Master thesis – Educational Science and Technology

The engagement of older employees in self-directed learning

University of Twente

Liza Hendriks l.hendriks-1@student.utwente.nl
Dr. M.D. Endedijk m.d.endedijk@utwente.nl
E. Nathues, MSc e.nathues@utwente.nl
Libereaux - Marloes Smit, MSc msmit@libereaux.nl

Summary

We live in a world of change. The knowledge and skills of today are not the knowledge and skills of tomorrow, therefore lifelong learning is crucial for employees to remain employable. Self-directed learning is key in lifelong learning, because self-directed learning seems to be an important factor to remain employable, and there is a lot of inconclusive research on how older employees self-directed their learning, the goal of this research was to gain more insight in the self-directed learning of older employees. This study focused on how older employees self-directed their learning, what their self-directed learning attitude is, and what influences the self-directed learning of older employees. To be able to give an answer to these questions, a qualitative mixed-method research was conducted. First, insight in the learning of the older employee was obtained by letting them fill in a learning log for five days. After this, a semi-structured follow up interview was conducted. In this interview there was asked about the self-directed learning attitude of older employees and more insight was gained in what influences the participation of older employees in self-directed learning experiences. The gathered data was analyzed and coded in Atlas.ti. with the use of coding schemes which were based on both literature and the data. The results of this study showed that older employees mostly did not plan their learning and most of their learning was informal learning. The older employees also were quite satisfied with their learning experiences. The older employee predominantly had a positive attitude towards self-directed learning. The results regarding the influential factors on the self-directed learning of older employees made clear that there are both personal and organizational factors influencing the self-directed learning of older employees. Influential personal factors that were found are; prior knowledge, home situation and shift of learning focus. A subcategory of shift of learning focus was: practical learning over theoretical learning. This factor was mentioned by most respondents when it comes to personal influential factors. Besides personal influential factors, there also were organizational influential factors. The factors that were found are: autonomy, budget, time and social support/climate. Especially, the social support/climate was found to be an important factor. All respondents mentioned this factor. It can be concluded from this research that older employees do not seem unwilling to learn, but the older employee does not self-direct their learning much. Most learning appeared to be unplanned. Another conclusion is that the older employees were very satisfied with their learning experiences, which means that they were not very critical about it.

Keywords: *self-directed learning, older employees, self-directed learning attitude, personal influential factors, organizational influential factors*

Table of content

1. Introduction

Nowadays, employees live in a world of change. The knowledge and skills of today are not the knowledge and skills of tomorrow, which is one reason for the need of lifelong learning. Other reasons include: technological innovations, highly skilled workforce, job mobility and the increasing individual scope (Raemdonck, 2006; Guglielmino & Guglielmino, 1994). Lifelong learning and the capability and willingness to learn are a prerequisite for the modern employee who wants to guarantee his or her employability (Raemdonck, 2006). Learners more and more have to take responsibility for their own learning and development in their work (Ellinger, 2004). According to Fontana, Milligan, Littlejohn and Margaryan (2015) the learners are responsible for their own learning, this means that the learner has to manage their own learning for work within the constraints of their work role and organizational context (Fuller & Unwin, 2004). Traditionally the workplace was seen as a place where learning was applied, nowadays the workplace is a place where learning takes place (Harteis & Billet, 2008). Against the background of this changing society, self-directed learning is perceived as the ideal approach to lifelong learning (Raemdonck, Meurant, Balasse,& Frenay, 2013).

Along with the rising retirement age and the percentage of employees over 45 years old that will grow rapidly over the next 20 years (Schulz & Stamov-Roßnagel, 2010), older employees too are expected to continue their professional development (Kyndt, Michielsen, Van Nooten, Nijs & Baart, 2011). Past research shows that the participation of ageing employees in education and training declines (Kyndt et al., 2011), which is a contradiction with what society expects from older employees. Reio (2004) found that younger people are more self-directed in their learning than older people, but Merriam (2001) suggests that older employees are more independent and self-directed compared to their younger colleagues. Other researchers say that older employees prefer flexibility in planning their learning, this is why self-directed learning best meets the way older employees prefer to learn (Zwick, 2015; Knowles, 1975).

As can be seen above, there are a lot of inconclusive results contradicting each other. This is why in many studies the importance of research on learning of older employees is emphasized. Gegenfurtner and Vauraus (2012) mention the importance of research on learning especially focusing on the ageing population. There is a need for studies regarding self-directedness in the workplace context (Raemdonck, 2006; Findsen ,& Formosa, 2011; Raemdonck, Van der Leeden, Valcke, Segers, & Thijssen, 2012). Given the changing society where employees are required to work longer, understanding the relation between age and self-directed learning is increasingly important (Raemdonck, Van der Leeden, Valcke, Segers, & Thijssen, 2012). They add to this statement that on one hand, older employees may be more self-directed in their learning than their younger colleagues, because of their work experience, but on the other hand, they might be less self-directed because of reduced career development goals (Raemdonck et al., 2012).

This is why this study will research if and how older employees learn self-directed and what their attitude is regarding self-directed learning. Additionally, this study will focus on what other factors influence self-directed learning of older employees. This will result in more in depth information about how older employees learn self-directed and what influences self-directed learning of older employees.

2. Theoretical conceptual framework

In this framework the most important concepts of this research will be described. The most important concepts are self-directed learning and how self-directed learning looks like of older employees. After this, the role of attitude towards self-directed learning will be explained and at last other influences on self-directed learning will be explored.

2.1 Self-directed learning

Self-directed learning is a form of learning. Learning can be approached in different ways. For instance, Eraut (2004) makes a distinction between planned or unplanned learning experiences. Learning can start with predetermined goals and time planned for the learning experience, this is deliberative learning. The learning experience can also occur as a reaction on a situation where there is little time to think, this is reactive learning. Or learning can occur unconsciously where implicit linkages are made, which is implicit learning (Eraut, 2004). Learning can also be distinguished in formal and informal learning. Formal learning occurs in organized and structured environments and as learning based on objectives, time and resources (Kyndt et al, 2011). Formal learning is intentional and often leads to certification (Descy, 2006). Informal learning occurs as 'everyday' learning and takes place in the daily working situation (Tjepkema, 2002). Informal learning is learning through work or other life experiences (Boekaerts, & Minnaert, 1999) and often occurs spontaneously and does generally not lead to certification. Informal learning is often described as learning that takes place on the job and may not always be planned (Marsick, & Watkins, 1997). Both formal and informal learning play a role in self-directed learning (Raemdonck, 2006). What the concept of self-directed learning entails, will now be explained.

Self-directed learning is increasingly used in adult education (Fisher, King, & Tague, 2001). Self-directed learning is perceived as the ideal approach to lifelong learning (Raemdonck, Meurant, Balasse & Frenay, 2013). The self-directed learner takes control of his/her own learning (Fisher, King, & Tague, 2001). Self-directed learning has different definitions in literature (Ellinger, 2004). What is common among all these different definitions is that learners take responsibility for planning, carrying out, and evaluating their own learning experiences. Knowles (1975) formulated the most prominent definition of self-directed learning. He described self-directed learning as:

'a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating their learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes' (Knowles, 1975, p. 18).

Knowles (1975) emphasizes that people who direct their own learning, learn better. Employees who are strong in self-directed learning explore learning opportunities, take initiative to learn and persevere in their attempts to learn and overcome any obstacles (Raemdonck et al., 2012).

Self-directed learning is closely related to self-regulated learning (Pilling-Cormick & Garrison, 2007). The difference between self-directed learning and self-regulated learning is predominantly the context in which the learning occurs. Self-directed learning originates from adult education and is mainly practiced outside the traditional school environment (Saks & Leijen, 2014). On the contrary self-regulated learning originates from school environments and focuses more on students instead of adults (Zimmerman & Schunk, 2001; Saks & Leijen 2014). Despite the differences, there are assumptions that are similar for both self-directed learning and self-regulated learning (Pintrich, 2000). The first assumption is that learners

are active and constructive participants in their learning process. The second assumption is that all learners can potentially control their learning. The third assumption is that some goal, criterion or standard exists which guides the learning. The last assumption is that self-directed learning activities mediate between the individual and the context (Pintrich, 2000). These assumptions give a characterization of self-directed learning and form the base on which models of self-directed learning and self-regulated learning are based.

Both self-directed learning and self-regulated learning models consist of key-phases (Saks & Leijen, 2014). These phases are: planning and goal-setting, monitoring and control and reflection (Pintrich, 2000; Endedijk, Brekelmans, Sleegers & Vermunt, 2016). The first phase involves planning and goal-setting, but also activation of perceptions and knowledge of the task and context and the self in relation to the task (Endedijk, 2010). Because self-directed learning is planned learning, self-directed learning is deliberative learning (Eraut, 2004). The second phase is about monitoring processes, which focuses on the meta-cognitive awareness of the employee and control, related to the self, task or context (Pintrich, 2000). The third phase is about various kinds of reactions and reflections on the self, task or context (Pintrich, 2000).

In conclusion, society and the workforce expect more self-directed learning from employees to become a lifelong learner. Lifelong learning is needed in order to remain employable until the age of retirement. Self-directed learning itself can be formal or informal, involves planning, monitoring and evaluating the learning experience and is therefore deliberative learning.

2.2 Self-directed learning of older employees

The age of 45 years is mostly used in literature as a demarcation between younger and older employees (Tikkanen & Nyhan, 2006). This is why the age limit of at least 45 years will be used in this research, when spoken about older employees.

How older employees learn has been an important question in the field of learning (Ellinger, 2004). According to Raemdonck et al. (2012) age might be an important factor in predicting the degree of self-directed learning of employees. Given the fact that the retirement age rises, it becomes more important to gain further insight in the relationship between age and self-directed learning (Raemdonck et al., 2012).

When discussing learning of older employees, there are a few characteristics of older employees that specifically apply to the way older employees learn or prefer to learn. An older employee is able to direct his or her own learning (Merriam, 2001). The older employee learns more problem-centered and the older employee prefers learning directly applicable knowledge (Merriam, 2001). The older employee is rather motivated internal than external (Knowles, 1970). Cau-Bareille, Gaudart and Delgoulet (2012) add to this description that older employees need to understand in order to learn. The usability of knowledge should be clear. Raemdonck et al. (2012) mention that the older employee possesses more work experience compared to younger colleagues. This could also influence their way of learning or the choices they make regarding learning.

Raemdonck et al. (2012) explain that older employees are, on one hand, more self-directed learners than younger employees due to their work experience. On the other hand, they are less self-directed, because of a reduction in career development goals (Raemdonck, 2012). Other studies that examined the relation between age and self-directed learning show a significant positive relationship between increased age and self-directed learning scores or no significant differences at all between older employees and their younger colleagues (Stockdale, 2003). For example, Raemdonck, Gijbels and Van Groen (2014) found no relation between the degree of learning regarding age. Several effect and impact studies on self-directed learning in the workplace showed that self-directed learning decreases with age (Baruch & Tal, 1997; Kuijpers, 2003;

Nabi, 2000). A decrease in self-directed learning with age can possibly be explained by the decline in cognitive performance with age (Baltes, Lindenberger & Staudinger, 2006). Schooler, Mulatu and Oates (2004) state that it is possible that older employees have an aversion for self-directed learning, due to larger intellectual demands that are associated with self-directed learning. With age, there are reductions in processing speed of information (Salthouse, 1996) and a decline of working memory capacity (Zacks, Hasher & Li, 2000).

But a reduction in processing speed and a decline of working memory capacity have limited implications for informal learning (Schulz & Stamov Roßnagel, 2010). According to Schulz and Stamov Roßnagel (2010) found that it can even be assumed that informal learning provides older employees with opportunities to compensate for cognitive decline effects, because informal learning gives the older employee the opportunity to pace learning in accordance to one's capabilities. Findings of several studies regarding the relation between age and self-directed informal learning are inconclusive (Raemdonck et al., 2015; Raemdonck, Beausaert, Fröhlich, & Kochoian, 2015). Some studies found a decrease in informal learning when there is an increase in age (Gupta, Govindarajan & Malhotra, 1999; Tikkanen, 2002; Van der Heijden et al., 2009), and a few studies found that, with age, older employees engage more in informal learning (Berg & Chyung, 2008; Kyndt, Dochy & Nijs, 2009).

As discussed before, besides informal learning, formal learning also is part of self-directed learning. Previous research showed that older employees participate less in self-directed formal learning (Kyndt et al., 2011). When older employees do participate in formal learning, their performance is weaker compared to younger colleagues (Ng & Feldman, 2008; Kubeck, Delp, Haslett and McDaniel's, 1996).

