>Hvorki sammála né ósammála</td> <td>Ósammála</td> <td>Mjög ósammála</td> </tr> </table> <p>Að mínu mati er þjálfun gagnleg og arðbær fyrir Fyrirtækið til lengri tíma lítið.</p> <p>Að mínu mati munu háar fjárveitingar til þjálfunar tryggja fullnægjandi færni í upplýsingatækni meðal starfsmanna Fyrirtækisins.</p> <p>Að mínu mati er formleg áætlun um þjálfun mikilvæg fyrir velgengi mína hjá Fyrirtækinu.</p> <p>Að mínu mati er formleg áætlun um þjálfun mikilvæg fyrir samkeppnisstöðu mína á vinnumarkaðinum.</p> <table border="0" style="width: 100%; text-align: center;"> <tr> <td></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> <tr> <td></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> <td><input type="radio"/></td> </tr> </table>		Mjög sammála	Sammála	Hvorki sammála né ósammála	Ósammála	Mjög ósammála		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Mjög sammála	Sammála	Hvorki sammála né ósammála	Ósammála	Mjög ósammála																				
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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																				
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>																				
Lausn á vandamálum																									

25 **Hvar leitar þú þér þekkingar þegar vandamál koma upp sem þarf að leysa strax?**

Samskiptavefum
 Tæknivefum
 Leitarvélum
 Bókum
 Blöðum, tímaritum
 Öðrum samstarfsmönnum
 Annað

Ef þú hakaðir við Samskiptavefi og/eða Tæknivefi vinsamlegast nefnið þá vefi sem notast er við

26 **Til að afla þér þekkingar til langframa, sem nýtast þér í starfi, nýtir þú þér:**

Samskiptavefi
 Tæknivefi
 Leitarvélur
 Bækur
 Blöð, tímarit
 Aðra samstarfsmenn
 Annað

Ef þú hakaðir við Samskiptavefi og/eða Tæknivefi vinsamlegast nefnið þá vefi sem notast er við

27 **Vinsamlegast tilgreinið hversu sammála þú ert eftirfarandi fullyrðingum**

	Mjög sammála	Sammála	Hvorki sammála né ósammála	Ósammála	Mjög ósammála
Lausnir á vandamálum sem upp koma og starfsmaður leysir eru aðgengilegar öðrum starfsmönnum til frekari nýtingar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Það ríkir einhugur innan Fyrirtækisins um að þekking og lausnir sem starfsmenn sjálfir afla sér séu aðgengilegar öðrum starfsmönnum.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Samstarfsmenn mínir eru áhugasamir um að leiðbeina og miðla af reynslu sinni hver til annars.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Almennar spurningar

Að lokum er spurt um persónulegar upplýsingar sem koma að gagni við tölfraðilega úrvinnslu þessarar könnunar.

28 **Kyn**

Karlkyn
 Kvenkyn
 Vil ekki svara

29 **Aldur**

Yngri en 21 árs
 21 - 35 ára
 36 - 50 ára
 Eldri en 50 ára
 Vil ekki svara

30

Hversu lengi hefur þú unnið hjá Fyrirtækinu?

- Skemur en 6 mánuði
- Skemur en 12 mánuði
- Skemur en 3 ár
- Lengur en 3 ár
- Lengur en 6 ár

Könnun lokið

Þá er könnuninni lokið. Þakka þér kærlega fyrir að svara.

Appendix – Questionnaire (English)

1	<p>Do you have an IT/CS related university degree?</p> <p>a) Yes b) No</p> <p><i>If answer 'No' then move on to question 2; otherwise go straight to question 3.</i></p>
2	<p>Do you have a university degree that is not IT/CS related?</p> <p>a) Yes b) No</p>
3	<p>How important do you think it is for professional IT workers to have completed an IT related degree program?</p> <p>a) Not at all important b) Not very important c) No opinion d) Fairly important e) Extremely important</p>
4	<p>How would you describe the company's training effort?</p> <p>a) The company is negative towards training b) The company is positive towards training but it does not return desired results c) The company is positive towards training but it is not followed through d) The company is positive towards training and it is followed through e) Don't know</p>
5	<p>As far as you know, is there a formal training plan within your company?</p> <p>a) Yes b) No</p>
6	<p>Who do you believe should be more responsible for training on the job?</p> <p>a) You b) You more than the company c) Both responsible d) The company more than you e) The company</p>
7	<p>When interviewing/applying for the job, how important was having the opportunity of receiving formal training at the company?</p> <p>a) Not at all important b) Not very important c) No opinion d) Fairly important e) Extremely important</p>
8	<p>Please indicate your level of agreement with the following statements:</p> <p>- I have real opportunities for career development in the company (Strongly agree – Agree – Neither agree or disagree – Disagree – Strongly disagree)</p> <p>- I expect to have a long career with the company (Strongly agree – Agree – Neither agree or disagree – Disagree – Strongly disagree)</p> <p>- I am optimistic about my future success at the company (Strongly agree – Agree – Neither agree or disagree – Disagree – Strongly disagree)</p> <p>- I would recommend the company as a place to work (Strongly agree – Agree – Neither agree or disagree – Disagree – Strongly disagree)</p>

9	<p>Please indicate the three training areas most important to your development over the next two years:</p> <ul style="list-style-type: none"> a) Technical training b) Financial / Marketing training c) Leadership training d) Presentation skills training e) Foreign language training f) Time management training
10	<p>Have you attended any training program or conferences over the four years (2007-2011) provided by your company? Provided means suggested, encouraged and paid for by the company.</p> <ul style="list-style-type: none"> - Yes - No <p><i>If answer "Yes" then move to question 11, otherwise go straight to question 22.</i></p>
11	<p>How satisfied are you with the quality of training that you have received at the company?</p> <ul style="list-style-type: none"> a) Not at all satisfied b) Not very satisfied c) No opinion d) Fairly satisfied e) Extremely satisfied
12	<p>How many training events or conferences have you attended over the last four years (2007 – 2011)?</p> <ul style="list-style-type: none"> - 1-3 - 3-5 - 5 or more
13	<p>Prior to training you and your manager discussed your objectives for going to the course/conference? (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)</p>
14	<p>When you participate in funded training, are you required to provide a review of that training experience?</p> <ul style="list-style-type: none"> - Yes - No
15	<p>Does your manager hold you accountable for demonstrating added competencies after training?</p> <ul style="list-style-type: none"> - Yes - No
16	<p>The skills/knowledge-related resources that were used in the training program/conference you attended are available for use on the job (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)</p>
17	<p>After returning from training I was able to use the skills/knowledge I learned</p> <ul style="list-style-type: none"> a) Immediately b) Within a week c) Within a month d) 2-3 months later e) 3-6 months later f) Have not used yet <p><i>If answer "Have not used yet" then move to question 18 and 19. Other response: move to question 20.</i></p>
18	<p>Please say why you haven't applied the skills/knowledge that were taught. Please indicate which of the following conditions apply:</p> <ul style="list-style-type: none"> a) I didn't really learn anything I can apply. b) I haven't had the opportunity c) I have been too busy – too many higher priorities. d) My manager has prevented or discouraged me from applying them. e) Any other reason? Please specify.
19	<p>Do you plan to use the skills/knowledge in the future?</p> <ul style="list-style-type: none"> - Yes - No
20	<p>There are some issues that are keeping me from being able to use my new skills/knowledge properly (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree) <i>If answer strongly agree / agree then move to question 21. Other response: move to question 24.</i></p>
21	<p>The reason that I have been unable to use my new skills/knowledge properly is:</p> <ul style="list-style-type: none"> a) Haven't had the opportunity b) Job changed

	<ul style="list-style-type: none"> c) Manager doesn't support d) Resistance to change (self) e) Resistance to change (group) f) Didn't learn anything new g) Don't recall content h) Resources not available i) Other, please specify. <p><i>Move straight to 24.</i></p>
22	<p>What do you think is the primary reason for your not receiving any training at the company so far?</p> <ul style="list-style-type: none"> a) Short period of employment b) Lack of funds c) Lack of personal interest d) Lack of manager interest e) Other, please specify.
23	<p>Please indicate your level of agreement with the following statements</p> <p>- In my opinion, those who have had training communicate/transfer their new-found skills/knowledge well to others. (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)</p> <p>- In my opinion, employees who do not receive training in certain field benefit from employees who have (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)</p>
24	<p>Please indicate your level of agreement with the following statements:</p> <p>- In my opinion, training is very beneficial and cost-efficient for the company, in the long-term (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)</p> <p>- In my opinion, large training budgets ensure the adequacy of the IT skills among the company's employees (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)</p> <p>- In my opinion, formal training plan is critical to my success at the company (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)</p> <p>- In my opinion, formal training plan is critical to my competitive position in the market place (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)</p>
25	<p>Where do you seek knowledge when problems arise that need immediate solving?</p> <ul style="list-style-type: none"> a) Social Networking sites b) Technical websites c) Search engines d) Books e) Papers, magazines f) Colleagues g) Other, please specify.
26	<p>Where do you seek knowledge for long-term use at the job?</p> <ul style="list-style-type: none"> a) Social Networking sites b) Technical websites c) Search engines d) Books e) Papers, magazines f) Colleagues g) Other, please specify.
27	<p>Please indicate your level of agreement with the following statements:</p> <p>- Solutions to problems made by other employees are accessible to other employees (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)</p> <p>- There is a consensus amongst the company's' employees that the knowledge and solutions employees gain are accessible to others employees</p>