In conclusion, the evidence of the effect of age on self-directed learning is inconclusive (Raemdonck et al., 2012). There are a lot of inconsistent findings when it comes to self-directed learning of older employees. This is why research on self-directed learning of older employees could provide more satisfying answers about the difference between the learning of older and younger employees (Raemdonck et al., 2015).

2.3 Self-directed learning attitude

The self-directed learning attitude is one of the personal factors that could influence the self-directed learning of older employees and could be a hurdle or contribute to the participation of older employees in learning activities (Jeske, Roßnagel & Strack, 2017; Raemdonck, 2006; Fisher, King & Tague, 2001). In self-directed learning there is a relation between learning attitude and the actual self-directed learning of the older employee (Gijbels et al., 2010). Therefore it is important to take self-directed learning attitude into account when studying someone's self-directed learning.

A proactive attitude is frequently mentioned in literature as an important influence on self-directed learning (Raemdonck, 2006). A proactive attitude ensures initiative in learning activities and learning situations (Seibert, Kraimer & Crant, 2001). Older employees with a positive self-directed learning attitude are more likely to show self-directed learning, this means that the older employee is actively identifying learning opportunities, shows learning initiative, undertakes learning activities and persevere in overcoming barriers to learning (Raemdonck et al., 2013). Employees with a positive self-directed learning attitude, show more self-directed learning and a positive attitude will result in older employees searching for new information, finding solutions for problems, and trying new things (Gijbels et al., 2010). Older employees with negative self-directed learning attitudes show less self-directed learning.

In sum, because self-directed learning attitude seems to play a crucial role in the self-directed learning of the older employee, this is why it is important to take this attitude into account when conducting research about self-directed learning of older employees.

2.4 Other influences on self-directed learning

There are several factors that also influence the learning of older employees, besides the self-directed learning attitude. The factors mentioned here are specifically applicable to older employees. In literature several factors that influence the participation and performance of older employees in self-directed learning are formulated. These factors are often categorized in personal and organizational influential resources.

One of the personal influential factors is consideration of prior experience (Merriam, 2001). The older employee has a lot of life experience that is a rich resource for learning (Merriam, 2001). Another personal influential factor is the development and use of personal strategies. Older employees do not tend to utilize help as much as younger employees and they tend to engage more in ineffective information search strategies (Jeske, Roßnagel, & Strack, 2017). This raises the importance of feedback and instructor support (Jeske, Roßnagel, & Strack, 2017). Another personal influential factor is the changing social roles. It is expected that older employees focus more on other aspects in their lives than work (Merriam, 2001). This means that employees would become less ambitious and less focused on learning when they become older.

Besides personal influential factors, there are organizational influential factors. One of these factors is autonomy. Less autonomy and choice in training (in terms of mandatory training) can have a negative effect on older learners (Jeske, Roßnagel, & Strack, 2017). Also the lack of time made available to learn, has a negative effect on learning (Merriam, 2001). Another organizational factor is ensuring a positive team climate and social support (Jeske, Roßnagel & Strack, 2017). Older employees are more anxious about changes to which training could lead to in terms of their own job (Cau-Bareille, Gaudart & Delgoulet, 2012). This could lead to the fear of getting fired when the older employee does not learn as much as the people surrounding them. Ensuring a positive climate makes older employees feel more comfortable to learn.

In conclusion, all of these organizational and personal factors have a possible influence on the engagement of older employees in self-directed learning.

2.5 Research questions

Due to the changing society in which self-directed learning plays an important role and the inconclusive results that exist around the self-directed learning of older employees, one of the goals of this study is to gain more insight in the self-directed learning of older employees. The second goal is based on what Stockdale (2003) stated. He said that research on personal and contextual factors, that possibly influence self-directed learning, give further insight in the process of self-directing learning of older employees. Up till now, research did no pay much attention to these factors (Raemdonck, Thijssen & De Greef, 2017). This is why attitude regarding self-directed learning and personal and organizational factors influencing self-directed learning are studied in this research. To meet the goals above, the following three research questions are formulated.

1. How do older employees self-direct their learning?
2. What is the attitude of older employees towards self-directed learning?
3. What influences the self-directed learning of older employees?

Below is further described how and with the use of which instruments these research questions are answered.

3. Method

The process and instruments of this research will be further described.

3.1 Research design

This research is a multi-method qualitative study. Both Structured Learning Logs (Endedijk, 2010) and a semi-structured follow-up interview were used to gather data. By using the Structured Learning Log, which is a daily distributed logbook, more insight was given in what self-directed learning of the participants looks like on a daily basis (Endedijk, 2010). This learning log is followed by a semi-structured interview in which was asked about attitude and other factors influencing self-directed learning. In this semi-structured interview the possibility was also given to explain some notable answers, given in the learning logs.

3.2 Respondents

To collect data, employees of 45+ years old from different organizations who followed a procedure at Libereaux were asked to participate in this study. To recruit the participants, an e-mail with a short explanation about the research was distributed to 207 potential participants. This e-mail can be found in Appendix A. People who were interested send an e-mail to the researcher with their demographic information. 13 respondents answered before the deadline given in the e-mail. 5 respondents answered after the deadline. All 18 respondents are from different organizations. The decision was made to include all 18 respondents in filling in the learning logs. The 13 respondents that responded in time were interviewed, because interviewing all 18 respondents would have caused severe delays with the data analysis. Below a table with the demographic information of the respondents that participated in this study. level.

Table 1
Overview demographic statistics of respondents

Variable	Mean	Categories	Percentage	SD
Gender		Male	77.8%	
		Female	22.3%	
Education		Secondary vocational education	33.3%	
		Higher professional education	61.1%	
		Academic higher education	5.6%	
Age	52.1			4.6
Total work experience in years	28.3			8.7
Work experience current employer in years	12.9			8.5
Working hours	35.1			6.3

3.3 Instrumentation

To conduct this research, instruments were used to get more insight in how employees of 45+ years old learn self-directed, what their attitude is towards self-directed learning and what influences self-directed learning of older employees. The instruments are: Structured Learning Logs (Endedijk, 2010) and semi-structured follow-up interviews. Below an overview is given of the research questions and which instruments are used to answer these questions:

Table 2
Research questions and used instruments

Research question	Instruments
How do older employees self-direct their learning?	Structured learning logs (& interviews)
What is the attitude of older employees towards self-directed learning?	Interviews
What influences the self-directed learning of older employees?	Interviews

Below these instruments are explained in more detail.

3.3.1 Structured Learning Logs

For the first research question, primarily the learning logs were used. The learning log is based on the Structured Learning Log of Endedijk (2010). The Structured Learning Log is a multiple measurement tool in which daily learning experiences are measured. The Structured Learning Log only had to be filled in for five working days of the individual employee. The learning log makes, besides formal learning, informal learning visible. Only the questions regarding planning and goal-orientation, and reflection of the Structured Learning Log of Endedijk (2010) are used, because the research of Endedijk (2010) and the Structured Learning Log mainly focused on these two phases. The used learning log can be found in Appendix B. Below an overview is given of the questions of the learning log and which parts of self-directed learning they represent.

Table 3

Self-directed learning represented in the Structured Learning Log

Self-directed learning	Corresponding question
General questions	What did you learn?
	What learning activity did you use? I learned through…
Planning & goal-orientation phase	Did you plan to learn this?
	What was the main reason to learn this?
Reflection phase	Were you satisfied with your described learning experience?
	How will you proceed with this learning experience?

The learning log is a mixed intra method, because the learning log consists of one open question and twelve multiple choice questions. The question: 'What did you learn?' is the open question. At the beginning of the learning logs, examples of learning experiences were mentioned, used by Kläser (2018). Space for feedback is provided at the end of the learning log. Not everyone followed the same answer route, it depended on the answers given to previous questions. The learning log is made in Qualtrics and distributed via Qualtrics. The participants received a link to the learning log in Qualtrics. In Appendix B the learning log can be found.

3.3.2 Semi-structured follow-up interview

After the respondents filled in the learning logs, a semi-structured interview was conducted with the 13 respondents who responded before the deadline. There is chosen for a semi-structured follow-up interview, because it gives the researcher the possibility to ask more in depth information based on the answers given in the learning logs and the researcher can anticipate to the answers given by respondents.

The interview scheme can be found in Appendix C. The interview had 3 aims: gaining more information about interesting answers given on the learning logs, gaining information about attitude towards self-directed learning and gaining information about influencing factors on self-directed learning. Regarding the first aim, the respondent was asked about interesting answers given on the learning log. These quotations were used to support the answers given to the research question: How do older employees learn self-directed?

The questions asked regarding the attitude and other influencers on self-directed learning were based on literature (Merriam, 2001; Jeske, RoSnagel, & Strack, 2017). The questions asked regarding attitude were used to answer the question: What is the attitude of older employees towards self-directed

learning? The answers given regarding the attitude towards self-directed learning were used to decide if the respondent had a positive or negative attitude regarding learning. Quotations regarding attitude were used to support the research question. The questions asked regarding other influencers on self-directed learning give an answer to: What influences the self-directed learning of older employees?

When asking about influencers on learning either on a personal and organizational level, possible influencers on the self-directed learning of older employees are mentioned in the coding scheme, that were asked by the interviewer when the respondent did not proactively mention influential factors. The answers to these questions were categorized and these categorizations and quotations to support these categorizations give an answer to this research question. Every interview had a duration of approximately 30 minutes.

3.4 Procedure

At first, recruitment of participants was needed. An e-mail was distributed to potential participants (Appendix A). In this e-mail detailed information about the study was mentioned, and the respondents received the informed consent and the request to give answer to a few demographic questions. In this invitation the participants were asked to fill in the learning log for five work days. This takes approximately 10 minutes per day. The respondents received the link to the learning log the evening before their following working day. 18 employees filled in the learning logs for five work days, this means the learning logs were filled in 90 times. The learning logs were analyzed and based on this analysis a semi-structured follow-up interview was conducted in which the participants were asked about their learning experiences, their attitude towards self-directed learning and what influences their participation in learning. The interviews took place at a location of choice of the participant. To create a comfortable climate, the interviews were conducted one-to-one and had an informal touch. The duration of the interview was approximately 30 minutes. At the end of the interview, the researcher asked the participant whether they would like to receive a summary of the results of the study. When the data collection was finished, the interviews were coded and analyzed.

3.5 Data-analysis

The data analysis will be explained per research question.

3.5.1. How do older employees self-direct their learning?

To give an answer to this question, the learning log was analyzed. The open question in the learning log: 'What did you learn?' provided qualitative data. The answers given to this question were categorized based on its content and the categories used by Kläser (2018). The coding scheme used for the categorization of the open question can be found in Appendix D. The other multiple choice questions provided categorical information. In Qualtrics an overview was generated of all answers given per multiple choice question and how many times an answer was given. These statistics were used to give an answer to the research question. For this research question, quotations of the interviews were used to support the answers given in the learning logs by the respondents. These quotations were identified as follows. At first, all interviews were transcribed with the use of Atlas.TI. In order to be able to analyze the interview regarding this research question, the coding scheme in Appendix E is used. Per quotation was decided if it was a quotation regarding a phase of self-directed learning. If it was, a code: ''planning and goal-orientation'' or ''reflection and evaluation'' was assigned to this quotation. The coding scheme is a combination of inductive and deductive coding (Boeije, 2010). For coding scheme E this means that the phases and the description of the phases were based on literature (deductive coding). The self-directed learning phases are based on literature

(Pintrich, 2000; Endedijk, 2010). The descriptions of these phases were first based on literature (Pintrich, 2000; Endedijk, 2010). Along the way in the coding process, the description of the phases were altered to ensure that the coding scheme was complete (inductive coding). The interviews were coded multiple times to ensure that the coding scheme was complete.

3.5.2 What is the attitude of older employees towards self-directed learning?
To give an answer to this question, the answers given in the interview to the questions regarding attitude were analyzed. These quotations were identified in the following way. At first, the transcribed interviews were used to select the quotations regarding attitude. This happened based on the coding scheme in Appendix F. Just as at the previous research question, a combination of inductive and deductive coding was used. At first, the coding scheme was only based on literature (Gijbels et al., 2010), but the description of attitude was altered based on the interviews and examples from the interview were added to the coding scheme in order to cover all attitude quotations. Based on the interviews the distinction was made between a positive and negative attitude in the coding scheme. Every quotation regarding attitude received a code named ''positive attitude'' or ''negative attitude'' code. The interviews were coded multiple times to ensure that the coding scheme was complete. Quotations of the interviews were used to support the results regarding this research question.