	(Strongly disagree – disagree – neither agree or disagree – agree – strongly agree) - My colleagues are enthusiastic about guiding and sharing knowledge and experience with one another. (Strongly disagree – disagree – neither agree or disagree – agree – strongly agree)
28	Gender a) Male b) Female c) Not willing to answer
29	Age: a) Younger than 21 b) 21-35 c) 36-50 d) 51-60 e) Over 60 f) Not willing to answer
30	How long have you worked for the Company? a) Less than 6 months b) Less than 12 months c) Less than 3 years d) More than 3 years e) More than 6 years

Appendix – Pilot group e-mail

Kæri prufu notandi

Þú hefur tekið að þér það viðamikla verkefni að prófa netkönnun sem ég mun nota við rannsókn mína fyrir Masters-verkefni mitt við Háskóla Íslands.

Rannsóknin gengur út á það að meta þjálfun starfsmanna á Upplýsingatæknisviði D-IT og eru rannsóknarspurningarnar sem ég leitast við að svara t.d. hversu mikilvæga starfsmenn líta þjálfun í starfi, hversu markviss er hún og hvernig hún gagnast.

Í rannsókninni styðst ég við lista, sem Fræðsludeild D-IT heldur utan um, s.s námskeið og ráðstefnur sem starfsmenn sviðsins hafa farið á á árunum 2007 – 2011.

Allar ábendingar, hugleiðingar og spurningar eru vel þegnar.

Vinsamlega hafið eftirfarandi atriði í huga meðan könnuninni er svarað:

1. Skilur þú hver tilgangur könnunarinnar er?
2. Eru einhverjar spurningar óþægilegar í svörum?
3. Er orðaval skýrt?
4. Eru svarmöguleikar raunhæfir?
5. Eru einhverjar spurningar sem valda því að þú þarft að eyða of löngum tíma í að hugsa svar við? Hvaða?
6. Eru einhverjar spurningar sem eru pirrandi, óþægilegar eða ruglandi? Hvaða?
7. Eru einhverjar spurningar hlutdrægar?
8. Finnst þér þú geta svarað öllu þannig að þér finnst svörin þín endurspegla tilgang könnunnar?
9. Er könnunin of löng?

Könnunin er hér *hlekkur*.

Kveðja,
Ragnhildur H.

Appendix – D-IT e-mail

Kæri samstarfsfélagi,

Ég er að vinna að Masters-verkefni mínu í tölvunarfræði við Háskóla Íslands, en verkefnið er rannsóknarverkefni sem gengur út að það að meta þjálfun starfsmanna á Upplýsingatæknisviði D-IT. Hluti af verkefninu er að leggja könnun fyrir starfsmenn sem notuð verður til grundvallar rannsókninni, en þær spurningar sem ég leitast við að svara eru t.d. hversu mikilvæga starfsmenn líta þjálfun í starfi, hversu markviss hún er og hvernig hún gagnast.

Í rannsókninni styðst ég m.a. við lista, sem Fræðsludeild D-IT's heldur utan um, s.s. námskeið og ráðstefnur sem starfsmenn sviðsins hafa farið á árunum 2007 – 2011 og er þessi listi hluti af könnuninni.

Hlekkur á könnunina er hér *hlekkur*.

Mér þætti vænt um ef þú sæir þér fært um að eyða nokkrum mínútum í að svara þessari könnun. Frestur til að ljúka könnuninni er til 12.ágúst nk.

Vinsamlegast **ekki** áframsenda þennan póst nema í samráði við mig.

Kveðja,

Ragnhildur H.