3.5.3 What influences the self-directed learning of older employees?
To give an answer to this research question, the answers given in the interview to the questions regarding influences on the self-directed learning of older employees were analyzed. The transcribed interviews were used to select the quotations regarding influences on self-directed learning. After this, based on the coding schemes in Appendix G and Appendix H was decided if the influence was a personal influential factor or an organizational influential factor. Next, a (sub)code of the coding scheme in Appendix G was assigned to the personal influential factor quotations and a (sub)code of the coding scheme in Appendix H was assigned to the organizational influential factor quotations. These coding schemes were first based on literature (Jeske, Roßnagel, & Strack, 2017). When the (sub)codes based on literature did not meet the mentioned influential factors, new codes were created or the description of an existing code was altered. New codes were formed based on similarities between quotations. This resulted in the following regarding the personal influential factors (Appendix G): the codes ''prior knowledge'' and ''usability of what is learned'' were added to the coding scheme based on literature (Jeske, Roßnagel & Strack, 2017; Merriam, 2001). The codes ''home situation'', ''shift of learning focus'', ''personal development'' and ''practical learning over theoretical learning'' were added to the coding scheme after analyzing the interviews. There were also some changes made in de coding scheme regarding the organizational influential factors (Appendix H). The codes ''social support.climate'', ''time'' and ''autonomy'' were added to the coding scheme based on literature (Jeske, Roßnagel & Strack, 2017;). The codes ''support of management'', ''support of colleagues'', ''time reserved for learning during workinghours'', ''workload'' and ''budget'' were added to the coding scheme after the analyses of the interviews. The interviews were coded multiple times to be sure that the coding schemes were complete. Quotations of the interviews were used to support the results regarding this research question.

3.6 Interrater reliability

When using coding schemes (Appendix D – H), this is based on the subjective interpretation of the observer. In order to show that the coding schemes are reliable the Cohen's Kappa was calculated. The calculation of the Cohen's Kappa is based on the difference between how much agreement there is between two observers, compared to the level of agreement that is expected to be present by chance alone (Viera & Garrett, 2005). The Cohen's Kappa can range between 0, which means no agreement, and 1, which means perfect agreement (Viera & Garrett, 2005). First, the Cohen's Kappa was calculated for the open question of the learning log. All of the answers given to this question were coded by two observers using the coding scheme of Appendix D, by giving one of the codes: gaining knowledge, learning a certain practice or getting aware of something to the answers to this question. A Cohen's Kappa of .821 was found for question 3 of the learning log, which is an almost perfect agreement (Viera & Garrett, 2005).

After this, the Cohen's Kappa for the coding schemes of the interviews was calculated. Appendix E-H was seen as one codebook. 7 of 13 interviews were coded by two observers. The codes that had to be coded were made blank for the second observer. The second observer received the coding schemes with all codes and descriptions (Appendix E to H). A Cohen's Kappa of .878 was calculated for the interviews, which is an almost perfect agreement (Viera & Garrett, 2005).

4. Results

Below per research question is described what the results are: How do older employees self-direct their learning?, What is the attitude of older employees towards self-directed learning? And What influences the self-directed learning of older employees?

4.1 RQ 1 How do older employees self-direct their learning?

To give an answer to this question, first is given an overview of the learning experiences that the respondents had and which learning activities they used to come to this learning experience. Second, the focus is on the quality of the learning experiences and gives more insight in the phases of self-directed learning.

4.1.1 The reported learning experiences

18 employees filled in the learning log for five working days in a row. This means that the learning log was distributed 90 times. 69 times there was a learning experiences reported. 21 days there was no learning experience. The 21 days where there was no learning experience reported came from 15 employees. This means that 5 employees had a learning experience every day, which is 27.8% of all the employees.

In the learning log was asked in an open question what was learned that day by the respondent. The answers given were categorized. An overview of the categorization of the learning experiences is given in the table below. The categorization was made based on the coding scheme in Appendix D.

Table 3

Categorization of the reported learning experiences

Categorization by content	Quantity	Percentage
Gaining knowledge	*16*	*23.2%*
Learned a certain practice	*13*	*18.8%*
Getting aware of something	*40*	*58.0%*
Total	*69*	*100%*

As shown in table 3, when the respondents were asked about what they have learned that day, it appeared to be that most learning experiences arose from getting aware of something. This means that 58.0% of the respondents got aware of a(n) reaction, attitude, behaviour or situation.

The respondents were asked about what learning activities they used in order to have the learning experience. In the table below an overview of all the ways of learning is given.

Table 5

Overview of all ways of learning; represented by the following question of the learning log: What learning activity did you use? I learned through…

(In)formal learning	Way of learning	Doing something alone	Involving others	Frequency	Percentage
	...doing or experiencing something	*x*		*18*	*15.9%*
	...trying something new	*x*		*2*	*1.8%*
	...evaluating what went well and wrong and what my role was in a situation	*x*		*14*	*12.4%*
Informal learning	...looking up information in a book or on the internet	*x*		*17*	*15.0%*
	...receiving feedback or information from others		*x*	*22*	*19.5%*
	...observing how others do something		*x*	*5*	*4.4%*
	...thinking and talking together with colleagues		*x*	*31*	*27.4%*
Formal learning	...a course, meeting or workshop	*x*		*4*	*3.5%*
	...no idea	*-*	*-*	*1*	*0.9%*
	Total:	*48.7%*	*51.3%*	*113*	*100%*

The respondent who gave the answer '…no idea' did not know what learning activity he or she used to have the learning experience. According to the results, there were different ways of learning used in order to have the learning experience. The ways of learning can be divided into 'doing something alone' and 'involving others'. From all reported ways of learning 48.7% was by doing something alone. The most common way of learning by doing something alone was doing or experiencing something (15.9%), followed closely by looking up information in a book or on the internet (15.0%). 51.3% of the ways of learning involved others. The most common way of learning by involving others was thinking and talking together with colleagues (27.4%). The learning activities can be divided into formal and informal learning. As can be seen in the table, most learning was informal learning. In other words, 95.6% of all learning activities is informal learning, 3.5% of all reported learning activities appeared to be formal learning.

In conclusion, the most notable results are that the respondents learned predominantly by getting aware of something (58.0%). The respondents almost learned as much by doing something alone (48.7%) as by learning with the involvement of others (51.3%). The most mentioned learning activity was

'…thinking an talking together with colleagues', which was 27.4% of all reported learning activities. The last most remarkable result is that 95.6% of all learning activities were a form of informal learning, only 3.5% of all reported learning activities was formal learning. These percentages give an overview of the self-directed learning of older employees in a more general perspective and provides a quantitative view on self-directed learning of this specific target group. These learning experiences can also be approached in a more qualitative way by looking to what extent the older employee does plan and reflect on the learning experiences. This will be done in the next sections.

4.1.2 Planning and goal-orientation phase

When analyzing the data, it appeared to be that 58.0% of all reported learning experiences was not planned. Which means that 39.1% of the learning experiences was reported to be a planned learning experience. From the 39.1% planned learning experiences, 18.8% was planned to learn at this moment and 20.3% of the learning experiences was intended to learn, but not specifically at this moment. To conclude, most learning experiences were unplanned (58.0%).

In the table below an overview is given of the reasons to learn for the planned learning experiences[1].

Table 4

Overview of reasons to learn for planned learning experiences; represented by the following question of the learning log: What was the main reason to learn this?

Reasons to learn	Personal need	External need	Frequency	Percentage
I was unsatisfied about a previous experience	x		7	25.9%
I was curious about something	x		2	7.4%
Others stimulated me to develop myself in this		x	3	11.1%
I wanted to prepare myself for future possible experiences	x		8	29.6%
I wanted to practice with something	x		1	3.7%
The organization expected this from me		x	6	22.2%
Total:	66.7%	33.3%	27	100.0%

As can be seen in the table above, most respondents mentioned that their reason for the learning experience was that they wanted to prepare themselves for future possible experiences (29.6%). The reason that the respondent wanted to practice with something was only mentioned 1 time (3.7%). A distinction could be made between all reasons to learn. The reasons could be divided into: learning from a personal need, and

---

[1] There was an answer option 'other', the answers given at this option could be divided over the existing reasons to learn.

learning from an external need. Most respondents initiated their learning experience from a personal need (66.7%). 33.3% of the learning experiences was initiated from an external need.

Below some interview quotations regarding personal learning needs:

''For me, I have some personal learning goals. I want to be more pragmatic in the way I react''

''When it comes to learning about ICT, I want to keep up with the latest developments''

''Because it is harder for me to memorize information, I have to try harder and put more effort in memorizing information''

Below some interview quotations regarding external learning needs:

''By the government new laws and regulations are imposed''

''The goal (of the organization) *is to make everyone's weaker competences stronger''*

In conclusion, this is how the planning phase regarding the learning of older employees looks like. 58.0% of the reported learning experiences was unplanned. The most reported reason to learn was because the employee wanted to prepare him-/herself for future experiences (29.6%) and most learning experiences were initiated from a personal need (66.7%). This means that in 66.7% of the learning experiences the respondents the respondent was internally motivated to learn something.

4.1.3 Reflection and evaluation phase

Regarding the reflection phase, the respondents were also asked if they were satisfied with their learning experience. In the table below, an overview of the learning experience satisfaction is given.

Table 6
Overview of satisfaction of learning experience; represented by the following question of the learning log: Were you satisfied with your described learning experience?

Satisfaction	Frequency	Percentage
Yes, I am satisfied	*60*	*87.0%*
No, I am going to do things differently next time	*2*	*2.9%*
I did not think about that	*7*	*10.1%*
Total:	*69*	*100%*

The vast majority of the respondents reported to be satisfied with the results of the learning experience (87.0%). 10.1% of the respondents reported that they did not think about being satisfied or not with the learning experience. Only 2.9% reported to be not satisfied with the learning experience and they want to do things differently next time.

The respondents were asked how they will proceed with the learning experience. In the table below, an overview is given of what the respondents answered to this question and how they want to proceed with their learning experience.

Table 7

Overview of how to proceed with the learning experience; represented by the following question of the learning log: How will you proceed with this learning experience?

Proceeding with the learning experience	Frequency	Percentage
I have no plans (yet)	*9*	*13.0%*
It did not work out the way I wanted, so I am going to try again	*2*	*2.9%*
I have exactly figured out what I will do next time in a comparable situation	*16*	*23.2%*
I want to consolidate what I have learned	*8*	*11.6%*
I want to improve further what I have learned	*12*	*17.4%*
I want to apply in practice what I have learned	*15*	*21.7%*
I want to try out what I have learned in a different situation	*6*	*8.7%*
Based on what I have learned, I have formulated a new learning goal for myself	*1*	*1.4%*
Total:	*69*	*100%*

23.3% of the respondents reported they have exactly figured out what they will do next time in a comparable situation. This way of proceeding with the learning experience is closely followed by wanting to apply in practice what is learned (21.7%). Formulating a new learning goal based on what is learned is only reported one time (1.4%). It is notable that only 13.0% of the learning experiences did not lead to a follow-up action (yet), which means that in 87.0% of the learning experiences the respondents exactly knew how they wanted to proceed with the learning experience.

Below some interview quotations are given regarding how the respondent exactly wants to proceed with the learning experience:

''I am going to do a lot of self-reflection after this situation.''

''I bumped my head a lot along the way, I want to do things differently next time''

''Afterwards I wished I responded more firm and that I did not give him so much opportunity to keep asking questions''

In conclusion, the respondents were satisfied with the vast majority of the learning experiences (87.0%) and many of the respondents knew what they would do next time when a comparable situation occurs

(23.3%) and want to apply in practice what is learned (21.7%). Only in 13.0% of the reported learning experiences the respondent did not have plans how to proceed with the learning experience.

4.2 RQ 2 What is the attitude of older employees towards self-directed learning?

Below is described what the self-directed learning attitude of older employees is.

4.2.1 Self-directed learning attitude

In the interviews the respondents were asked about their view on learning. The self-directed learning attitude is based on the answers given on the following question: 'What is your view on learning?' and in some cases a follow-up question, such as: 'Is there a difference in your view on learning now and when you were younger?'. The answers given could be dived into a positive or a negative attitude regarding self-directed learning. 2 out of 13 respondents had a negative self-directed learning attitude. This means that the vast majority, which is 11 out of 13 respondents had a positive attitude regarding learning (84.6%). A positive self-directed learning attitude was represented by searching for new challenges and curiosity regarding learning. The respondents also had a more open attitude towards new learning experiences. A negative self-directed learning attitude was represented in both cases by the respondents not seeing the need for learning.

Examples of interview quotations mentioned by the respondents reflecting positive attitudes were:

''I am always very open to learning. You always learn. I think that is important, because not learning is the same as standing still, in my opinion''

''I always had the opinion that standing still means decline and I think it is important to keep developing yourself''

''I think it is fun to learn. Overall you are never too old to learn''

''At this age, I am less careless, now I am more serious (regarding learning)*''*

''I have always been positive when it comes to learning, especially the past several years I became more and more positive''.

There also were a couple of negative attitudes regarding learning. Examples of interview quotations mentioned by the respondents reflecting negative attitudes were:

''You cannot change people, especially when they are over 45 years old. By that age you are formed by experience and that is it''

''At a given moment I should be done with learning. Nowadays you always have to keep learning, that is not my cup of tea''

In conclusion, most respondents had a positive attitude regarding self-directed learning (84.6%).

### 4.3 RQ 3 What influences the self-directed learning of older employees?

The influential factors on self-directed learning of older employees can be divided into personal and organizational influential factors. The factors are described below.

4.3.1 Personal influential factors on self-directed learning of older employees

First, an overview is given of all found influential personal factors. See figure 1.

Figure 1
Overview with personal influential factors
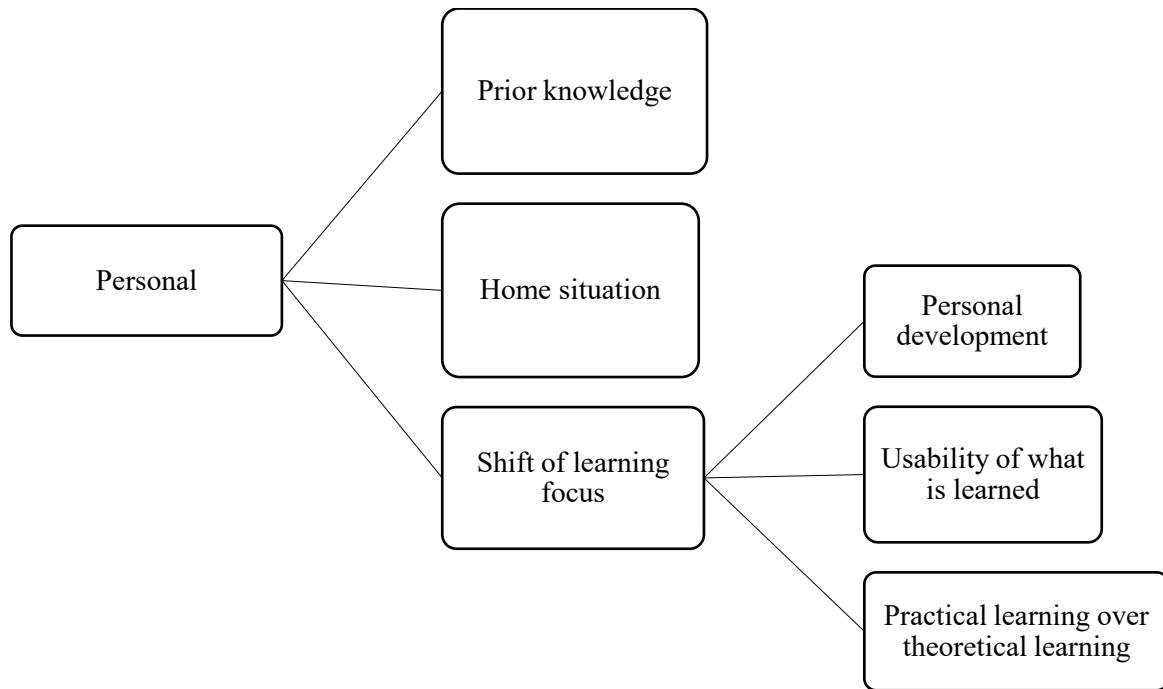
As can be seen, there are three main personal influential factors; *Prior knowledge, home situation and shift of learning focus.* The main factor *shift of learning focus* consists of three subcategories, namely: *personal development, usability of what is learned and practical learning over theoretical learning.*

4.3.1.1 Prior knowledge

The influence of *prior knowledge* was mentioned by 7 of 13 respondents, which is 53.8% of the interviewed respondents. Prior knowledge is characterized by previous experience and knowledge an employee has, which influences the choices an employee makes regarding learning. Prior knowledge could have a positive both also a negative influence. New information should build on prior knowledge and experience and new knowledge should add knowledge to existing knowledge instead of repeating knowledge. When this is the case with learning opportunities, than prior knowledge is of positive influence. The following was said by a respondent who had a positive approach to the influence of prior knowledge:

''I already know a lot, I do not feel like it to go through an entire book. I found it very effective when a course leader pinpoint to me what is new. I think that is effective''

When new information does not build on and add to prior knowledge, but repeats already existing knowledge, prior knowledge can be experienced as a negative influencers on the self-directed learning of the older employee. The following quotation was made by a respondent who had a negative approach to the influence of prior knowledge:

''From that perspective you learn more selective. It is not that I am continuously looking for courses I can follow, because I already know much. No, I have a more selective view on what helps me to develop myself on a personal level''

Prior knowledge changes the way the older employee learns and wants to learn, and could be a positive or negative influence on the self-directed learning of the older employee.

4.3.1.2 Home situation

Another mentioned personal influential factor was the home situation of the respondent. Home situation is mentioned by 4 of 13 respondents as an influencing factor regarding learning, which is 30.8% of all interviewed respondents. The home situation and the influence on learning is characterized by the role family and personal circumstances play in choices made regarding learning, for example having children, marrying and buying a house. All 4 respondents mentioned that the home situation was not a contributing factor to learning and had a negative influence to the self-directed learning of the older employee. Below two quotations of the respondents regarding the home situation in relation to learning:

''When I started working I thought nice I have a job. (...) But on a certain moment, when you become older, and you have more experience and you have a girlfriend and you are buying a house, you start a family, you can try to keep your ambition high and try to make carrier, but it has to fit into the entire picture.''

''I am so busy, I have children''

The home situation has a negative effect on the learning of older employees, based on what is reported by the respondents. The home situation causes that the older employee rather focuses on other aspects of life than work.

4.3.1.3 Shift of learning focus

The following personal influential factors are regarding a shift of learning focus. Which means that with age the learning focus changes. Other field of learning besides their own workfield become more important, or learning is approached differently with age. 6 of 13 respondents explained that with age personal development becomes a growing field of interest. This is 46.2% of all interviewed respondents. Personal development regarding learning is characterized by the employee becoming more interested in behaviour of themselves and others and the employee who wants to develop themselves on a personal level. Below a quotation of the respondent regarding personal development and learning:

''Who am I? That is a question that keeps me busy for years.''
''How can I be more assertive? Indeed, the focus is more on personal development.''

2 of the 6 respondents who mentioned personal development as a growing field of interest said that there is not much opportunity for personal development within the organization they are working in, which is 15.4% of all interviewed respondents. Below a quotation of a respondent mentioning there is not much opportunity for personal development:

''Organizations are too much focused on the theoretical context and too little on personal development''

This means that the growing interest in personal development has a positive or neutral effect on the learning of the older employee, unless the organization does not facilitate this learning ambition. In that case, the growing interest in personal development could have a negative influence on the self-directed learning of older employees.

Another subcategory of shift of learning focus is the usability of what is learned. Usability of what is learned is mentioned by 6 of 13 respondents, which means that this is mentioned by 46.2% of the respondents. The respondents mentioned that learning should result in applicability of knowledge to the direct work context.. When this is the case, the usability of what is learned has a positive or neutral effect on the self-directed learning of the older employee. Below a quotation regarding the positive or neutral influence of the usability of what is learned on the self-directed learning of the older employee:

''I have the assumption that knowledge should be applicable, theoretical models only work for me when I see the practical utility. When I do not see the utility, then I lose interest''

''Most people (colleagues) *see the benefit of learning. Mostly because there are many courses we can use for our daily activities.''*

2 of these 6 respondents mentioned that a lot of courses take a lot of time and that they do not learn anything usable. In this situation, the importance of usability of what is learned has a negative influence on the self-directed learning of the older employee. Below a quotation regarding the negative influence of the usability of knowledge on the self-directed learning of the older employee:

''Nowadays, when you learn you have to process a lot of input that is not work relatable to your job''

An employee wants to be sure that what he or she is going to learn is contributing to the daily practice. When this is the case, the usability of what is learned has a positive or neutral effect on the self-directed learning. When this is not the case, the usability of what is learned has a negative effect on the self-directed learning of the older employee.

The last subcategory of shift of learning focus is that practical learning is preferred over theoretical learning. The older employee prefers learning by doing in the daily practice. The preference of practical learning over theoretical learning is mentioned by 9 of 13 respondents, which means that this is mentioned by 69.2% of the interviewed respondents. The focus from theoretical learning shifts to practical learning or learning skills. This is characterized by respondents mentioning that with age, theoretical knowledge becomes more difficult to learn, it is harder to memorize information, and learning skills is found more important than learning theoretical knowledge. Below some quotations of respondents who mentioned that they prefer practical learning over theoretical learning:

''I notice that when I become older, it becomes less easy to memorize information. It takes me longer to learn thing''.

''You learn more by doing, than by theoretical knowledge''

*''I feel more like it to work with my hands''*

In conclusion, when learning opportunities focus more on practical learning instead of theoretical learning, this has a positive influence on the self-directed learning of the older employee. On the contrary, when the learning opportunities focus more on theoretical learning, this has a negative influence on the self-directed learning of older employees.

4.3.2 Organizational influential factors on self-directed learning of older employees
The organizational influential factors consist of the main factors: *Social support/climate, time, budget* and *autonomy.* Regarding social support/climate a distinction has been made between *support of management* and *support of colleagues.* Within the factor time a distinction has been made between *time reserved for learning during working hours* and *workload.* Figure 2 gives an overview of the organizational influential factors.

Figure 2
Overview with organizational influential factors
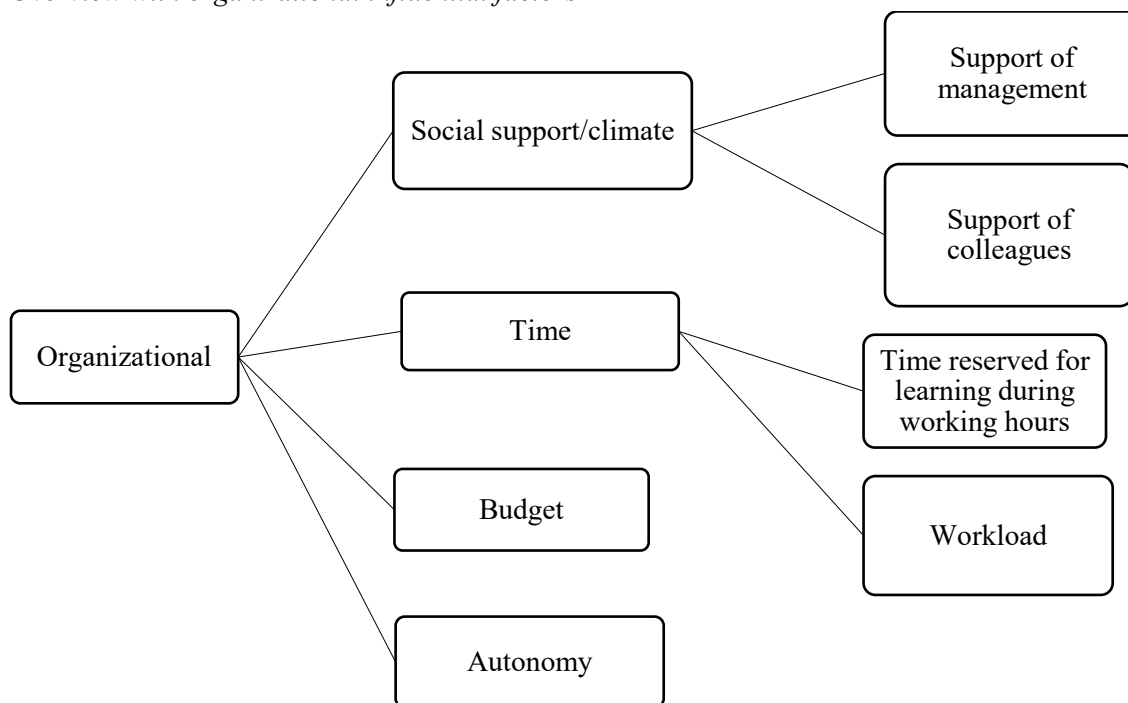
4.3.2.1 Social support/climate
        Social support/climate was mentioned by all respondents. Specifically support of management was mentioned by 11 of 13 respondents as an influencing factor, which means that this was mentioned by 84.6%.