Appendix – C-IT e-mail

Sæl veriði,

Nemandi í meistaranámi í tölvunarfræði hafði samband við okkur, en hún er að gera rannsókn á þjálfun starfsmanna í upplýsingatækni. Hér að neðan er kynningarpóstur frá henni. Þeir sem vilja leggja þessu lið endilega gera það. Frestur til að taka þátt er út þessa viku. Smellið á hlekkinn til að taka þátt: *hlekkur*

Kæri starfsmaður

Ragnhildur Helga heiti ég og er að vinna að Masters-verkefni mínu í tölvunarfræði við Háskóla Íslands, en verkefnið er rannsóknarverkefni sem gengur út að það að meta þjálfun starfsmanna í upplýsingatækni. Þær spurningar sem ég leitast við að svara í verkefninu eru t.d. hversu mikilvæga starfsmenn líta þjálfun í starfi, hversu markviss hún er og hvernig hún gagnast.

Stór hluti verkefnisins er að leggja könnun fyrir starfsmenn fyrirtækja í upplýsingatækni, og því þætti mér vænt um ef þú sæir þér fært um að eyða nokkrum mínútum í að svara þessari könnun.

Hlekkur á könnunina er hér

Með fyrirfram þökk.

Ragnhildur H.

Appendix - Interview questionnaire (Icelandic)

Spurningalisti ætlaður deildarstjórum í D-IT.

Fyrirvari: Í rannsókninni kemur hvorki fram nafn viðmælanda né nafn fyrirtækisins. Ekki hægt að tengja svör beint við viðmælanda.

Bakgrunnupplýsingar: Hversu lengi í starfi, mannaforráð, hefur tekið formleg starfmannasamtöl?

1. Hversu mikilvægt telur þú að starfsmenn í upplýsingatækni hafi lokið námi tengdu upplýsingatækni?
2. Hvert er þitt persónulegt mat á stöðu þjálfunar hjá fyrirtækinu?
Þjálfun = í samhengi þessarar rannsóknar er þjálfun hvers konar símenntun í starfi, hvort heldur nám, námskeið (stutt/löng), fyrirlestrar, ráðstefnur ráðstefnur hérlendis/erlendis.
3. Hvernig myndir þú lýsa viðleitni fyrirtækisins til þjálfunar í starfi?
4. Er formleg þjálfunaráætlun til staðar innan þinnar deildar?
Formleg þjálfunaráætlun = þá er gert ráð fyrir að starfsmaður hafi gert áætlun fram í tímann í samráði við sinn næsta yfirmann, sem á að tryggja símenntun í starfi.
5. Lýsið hlutverki og ábyrgð einstaklingsins annars vegar og fyrirtækisins hins vegar til að tryggja að fullnægjandi færni sé náð.
6. Lýsið þeim hindrunum sem þú telur að séu fyrir hendi sem standa í vegi fyrir skilvirkari og afkastameiri þjálfun hjá bankanum?
7. Vinsamlegast takið fram þau þrjú þjálfunarsvið sem skiptir mestu máli þegar kemur að framþróun undirmanna þinna á næstu tveimur árum.

Tæknileg þjálfun				
Fjármála / Markaðs þjálfun				
Leiðtoga þjálfun				

Framsögu þjálfun				
Tungumála þjálfun				
Tímastjórnunar þjálfun				
Annað				

8. Áður en þjálfun á sér stað ræðir þú og undirmaður þinn um hver markmið hans eru með að sækja ákveðin námskeið / ráðstefnur?
9. Þegar undirmaður þinn tekur þátt í námskeiði / ráðstefnu sem greitt er af fyrirtækinur, eru þeir krafðir um umsögn um reynslu sína af námskeiðinu / ráðstefnunni?
10. Gerir þú kröfu um bættu hæfni í starfi þegar undirmenn þínir ljúka námskeiði / ráðstefnu? Ef já, hvernig er því framfylgt?

Appendix – Interview questionnaire (English)

1. How important do you think it is for professional IT workers to have completed an IT related degree program?
2. What is your personal perspective on the state of the training at the company?
3. How would you describe the company’s training effort?
4. As far as you know, is there a formal training plan?
5. Describe the roles and responsibilities of the individual and that of the company in ensuring adequate skills are achieved.
6. Describe any barriers you perceive exist that would stand in the way of a more efficient and productive use of training.
7. Please indicate the three training areas most important to your subordinates’ development over the next two years

Technical training				
Financial / Marketing training				
Leadership training				
Presentation skills training				
Foreign language training				
Time management training				
Other				

8. Prior to your subordinates’ attendance at a training event/conference, do you discuss with them their objectives in attending the course/conference?