Support of the management is characterized by a manager that is recognizing the work and learning that is done by employees and a manager that has eye for the potential of employees. Below some quotations of respondents from the interviews regarding received support of management:

''When you need me I will help with anything, just let me know'' (this was said by the manager of the respondent)

''Luckily we had a manager who knew that we had a lot of knowledge''

''I found personal development very important, and in this organization I get all the support to develop myself (by the management)*''*

5 of these 11 respondents mentioned that they did not receive support regarding learning by the management, which is 38.5% of all respondents. According to the statements made by the respondents, this is characterized by an overly controlling management, unfair differentiating between employees, a blaming culture resulting into fear of losing job when not participating in learning opportunities or the management not using the motivation of employees to learn. Below some quotations of respondents from the interviews regarding receiving no support of the management:

''And when you want to do something extra (extra course) *they say no, that is not your field of work, so you cannot do that. That is how it goes around here''*

''When you hear that you have to leave (your job)*, the manager does not invest in you anymore. Only when they need you, you can do something for them, but otherwise they give you a feeling that you do not matter anymore''*

''Often the same employees were asked (to follow a course)*, even though you said you wanted to go too. They* (the management) *did not listen''*

5 out of 13 respondents mentioned an unsupportive management makes it more difficult to learn, which is 38.5% of all interviewed employees. 6 out of 13 respondents mentioned that the management supports, encourages and facilitates learning, which is 46.2% of all interviewed respondents. This means that support of the management has a positive influence on the self-directed learning of older employees, but a lack of support of the management has a negative influence on the self-directed learning of older employees.

Besides support of the management, there also is support of colleagues. Support of colleagues is mentioned by 11 of the 13 respondents, which is 84.6% of all interviewed respondents. Support of colleagues is characterized by collaborating with each other, discussing situations and giving feedback in teams. Below some citations of respondents regarding support of colleagues:

''It is giving and taking. You have to make it through the day together (with your colleagues)*''*

''We give each other feedback in teams''

''We just need each other and support each other (colleagues)*''*

Receiving support from colleagues has a positive influence on the self-directed learning of older employees. 9 of the 13 interviewed respondents mentioned that they receive support from colleagues. This is 69.2% of all interviewed respondents. On the other hand, 2 of the 11 respondents who mentioned support of colleagues mentioned that they did not receive support of colleagues, which is 15.4% of all interviewed respondents. No support of colleagues is characterized by other colleagues that have a negative attitude towards learning. This negative attitude has a negative influence on the self-directed learning of the older employee. Below some quotations of the interviewed respondents regarding receiving no support of colleagues:

''A colleague said that it takes a lot of time and that he was busy. I told him that this was not true. That it would not take that much time. But my colleagues only see the negative things''

''I am open for it, I think many people do not see that. Our generation is punishing. Only the bad things are mentioned''

In conclusion, support of both management and colleagues play a crucial role in the learning of older employees. Receiving no support of management and colleagues has a negative influence on the self-directed learning of older employees, but receiving feedback by management and colleagues has a positive influence on the self-directed learning of the older employee.

4.3.2.2 Time
Another organizational influential factor is the time that is reserved for learning during working hours. This was mentioned by 5 out of 13 respondents, which means 38.5% of the respondents mentioned this to be an influential factor. 4 of these respondents mentioned that their employer makes time available to learn during working hours of his/her employees, which is 30.8% of the respondents. Below a quotation of a interviewed respondent regarding an employer that gives employees time to learn:

''When I have a good story, I get time. Additional we can talk about what is my employers' time and what is my own time. But if you have a really good motivation, you will never get red light and you will not hear that something is not possible''

''Based on your working hours, there is time made available to learn (by the employer)*''*

1 of the 5 respondents who mentioned time reserved for learning during working hours mentioned that his/her employer did not make time available to learn during working hours and that the employer expects that his/her employees learn in their own time. This is 7.7% of all interviewed respondents. Below a quotation of an interviewed respondent regarding an employer who does not make time available to learn:

''If I say I want to follow this course or this training, than a critical look is taken if it is really necessary for my job and if there is a benefit for the employer. If there is not, than they rather have you do not learn. Kind of strange actually''.

Not getting time from the employer to learn has a negative influence on the self-directed learning of older employees. Giving employees time to learn during working hours has a positive influence on the self-directed learning of the older employee.

Workload is another organizational influential factor. Workload is mentioned by 4 of 13 respondents (30.8%) and is closely related to time reserved to learn during working hours, but there is a difference. Several respondents mentioned that officially there should be time available to learn, but due to the high workload and many tasks, the older employee is not able to use this time. This is a very predominant factor in the learning of older employees. It hinders the participation of older employees in conscious learning. It hinders the older employee to be aware of situations surrounding them from which they can learn. Understaffing is a big problem and makes it more difficult to learn. Below some quotations of interviewed respondents regarding (high) workload.

''At this moment, we have an employee shortage.''

''I am amazed that we are still able to manage everything. That it all still works out.''

In conclusion, all respondents that mentioned the workload said that the workload has a negative influence on their self-directed learning.

4.3.2.3 Budget
Another organizational influential factor is budget. Budget is mentioned by 10 of 13 respondents, which is 76.9% of all interviewed respondents. This factor is characterized by the availability of a budget for learning or having no or not enough budget for learning. 6 of these 10 respondents mentioned that there is enough budget available for learning, which is 46.2% of all interviewed respondents. Below a quotation of an interviewed respondent who mentioned there is a lot of budget:

''Apparently there is a budget. But it seems to be very generous. I do not even use the entire budget''

''Everyone (employees) *receives a lot of learning budget every year''*

Every employer has some budget made available to learn, but 4 out of 13 respondents mentioned that there is not enough budget to learn what they want to learn, which is 30.8% of all interviewed respondents. This budget is needed for all mandatory courses, there is not much opportunity for self-initiated learning opportunities. Below a quotation of an interviewed respondent mentioning there is very little budget:

''The budget is quite limited. The budget is already used up by the standard courses''

In conclusion, it is clear that having enough budget has a more positive influence on learning than not having (enough) budget to learn.

4.3.2.4 Autonomy
The last organizational influential factor is autonomy. Autonomy is mentioned by 8 of 13 respondents, which is 61.5% of all interviewed respondents. Autonomy is the degree of freedom in choosing which courses, workshops and other forms of education the employee is going to follow. The degree of autonomy

is characterized by an employer who decides which form of education an employee is going to follow, an employee who decides which form of education he/she is going to participate in or both the employer and employee decide which form of education the employee is going to participate in. 3 out of these 8 respondents explicitly mentioned that they have all the freedom to choose which courses they are going to follow, which is 23.1% of all interviewed respondents. Below a quotation of an interviewed respondent mentioning a lot of autonomy:

''You can initiate things (courses, meetings and other forms of education) *yourself. Courses, education, that is all no problem here. They are very, ofcourse it has to be within your field of work, but they are very compliant here. I even got the chance to attend evening school''*

''It depends on yourself if and what you learn''.

5 of the 8 respondents who mentioned autonomy as an influential factor, said that they have little autonomy to decide which courses they are going to follow, which is 38.5% of all interviewed respondents. Most courses they follow are mandatory for the work they do or are initiated by the employer. Below quotations of interviewed respondents mentioning having less autonomy:

''Based on the functioning review with my manager a few competences are pointed out of which we say (employer and employee) *try to develop these more''*

''That are obligatory courses (...) those are imposed''

In conclusion, the extent of autonomy regarding learning influences the self-directed learning of the older employee. More autonomy has a positive influence on the self-directed learning of the older employee, less autonomy and more mandatory courses have a negative influence on the self-directed learning of the older employee.

5. Discussion

The aim of this research was to gain more insight in self-directed learning of older employees. In the following, first the results per research question will be discussed, and then some limitations and implications are discussed.

How do older employees self-direct their learning?

The most remarkable results regarding this research question will be described right now. Each respondent that participated in this study reported several learning experiences. This tackles the stereotype existing around older employees that older employees do not want to learn (Fritzsche, DeRouin & Salas, 2017). The results showed that the majority of the learning experiences resulted in getting aware of something (58.0%). There was no big difference between learning experiences involving others or doing something alone (51.3% respectively 48.7%). 'Thinking and talking together with colleagues' was the learning activity that was used most by the older employees (27.4%). In previous research was emphasized that working together and consultations among activities are the most conducive for learning (Eraut, 2007).

This research showed that 95.6% of all learning activities was a form of informal learning, and only 3.5% of the learning activities was a form of formal learning. This is confirmed by earlier research showing that older employees participate less in education and training (Kyndt et al., 2011), which is formal learning. Raemdonck, Meurant, Balasse and Frenay (2013) clarify why older employees might rather participate in informal learning than formal learning. They say that informal learning is more on a voluntary basis and gives the older employee the opportunity to pace their learning in accordance with their capabilities and needs. In literature was mentioned that, with age, there are reductions in processing speed of information and that there is a decline of working memory capacity (Salthouse, 1996; Zacks, Hasher, and Li, 2000). There were several respondents who mentioned that theoretical learning becomes more difficult with age and that they prefer 'learning by doing'. Schulz and Roßnagel (2010) confirm this by saying that, therefore, older employees might choose a way of learning that suits their learning needs better. Informal learning gives older employees more opportunity to compensate for possible cognitive ageing effects (Schulz & Roßnagel, 2010). This could be the reason why the older employees participate much more in informal learning rather than formal learning. These findings give a more general view on the self-directed learning of the older employees in this research. Now the most important results of the planning and goal-orientation, and reflection and evaluation phases will be described and discussed.

Regarding the planning and goal-orientation phase of self-directed learning 58.0% of the reported learning experiences was unplanned. According to the master's thesis of Kläser (2018), Petli (2016) and Aagten (2016) they also found that most learning experiences were unplanned. All three master's thesis used the Structured Learning Log (Endedijk, 2010) as an instrument for their data collection. Most of the learning occurred spontaneously and emerged from reactive learning (Eraut, 2004). As mentioned before, self-directed learning is planned learning and is therefore deliberative learning (Eraut, 2004). Learning took place when the respondent anticipated on a situation that occurred spontaneously. Which means that the planning phase of self-directed learning was not much represented by the older employees. In this study in which 58.0% of the reported learning experiences was unplanned, this would mean that 58.0% of the learning experiences was not self-directed learning. Earlier researches explained these results in a different way, they mention that rather than pre-planning a learning experience, learning often takes place as an ''organizing circumstance'' that occurs as an impetus for self-directed learning (Spear & Mocker, 1984). But most researchers see the planning phase as a important condition for self-directed learning (Knowles, 1975; Pintrich, 2000; Endedijk, Brekelmans, Sleegers,& Vermunt, 2016).

Most respondents learned because they wanted to prepare themselves for future possible experiences. This is a personal need. 66.7% of all needs to learn were personal needs. This means that 33.3% of the learning needs were external imposed needs. This means that the older employee is in the majority of the learning experiences internally motivated to learn. This connects to what was mentioned in earlier research; with age, the employee is motivated more internal rather than external to learn (Merriam, 2001).

Reflection and evaluation was the next studied phase. The respondents reported in 87.0% of all learning experiences to be satisfied with their learning experience. This is in line with the master's thesis of Aagten (2016), she found as well that employees were very satisfied with their learning experience. With regard to self-directedness you would expect more criticism from the older employee when it comes to their learning. It appeared to be that the older employees who participated in this study were not very critical about their learning experiences. Only in 13.0% of all learning experiences the respondents had no idea how to proceed with the learning experience, which means that they do make plans about what to do next with the learning experience and where to used it for.

In sum, older employees do learn. They might be able to direct their own learning (Merriam, 2001), but it is not very self-directed right now, according to the results of this study. Besides this, the vast majority of the learning of the older employee is informal learning. The older employees are very satisfied with their learning experiences, which means that they are not very critical about their learning.

What is the attitude of older employees towards self-directed learning?
The attitude of older employees regarding self-directed learning is predominantly positive (84.6%). There only were a couple of respondents who had a negative attitude towards learning (15.4%). There were even two respondents who mentioned that their self-directed learning attitude became more positive over the years. Openness to new experiences was mentioned several times by the respondents. Gijbels et al. (2010) mentioned before that employees with a positive self-directed learning attitude show more self-directed learning. As mentioned before, there were some negative attitudes regarding self-directed learning. One of the respondents mentioned the following: 'I am not going to follow an educational programme anymore. I am almost 60'. This connects to what De Lange et al. (2009) say, they say that pre-retirement employees will view time as being more limited, because their retirement is near. When older employees are approaching retirement, they perceive their time at work as ''time left'' and will focus on maintenance of knowledge needed to execute their job instead of work-related learning and development (Gegenfurtner & Vauras, 2012; Kooij & Zacher, 2016). These findings are confirmed by the statement made by the respondent.
In sum, the attitude of the older employee with regard to learning was predominantly positive.

What influences the self-directed learning of older employees?
The identified factors will be discussed in this section. A distinction was made between personal influential factors and organizational influential factors. With regard to the personal influential factors, the factors: prior knowledge, home situation, shift of learning focus – personal development, shift of learning focus – usability of what is learned and shift of learning focus – practical learning over theoretical learning, were identified. Prior knowledge was mentioned by 53.8% of the respondents. When prior knowledge is not taken into account, this might clarify the decline of older employees participating in formal learning (Kyndt et al., 2010). Formal learning often is for the older employee a repetition of what the employee already knows. It is important that with formal learning activities the prior knowledge of older employees is taken into account and adds knowledge to their existing knowledge (Jeske, Roßnagel & Strack, 2017). Learning

opportunities should build on the existing prior knowledge. When this is not the case, this will have a negative effect on the self-directed learning of the older employee.

The home situation is the next influential personal factor and is mentioned by 30.8% of the respondents. When an employee becomes older, it often comes with a changing social role. Merriam (2001) already suggested that it is likely to expect that older employees focus more on other aspects in their lives than work. This could lead to the older employee becoming less ambitious and less focused on learning when they become older. The home situation has a negative effect on the self-directed learning of the older employee.

The shift of learning focus – personal development was mentioned by 46.2% of the respondents as a personal influential factor. These older employees mentioned that they became more interested in their personal development. When an organization facilitates this and makes it possible for the employee to develop themselves, this has a positive effect on the self-directed learning of the older employee. When the organization does not take into account the aspiration of the older employee to develop themselves, this will have a negative effect on the self-directed learning of the older employee.

The shift of learning focus – usability of what is learned was mentioned by 46.2% of the respondents. The respondents mentioned the importance of the usability of what is learned. This has a positive effect on the self-directed learning of the older employee when this is taken into account when providing and creating learning opportunities. When this is not the case, this will have a negative effect on the self-directed learning of the older employee. The older employee prefers learning directly applicable knowledge (Merriam, 2001). The older employee wants to see the importance for their work of what he or she is going to learn (Cau-Bareille, Gaudart and Delgoulet, 2012).

The shift of learning focus – practical learning over theoretical learning is mentioned by 69.2% of the respondents. This personal influential factor was most mentioned by the respondents. With age, theoretical knowledge becomes more difficult to learn, it is harder to memorize information. Learning skills is preferred over learning theoretical knowledge. This could be explained by the decline in cognitive performance with age (Baltes, Lindenberger & Staudinger, 2006). With age, there are reductions in processing speed of information (Salthouse, 1996) and a decline of working memory capacity (Zacks, Hasher & Li, 2000). This could be the reason why older employees prefer practical learning over theoretical learning. When learning opportunities meet this preference, this will have a positive effect on the self-directed learning of the older employee. Otherwise, when learning opportunities do not meet these preference, this will have a negative effect on the self-directed learning of the older employee.

Besides personal influential factors, there are organizational influential factors. The organizational influential factors that were identified are: social support/climate – support of management, social support/climate – support of colleagues, time – time reserved for learning during working hours, time – workload, budget and autonomy.

Social support in general was a big influential factor and was mentioned by 100.0% of all interviewed respondents. This seems to be the most determinative factor when it comes to the self-directed learning of the older employee. 84.6% of the respondents found support of management very important, but 38.5% of all interviewed respondents mentioned that they do not receive the support of the management they want. This is a high percentage, which could be clarified by the existence of the stereotype that older employees are not willing to learn. This might influence the extent of support the older employee receives from management (Fritzsche, DeRouin & Salas, 2017). Support of management has a positive effect on the self-directed learning of the older employee, but receiving no support of the management has a negative effect on the self-directed learning of the older employee. In other research, good relationships at work and

opportunities to ask for support are found to be very important (Eraut, 2007). This also is applicable for support of colleagues. 84.6% of the respondents mentioned the support of colleagues as an influential factor on their learning. The respondents mentioned that they emphasize collaborating with others, discussing situations and giving feedback in teams. They said this has an positive influence on their self-directed learning. When they do not receive support of colleagues, which often is represented by a colleague who has a negative attitude regarding learning, this was experienced as a negative influence on the self-directed learning of the older employee.

Time reserved for learning during working hours was mentioned by 38.5% of the respondents. When the employer reserves time for the employee to learn during working hours, this was perceived as a positive influence on the self-directed learning. When the employee has to do all learning in his/her own time, this had a negative influence on the self-directed learning of the older employee.

The workload was mentioned by 30.8% of the interviewed respondents. A high workload hinders the participation of older employees in conscious learning. This could clarify a part of the 58.0% of the unplanned experiences reported by the older employees. Understaffing is a big problem and makes it more difficult for the older employee to learn. A high workload has a negative effect on the self-directed learning of the older employee. When there is a low workload, there are more opportunities to learn and has a positive influence on the self-directed learning of the older employee.

Budget was mentioned by 76.9% of the respondents. When there is enough budget to learn, this has a positive influence on the self-directed learning of the older employee. When there is no budget, or the budget is not sufficient, this will have a negative effect on the self-directed learning of the older employee. A lot of budget is used for mandatory course, which results in little budget to participate in courses of the own choice of the respondent.

Autonomy was mentioned by 61.5% of the respondents. Autonomy represents the degree of freedom to chose which course, workshop or other form of education the employee is going to follow. Autonomy has a positive effect when the employee has much freedom in which courses he or she is going to follow. When the employee does not have this freedom and the employer decides in which courses the respondent is going to participate in, this will have a negative effect on the self-directed learning of the older employee. This result is confirmed by research in which is mentioned that it is important that the older employee chooses for themselves in which learning activities he or she is going to participate in (Raemdonck, 2012).

6. Limitations

When conducting this research, there were some limitations that arose. These limitations are categorized.

There are some limitations regarding the generalizability of the results of this study. One respondent mentioned that he was working for only a couple of weeks for his current employer. He was not yet able to say much about learning in his work context. The second limitation regarding generalizability was a respondent mentioning that the week she filled in the learning log, was not a representative working week, because it was her first week after a long vacation. This week was about making an inventory of the state of the work she is responsible for. It was not a regular workweek.

There were also some limitations regarding the quality of the data. The first limitation is that participating in this study was voluntarily. This could have let to the low response rate when reaching out to potential respondents for this research. This means that the respondents probably did see the importance

of participating in a study focusing on learning, which could mean that they see the importance of learning and might already be more motivated to learn in general.

The second limitation regarding the quality of the data came from a respondent. She mentioned: 'I almost had the feeling that I had to fill in that I have learned something today. But then I thought, no I just did not learn anything today'. This might explain why there were so many reported learning experiences. That the respondents searched for learning experiences.

There was a third limitation regarding the quality of the data. For the collection of the data 207 potential respondents were approached to participate in this study. Only 18 respondents confirmed they wanted to participate in the study of which 13 respondents responded before the deadline. According to Baruch and Holtom (2008) the average response rate is 52.7% when the data collection involves a survey. The data collection of this study consisted of filling in five learning logs and participating in an interview, which is more intensive than 'just' filling in a survey, but still the response rate of <10% appears to be very low. These limitations together have to be taken into account before generalizing the results of this study. Large-scale research is needed in order to make more generalizable statements.

7. Implications

Below, both implications for practice and for research will be discussed separately.

7.1 Implications for practice

In this research, more insight is gained in the self-directed learning of older employees. These insights could be used by educational developers to design learning activities that are more adjusted to the needs and capacities of older workers' (Schulz & Stamov Roßnagel, 2010).

This research showed that a lot of learning appeared to be unplanned learning, while planning plays an important part in the self-directed learning process. An employer could facilitate the self-directed learning process by letting the employee fill in a learning log once in a while, it could be possible that the older employee becomes more aware of his/her learning. It also makes the learning of the older employee more visible for the environment and it could lead to more planned learning, which could lead to more self-directed learning.

The personal influential factors that were found are harder to influence from the employer's point of view, but these factors can be taken into account when designing new educational programs.

Furthermore, learning with colleagues is an important way of learning for older employees, the employer could facilitate more collaborative settings. The employer and educational designers should see social learning as an important way for older employees to professional develop themselves (Apker et al., 2006).

7.2 Implications for research

This study gained more insight in the self-directed learning of older employees and what might effect the choices they make regarding learning. This raised different implications for further research.

The first implication is that the influential factors that were identified in this research could be used to conduct a large scale research to gain more insight in to what extent these factors influence the self-directed learning of older employees and how big that influence is. This research is needed in order to make more generalizable statements about the self-directed learning of older employees.

Another implication for research is to study which learning activities fit the older employee best when taking into account the influential factors, because most educational programs are designed for their younger colleagues.

The third implication for research is the monitoring phase. In this research, only the planning and goal-orientation phase, and reflection and evaluation phase were taken into account. It might be an interesting field of research to study the monitoring phase as well to see if older employees monitor their learning.

The fourth implication is about the learning attitude. In this research a distinction was made between a positive or a negative attitude towards learning. In literature is also spoken about the positive influence of a proactive attitude in relation to the self-directed learning (Raemdonck, 2012). It might be an interesting field of further research to study if this also is the case for older employees and more nuance could be applied to the different self-directed learning attitudes of older employees.

8. References

Aagten, D. (2016). *Healthcare professionals' self-directed learning at the workplace* (Master's thesis). Retrieved from https://essay.utwente.nl/69535/1/Aagten%20D.%20-%20S1508156%20-%20masterscriptie.pdf

Apker, J., Propp, K.M., Ford, W.S.Z., & Hofmeister, N. (2006). Collaboration, credibility, compassen, and coordination: professional nurse communication skill sets in health care team interactions. *Journal of professional Nursing, 22*(3), 180-189.

Armstrong-Stassen, M. (2008), 'Human resource practices for mature workers – and why aren't employers using them?', *Asia Pacific Journal of Human Resources*, *46*(3), 334–352.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191-215.

Baltes, P. B., Lindenberger, U., & Staudinger, U. M. (2006). Lifespan theory in developmental psychology. In R. M. Lerner (Ed.) (6th ed.).*Handbook of child psychology*, 1, 569-664. New York: Wiley

Baruch, Y. & Holtom, B.C. (2008). Survey response rate levels and trends in organizational research. *Human Relations*, *61*(8), 1139-1160. doi: 10.1177/0018726708094863

Berg, S.A. & Chyung, S.Y. (2008). Factors that influence informal learning in the workplace, *Journal of Workplace Learning*, *20*(4), 229-244. doi: 10.1108/13665620810871097

Boeije, H. (2010). Analysis in qualitative research. London: Sage Publications, Ltd.

Boekaerts M. & Minnaert A.E.M.G. (1999), Self-regulation with respect to informal learning, *International Journal of Educational Research, 31*(6), 533-544.

Cau-Bareille, D., Gaudart, C. & Delgoulet, C. (2012). Training, age and technological change: difficulties associated with age, the design of tools, and the organization of work, *Work*, *41*(2). doi: 10.3233/WOR-2012-1278

De Lange, A.H., Taris, T.W., Janse, P., Kompier, M.A., Houtman, I.L.D., & Bongers, P.M. (2009). On the relationship among work characteristics and learning-related behavior: Does age matter?, *Journal of Organizational Behavior, 31*(7), 925-950. doi: 10.1002/job.649

Descy, P. (2006). Review of European and international statistics. In T. Tikkanen & B. Nyhan (Eds.), Promoting lifelong learning for older workers: An international overview (69–89). Luxembourg: Office for Official Publications of the European Communities

Ellinger, A. D. (2004). The concept of self-directed learning and its implications for human resource development, *Advances in Developing Human Resources*, *6*(2), 158-177. doi: 10.1177/1523422304263327

Endedijk, M.D., Brekelmans, M., Sleegers, P. & Vermunt, J.D. (2016). Measuring students' self-regulated learning in professional education: bridging the gap between event and aptitude measurements, *Quant Quant, 50*, 2141-2164. doi: 10.1007/s11135-015-0255-4

Eraut, M. (2000). Non-formal learning and tacit knowledge in professional work, *British Journal of Educational Psychology, 70*, 113-136

Eraut, M. (2004). Informal learning in the workplace, *Studies in Continuing Education, 26*(2), 247-273. doi: 10.1080/158037042000225245

Findsen, B., Formosa, M. (2011). Lifelong learning in later life. Rotterdam, the Netherlands: Sense Publishers.