9. When your subordinates participate in a funded training event, are they required to provide a review of that training experience?

10. Are your subordinates held accountable for demonstrating added competencies after training? If yes, how is this enforced?

Appendix – Interview summary results

	Deildarstjóri 1	Deildarstjóri 2	Deildarstjóri 3	Deildarstjóri 4
Hversu lengi í starfi?	X ár	X ár	X mánuði	X ár
Mannaforráð	X manns	X manns	X manns	X manns
Starfsmannasamtöl?	Já	Já	Nei	Já
1. Hversu mikilvægt telur þú að starfsmenn í uppl.tækni hafi lokið námi tengdu uppl.tækni?	Mjög mikilvægt	Skiptir þó nokkru máli	Mikilvægt en ekki algjörlega nauðsynlegt	Ekkert rosalega mikilvægt
2. Hvert er þitt persónulegt mat á stöðu þjálfunar hjá fyrirtækinu?	Óskipulögð	Mætti vera mikið betri	Ekki í nógu föstum skorðum	Starfsmenn þurfa að finna þjálfun sjálfir
3. Hvernig myndir þú lýsa viðleitni fyrirtækisins til þjálfunar í starfi?	Viðleitni góð – stendur og fellur með þeim sem hafa mannaforráð	Mætti vera markvissari	Mjög góðri	Skrítin. Peningar stoppa.
4. Er formleg þjálfunaráætlun til staðar innan þinnar deildar?	Nei.	Nei	Nei	Já
5. Lýsið hlutverki og ábyrgð einstaklingsins annars vegar og fyrirtækisins hins vegar til að tryggja að fullnægjandi færni er náð.	Skipt á milli starfsmanns og fyrirtækis. Starfsmaður = finna hjá sér hvar hann þurfi frekari þjálfun Yfirmannsins = að reyna að	Ábyrgð liggur beggja megin Einstaklingur = Þarf að þekkja til hvers af honum er ætlast Fyrirtækisins = að vinna í því	Fyrirtækisins = greina þörfina og upplýsingagjöf Starfsmaður = ber ábyrgð á því að staðna ekki í starfi	Deildarinnar (fyrirtækisins)

	draga það frá starfsmanninum	að hjálpa honum að finna þá þekkingu sem vantar		
6. Lýsið þeim hindrunum sem þú telur að séu fyrir hendi sem standa í vegi fyrir skilvirkari og afkastameiri þjálfun hjá fyrirtækinu?	Engar sérstakar hindranir	Of lítil sérhæfing	Sér engar hindranir	Skilningur yfirmanna Peningar Resource-ar
7. Vinsamlegast takið fram þrjú þjálfunarsvið sem skiptir mestu máli þegar kemur að framþróun undirmanna þinna á næstu tveimur árum.	Tækniþjálfun. Tímastjórnunarþjálfun góð hugmynd	Tækniþjálfun. Annað: Verkstjórnun	Tækniþjálfun Fjármála/Markaðsþjálfun Tímastjórnunarþjálfun	Tækniþjálfun Leiðtoga þjálfun Framsögu þjálfun Annað: Documentation
8. Áður en þjálfun á sér stað ræðir þú og undirmaður þinn um hver markmið hans eru með að sækja ákveðin námskeið / ráðstefnur?	Já	Stundum og stundum ekki.	Já	Já
9. Þegar undirmenn þínir taka þátt í námskeiði / ráðstefnu sem greitt er af fyrirtækinu, eru þeir krafðir um umsögn um reynslu sína af námskeiðinu / ráðstefnunni?	Ekki ég, fyrirtækið – í gegnum fræðsludeild.	Fyrirtækið gerir með fræðsludeild. Sameiginleg ábyrgð innan deildar að fræða hvort annað.	Já	Opið chalk talk
10. Gerir þú kröfu um bætta hæfni í starfi þegar undirmenn þínir ljúka námskeiði / ráðstefnu? Ef já, hvernig er því	Já – en ekki framfylgt með beinum hætti.	Já – en ekki framfylgt. Mjög óformlegt.	Já. Ekki framfylgt ennþá.	Gerir ekki kröfu til þess.

framfylgt?				
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