Fisher, M., King, J. & Tague, G. (2001). Development of a self-directed learning readiness scale for nursing education, *Nurse Education Today*, *21*, 516-525. doi:10.1054/nedt.2001.0589

Fontana, R.P., Milligan, C., Littlejohn, A., & Margaryan, A. (2015). Measuring self-regulated learning in the workplace. *International Journal of Training and Development, 19*(1), 32-52. doi: http://doi.org/10.1111/ijtd.12046

Fritzsche, B.A., DeRouin, R.E. & Salas, E. (2009). The effects of stereotype threat and pacing on older adults' learning outcomes, *Journal of Applied Social Psychology, 39*(11), 37-55. doi: 10.1111/j.1559-1816.2009.00546.x

Fuller, A., & Unwin, L. (2004), 'Expansive Learning Environments: Integrating Organizational and Personal Development', in H. Rainbird, A. Fuller and A. Munro (eds), Workplace Learning in Context (London: Routledge), 126–44.

Fuller, A. & Unwin, L. (2006). Older and wiser? Workplace learning from the perspective of experienced employees, *International Journal of Lifelong Education*, *24*(1). doi: 10.1080/026037042000317329

Gegenfurtner, A. and Vauras, M. (2012), 'Age-related differences in the relation between motivation to learn and transfer of training in adult continuing education', *Contemporary Educational Psychology, 37*(1), 33–46.

Gijbels, D., Raemdonck, I. & Vervecken, D. (2010). Influencing work-related learning: The role of job characteristics and self-directed learning orientation in part-time vocational education. *Vocations and Learning*, *3*(3), 239-255. doi: 10.1007/s12186-010-9041-6

Guglielmino, L.M. & Guglielmino, P.J. (1994). Practical experience with self-directed learning in business and industry human resource development. *New Directions for Adult and Continuing Education*, *64*. doi: 10.1002/ace.36719946407

Hager, P. (1998). Recognition of informal learning: challenges and issues. *Journal of Vocational Education and Training, 50*(4), 521-535. doi: 10.1080/13636829800200064

Harteis, C. and Billett, S. (2008), 'The workplace as learning environment', *International Journal of Educational Research*, *47*, 209–12.

Jeske, D., Roßnagel, C.S. & Strack, J. (2017). Training older workers: resource-oriented strategies, *International Journal of Training and Development, 21(*2). doi: 10.1111/ijtd.12100

Kläser, N. (2018). *Self-directed learning at the workplace among healthcare professionals* (Master's thesis). Retrieved from http://essay.utwente.nl/74529/1/kl%C3%A4ser_MA_BMS.pdf

Kyndt, E., Dochy, F., & Nijs, H. (2009). Learning conditions for non-formal and informal workplace learning, *Journal of Workplace Learning, 21*(5), 369-383.

Kyndt, E., Michielsen, M., Van Nooten, L., Nijs, S., & Baert, H. (2011): Learning in the second half of the career: stimulating and prohibiting reasons for participation in formal learning activities. *International Journal of Lifelong Education*, *30*(5), 681-699.

Knowles, M. (1975). *Self-directed learning: A guide for learners and teachers.* Toronto, ON: The Adult Education Company.

Kubeck, J. E., Delp, N. D., Haslett, T. K., & McDaniel, M. A. (1996). Does job-related training performance decline with age?, *Psychology and Aging, 11*, 92-107.

Marsick, V. J., & Watkins, K. E. (1997). Lessons from informal and incidental learning. In J. Burgoyne, & M. Reynolds (Eds.), Management learning: Integrating perspectives in theory and practice, 295-311. Thousand Oaks, CA: Sage.

Merriam, S.H. (2001). Andragogy and self-directed learning: pillars of adult learning theory. *New directions for Adult and Continuing Education*, *89*, 3-13.

Nelson, T. D. (2002). Ageism: Stereotyping and prejudice against older persons. Cambridge, MA: MIT Press.

Ng, T. W. H., & Feldman, D. C. (2008). The relationship of age to ten dimensions of job performance, *Journal of Applied Psychology, 93*(2), 392-423.

Patterson, C., Crooks, D., & Lunyk-Child, O. (2002). A new perspective on competencies for self-directed learning, *Journal of Nursing Education*, *41*(1), 25-31.

Petli, A. (2018*). Multiple-event measurement of self-directed learning: The interaction of personality traits and contextual variables on employees' daily self-directed learning flucuation* (Master's thesis). Retrieved from: https://essay.utwente.nl/73425/1/Petli%20_MA_BMS.pdf

Pilling-Cormick, J., & Garrison, D. R., 2007. Self-directed and self-regulated learning: Conceptual links. *Canadian Journal of University Continuing Education*, *33*(2), 13-33.

Pintrich, P.R. (2000). The role of goal orientation in self-regulated learning. In M. Boekaerts. P.R. Pintrich & M. Zeidner (Eds.), Handbook of Self-Regulation, 451-502. San Diego, CA: Academic Press.

Raemdonck, I. (2006). Self-directedness in learning and career processes. A study in lower-qualified employees in Flanders. Doctoral Dissertation. Gent, Belgium: Gent University – Department of Educational Sciences.

Raemdonck, I., Beausaert, S., Fröhlich, D., Kochoian, N. & Meurant, C. (2015). Aging workers' learning and employability. In: Bal P., Kooij D., Rousseau D. (eds) Aging Workers and the Employee-Employer Relationship. Springer, Cham, 163-184. doi: 10.1007/978-3-319-08007-9_10

Raemdonck, I., Gijbels, D. & Van Groen, W. (2014). The influence of job characteristics and self-directed learning orientation on workplace learning. *International Journal of Training and Development, 18*(3). doi: 10.1111/ijtd.12028

Raemdonck, I., Van der Leeden, R., Valcke, M., Segers, M. & Thijssen, J. (2012). Predictors of self-directed learning for low-qualified employees: a multi-level analysis. *European Journal of Training and Development, 36*(6), 572-591. doi: 10.1108/03090591211245495

Raemdonck, I, Thijssen, J.G.L., & de Greef, M. (2017). Self-directedness in workrelated learning processes. Theoretical perspectives and development of a measurement instrument. In Göller, M. & Pallonimie, S. (Eds.). Agency at work - An agentic perspective on professional learning and development. London: Springer, 401-423.

Reio, Jr., T. (2004), "Prior Knowledge, Self-Directed Learning Readiness, and Curiosity: Antecedents to Classroom Learning Performance*," International Journal of Self-Directed Learning, 1*(1), 18-25

Roberson, D.N. & Merriam, S.B. (2005). The self-directed learning process of older, rural adults., *Adult Education Quarterly, 55*(4), 269-287. doi: 10.1177/0741713605277372

Saks, K. & Leijen, A. (2014). Distinguishing self-directed and self-regulated learning and measuring them in the e-learning context, *International Conference on Education & Educational Psychology, 112*, 190-198. doi: 10.1016/j.sbspro.2014.01.1155

Salthouse, T. A. (1996). The processing-speed theory of adult age differences in cognition, *Psychological Review, 103*, 403-428.

Schulz, M. & Stamov-Roßnagel, C. (2010). Informal workplace learning: An exploration of age differences in learning competence, *Learning and Instruction, 20(5*), 383-399. doi: 10.1016/j.learninstruc.2009.03.003

Tikkanen, T. & Nyhan, B. (2006). Review of European and International statistics. In T. Tikkanen & B. Nyhan (eds.) *Promoting Lifelong Learning for Older Workers. An international overview* (Luxembourg: Office for Official Publications of the European Communities), 9-17.

Tjepkema, S. (2002). Bouwen aan een lerende organisatie via het opsporen van leerblokkades. Retrieved from: http://kessels-smit.nl/files/Artikel_2002_tjepkema_-_bouwen_aan_een_lerende_organisaties.pdf.

Viera, A. J., & Garrett, J. M. (2005). Understanding interobserver agreement: the kappa statistic. *Fam Med*, *37*(5), 360-363.

Zacks, R. T., Hasher, L., & Li, K. Z. H. (2000). Human memory. In F. I. M. Craik, & T. A. Salthouse (Eds.), The handbook of aging and cognition (pp. 293e357). Mahwah, NJ: Erlbaum

Zwick, T. (2015). Training older employees: what is effective?, *International Journal of Manpower, 36*(2), 136-150. Doi: 10.1108/01437729710169373

Appendix A

Toelichting op het onderzoek Zelfgestuurd leren bij werknemers van 45+ jaar
Onderzoeker: Liza Hendriks, l.hendriks-1@student.utwente.nl

Beste [naam participant],

Hartelijk dank voor je interesse in het onderzoek. Het doel van het onderzoek is om meer inzicht te krijgen in hoe en wat werknemers van 45+ leren en wat hen kan stimuleren dit nog meer te doen. Wat houdt het deelnemen aan dit onderzoek precies in?

1. Het invullen van de vragenlijsten.
Het is de bedoeling dat je gedurende vijf opeenvolgende werkdagen iedere dag een vragenlijst invult. De link naar de vragenlijst ontvang je per e-mail de avond voorafgaand aan je werkdag. In deze vragenlijst wordt gevraagd naar jouw leerervaringen van die dag. Het invullen van de vragenlijst kost niet meer dan 5 à 10 minuten per dag.

2. Een interview
Het interview is een een-op-een gesprek dat ongeveer een half uur zal duren. Tijdens dit interview gaan we dieper in op de antwoorden die je hebt gegeven op de vragen in de vragenlijsten en wil ik graag van je te weten komen wat je zou helpen om (nog) meer zelfgestuurd te leren. Uiteraard vindt het interview plaats op een voor jou geschikte tijd en een locatie waar het jou het beste uitkomt.

Alle informatie die tijdens dit onderzoek wordt verzameld, wordt enkel gebruikt ten behoeve van dit onderzoek en alle gegevens zullen volledig worden geanonimiseerd. Wanneer je vragen hebt over het onderzoek kun je me op de volgende manieren bereiken:

E-mail: ███████████████
Telefoonnummer: ██████████

Nu je van bovenstaande op de hoogte bent gesteld, wil ik je vragen het onderstaande goed door te nemen.

Toestemmingsverklaring
Ik verklaar hierbij op een voor mij duidelijke wijze te zijn ingelicht over de aard, methode en doel van het onderzoek. Ik weet dat de gegevens en resultaten van het onderzoek alleen anoniem en vertrouwelijk gebruikt zullen worden. Mijn vragen zijn naar tevredenheid beantwoord.

Ik stem geheel vrijwillig in met deelname aan dit onderzoek. Ik behoud me daarbij het recht om op elk moment zonder opgaaf van redenen mijn deelname aan dit onderzoek te beëindigen.

Voordat we kunnen starten met het onderzoek, wil ik je vragen eerst onderstaande vragen z.s.m. per e-mail te beantwoorden. Door onderstaande vragen te beantwoorden, ga je akkoord met wat hierboven is beschreven en neem je deel aan dit onderzoek.

Wat is je naam? …………………………………………………………………………....
Wat is je geslacht?..
Wat is je leeftijd?...
Welke functie heb je bij je huidige werkgever?..
Mijn eerst eerstvolgende vijf werkdagen zijn …………………………………………………..

Alvast hartelijk dank en ik hoop van je te horen.

Met vriendelijke groet,
Liza Hendriks

Appendix B

Logboek

Leerervaringen:
1. Wat is je naam? Je naam wordt enkel gebruikt om de vragenlijsten aan elkaar te koppelen. De resultaten worden verder geanonimiseerd gebruikt.

   ………………………………………………………………………………………………………..

2. Er zijn verschillende soorten leerervaringen:
   - Een leerervaring kan georganiseerd en gepland zijn, maar ook toevallig gebeuren
   - Het kan iets groots zijn, maar ook een klein stapje in de goede richting
   - Het kan lang duren, of een kort moment zijn
   - Je kunt iets alleen hebben geleerd of met anderen samen
   - Het kan een verandering zijn in je kennis. Je weet iets wat je eerder niet wist.
   - Het kan een verandering zijn in je gedrag. Je doet nu iets anders dan je eerder deed.
   - Het kan een verandering zijn in je mening. Je denkt nu ergens op een andere manier over.

   Suggesties voor leerervaringen. Heb je vandaag:
   - Gewerkt aan een probleem, issue of conflict?
   - Een discussie gehad met een collega?
   - Een AHA-moment gehad, een nieuw inzicht ergens in gekregen?
   - Gewerkt aan iets wat nieuw voor je was?
   - Iets gedaan wat heel erg goed ging? Of juist fout?
   - Iets interessants gehoord in een gesprek of bijeenkomst?
   - Nieuwe informatie opgezocht of hulp gevraagd aan een collega?
   - Ben je je ergens bewust van geworden?
   - Heb je een opvallende gebeurtenis meegemaakt, of iets wat je heel erg bezig heeft gehouden?

   Heb je vandaag een (of meerdere) leerervaring(en) gehad in de context van je werk? Deze leerervaring kan zowel thuis, als op je werk of op een andere plek hebben plaatsgevonden.
   - o Ja. (Ga door naar vraag 2).
   - o Nee. Ik heb vandaag geen leeractiviteit ondernomen. Dan is hier het einde van de vragenlijst.

3. Beschrijf hieronder in je eigen woorden wat je precies hebt geleerd vandaag?

………………………………………………………………………………………………………

………………………………………………………………………………………………………

………………………………………………………………………………………………………

4. Was het je planning/bedoeling om dit te leren?
   - o Ja, ik had gepland om dit te leren
   - o Niet specifiek op dit moment, maar het was wel mijn bedoeling dit een keer te leren

o Nee, dit was niet gepland (ga dan door naar vraag 6)

5. Wat was de belangrijkste reden om dit te leren?
   o Ik was ontevreden over hoe iets een eerdere keer is verlopen
   o Ik was ergens nieuwsgierig naar
   o Iemand anders heeft mij gestimuleerd me hierin te ontwikkelen
   o Ik wilde me voorbereiden op situaties waar ik in de toekomst mee te maken kan krijgen
   o Ik wilde ergens mee oefenen
   o Vanuit de organisatie werd dit van mij verwacht
   o Anders, namelijk…………………………………………………………………...

6. Er zijn verschillende manieren om iets te leren. Bij het hebben van een leerervaring heb je op zijn minst één leeractiviteit ondernomen om tot deze leerervaring te kunnen komen. Wat was de eerste leeractiviteit die je hebt ondernomen? Ik heb in deze leerervaring iets geleerd door….
   o Iets te doen of iets te ervaren
   o Iets nieuws uit te proberen
   o Na te denken over wat goed en fout ging in een bepaalde situatie en wat mijn rol hierin was
   o Informatie op te zoeken in bijvoorbeeld een boek of op internet
   o Feedback of informatie te ontvangen van een ander
   o Te observeren hoe anderen iets doen
   o Met collega's/anderen na te denken en te praten
   o Een cursus, bijeenkomst of workshop bij te wonen
   o Geen idee.
   o Anders, namelijk…………………………………………………………………..

7. Waren er nog meer leeractiviteiten onderdeel van jouw leerervaring?
   o Ja. Ga dan door naar de volgende vraag.
   o Nee. (Ga dan door naar vraag 11).

8. Bij de tweede leeractiviteit heb ik geleerd door….
   o Iets te doen of iets te ervaren
   o Iets nieuws uit te proberen
   o Na te denken over wat goed en fout ging in een bepaalde situatie en wat mijn rol hierin was
   o Informatie op te zoeken in bijvoorbeeld een boek of op internet
   o Feedback of informatie te ontvangen van een ander
   o Te observeren hoe anderen iets doen
   o Met collega's/anderen na te denken en te praten
   o Een cursus, bijeenkomst of workshop bij te wonen
   o Geen idee.
   o Anders, namelijk…………………………………………………………………..

9. Heb je nog meer leeractiviteiten ondernomen vandaag?

- o   Ja. Ga dan door naar de volgende vraag.
- o   Nee. (Ga dan door naar vraag 11).

10. Bij de derde leeractiviteit heb ik geleerd door....
- o   Iets te doen of iets te ervaren
- o   Iets nieuws uit te proberen
- o   Na te denken over wat goed en fout ging in een bepaalde situatie en wat mijn rol hierin was
- o   Informatie op te zoeken in bijvoorbeeld een boek of op internet
- o   Feedback of informatie te ontvangen van een ander
- o   Te observeren hoe anderen iets doen
- o   Met collega's/anderen na te denken en te praten
- o   Een cursus, bijeenkomst of workshop bij te wonen
- o   Geen idee.
- o   Anders, namelijk………………………………………………………………..

---

11. Was je tevreden over de leerervaring die je bij vraag 1 hebt beschreven?
- o   Daar heb ik niet bij stil gestaan.
- o   Ja, ik ben tevreden.
- o   Nee, ik zou het de volgende keer anders aanpakken.

12. Hoe ga je nu verder met deze leerervaring?
- o   Ik heb (nog) geen plannen.
- o   Het is niet gegaan zoals ik wilde, dus ik ga het opnieuw proberen.
- o   Ik weet precies wat ik de volgende keer zal doen in een vergelijkbare situatie.
- o   Ik wil dat wat ik heb geleerd zo blijven doen.
- o   Ik wil dat wat ik heb geleerd verder verbeteren.
- o   Ik wil dat wat ik heb geleerd toepassen in de praktijk
- o   Ik wil dat wat ik heb geleerd toepassen in een andere situatie.
- o   Op basis van wat ik heb geleerd, heb ik een nieuw leerdoel voor mezelf opgesteld.
- o   Anders, namelijk…………………………………………………………………...

13. Heb je nog feedback of andere opmerkingen?
    ……………………………………………………………………………………………….

Appendix C

Example of an interview scheme used for the interviews

Inleiding
Fijn dat je tijd voor me vrij hebt kunnen maken. Hartelijk dank voor het invullen van de logboekjes. Ik ga je het een en ander vragen over de ervaring die je had met het invullen van het logboekje. Ik ga hier vervolgens enkele verdiepende vragen over stellen. Hierna ga ik je vragen naar je leerhouding en ook ga ik enkele vragen stellen over wat het zelfsturend leren beïnvloedt. Het interview duurt ongeveer een half uur. Ik wil dit interview graag opnemen, de opname zal uiteraard enkel gebruikt worden voor de analyses ten behoeve van dit onderzoek en niet aan derden worden verstrekt. Alle gegevens uit de opname worden uiteraard anoniem verwerkt in het onderzoeksrapport. Heb je hier bezwaar tegen? Dan start ik nu de opname en begint het interview.

Het invullen van de vragenlijst
Ik zag in je ingevuld logboekjes dat je bij bijna iedere leerervaring met iemand samenwerkt, is dit meestal zo?

Houding ten opzichte van leren
Hoe kijk jij tegen leren aan?
- Waarom vind je dit?
- Hoe wordt door de omgeving aangekeken tegen het leren van oudere werknemers?
- Merk je bij jezelf een verschil tussen hoe je vroeger tegen leren aankeek en hoe je dit nu doet?

Ondersteuning voor leren
Waar zou je zelf behoefte aan hebben om meer initiatief te nemen in het leren?
Wat beïnvloedt voor jou het leren?

Eventueel doorvragen op de volgende aspecten, onderverdeeld in organisatorisch en persoonlijke factoren:

Organisatorische beïnvloedende factoren:
- Ondersteuning door werkgever
- Ondersteuning door collega's
- Sfeer werkomgeving
- Tijd
- Budget

Persoonlijke beïnvloedende factoren:
- Veranderde persoonlijke ontwikkeling
- Invloed ervaring
- Thuissituatie

Appendix D

Coding scheme question 3

Categories	Description	Examples
Gaining knowledge	Gaining theoretical professional knowledge	*'I expanded my professional knowledge after a case'*
Learning a certain practice	Learning how to do something practical, how to deal with a situation or how to deal with certain feelings.	*'I learned how to handle noise exemptions'*
Getting aware of something	Getting aware of a reaction, behaviour or situation.	*'You also learn while listening'*

Appendix E

Coding scheme self-directed learning phases: planning and goal-setting, and reflection and evaluation

Codes	Description	Examples
Planning and goal-setting phase	The start of the learning experience. Planning and goal-setting, goal orientation and activating prior knowledge. Identifying what is needed in order to have the learning experience, and reasons for using certain resources or learning strategies. The reason why learning is needed.	''By the government new laws and regulations are imposed'' ''When I leave a place and I notice that people have no idea what it is about, I want that when I come back, they understand the next time what is happening. I want them to dive into something''
Reflection and evaluation phase	Evaluating how the learning experience went. Various kinds of reactions and reflections on the self and task or context, such as: judgments	''I do a lot of self-reflection. What have I learned?'' ''Afterwards I think I wish I had said this or that and did not give him so much room to keep asking questions''.

Appendix F

Coding scheme Attitude of older employees regarding self-directed learning

Code	Description	Examples
Attitude	Personal characteristics that have an positive influence on the view of the employee on learning. For instance: - searching for new challenges, curiosity - positive attitude towards learning - is open	*Positive:* *'I am less careless. I am more serious now'*
	Personal characteristics that have an negative influence on the view of the employee on learning. For instance: - negative attitude towards learning - not seeing the need for learning	*Negative:* *'You cannot change people, especially when they are over 45 years old'*

Appendix G

Coding schema personal influential factors

(Sub)Codes		Description	Examples
Prior knowledge		Previous experience and knowledge an employee has which influences the choices an employee makes regarding learning. For instance: - prior knowledge and experience influence the choices an employee makes - new information should build on prior knowledge and experience - new knowledge should add knowledge to existing knowledge instead of repeating this	*Positive:* *'I look for things that really add something'* *'Besides that, I have a function with a lot of different things, but ofcourse through the years I have a lot of knowledge and experience, so you take that with you. That is why you have new ideas.'*
Home situation		The role family and personal circumstances play in choices made regarding learning. For instance: - having children - buying a house - getting married	*Negative:* *'When you take a look at learning and what you have to do at home, than there is the home situation that plays a role'*
Shift of learning focus	Personal development	Personal development becomes a field of interest. For instance: - the employee becomes more interested in behaviour of him-/herself or others - the employee wants to develop him-/herself on a personal level	*Positive:* *'If you give courses in what makes you insecure, or personal development, to me that is worth much more than theoretical content'* *Negative:*

			'The educational system is too much focused on the theoretical context and too little on the person'
	Usability of what is learned	The applicability of learned information to the workcontext. For instance: - knowledge should be applicable in the workcontext	*Positive:* *''When you become older you learn that people look more at skills than your level of education''* *Negative:* *''Nowadays, when you learn you have to process a lot of input that is not work relatable''*
	Practical learning over theoretical learning	The focus from theoretical learning shifts to practical learning or learning skills. For instance: - with age learning theoretical knowledge becomes more difficult - learning by doing is found more important - it is harder to memorize information - learning skills is found more important than learning theoretical knowledge	*''I notice that when I become older, it becomes less easy to memorize. It takes me longer to get things in my head''.*

Appendix H

Coding scheme Organizational influential factors

Main code	Subcode	Description	Examples
Social support/climate	Support of management	The support an employee receives of the management regarding learning. For instance; - recognition from the manager for the work or learning that was done - nitpicking by managers - unfair differentiating between employees - a manager who has eye for potential of employees - blaming culture, fear of losing job - motivation of employees to learn that is not used by the employer	*Positive:* *'And I know that when I report that to the coordinator, that it will be used to change things'* *Negative:* *'As long as the same people are in the management, there is little time for development'*
	Support of colleagues	The social support an employee receives of his/her colleagues regarding learning. For instance: - collaborating with colleagues - discussing situations - giving feedback in teams - colleagues having a negative attitude towards learning	*Positive:* *'We have a very dynamic and, in my opinion, a team that is willing to develop'* *Negative:* *'It takes a lot of time and I am busy, but I said that does not take a lot of time. But they see the negative things'*
Time	Time reserved for learning	Employer does (not) make time available for learning. For instance:	*Positive:*

	during workinghours	- learning has to happen in own time of employee - the employer makes time available for learning of employees	*'It helps that we can do it (learning) during working hours'* *Negative:* *'When I want to learn, I have to do that in my own time, I do not receive any support from my employer in this'*
	Workload	There might be time reserved to learn, but due to the high workload this time is not used.	*Negative:* *''We are always busy, there is always so much work''*
Budget		The budget that is made available by the organization for learning. For instance: - there is enough budget available to learn - there is not enough budget available to learn	*Positive:* *'Ofcourse there is a budget for learning'* *Negative:* *'All municipalities are poor. Development has dried up.'*
Autonomy		The degree of freedom of choosing which courses, workshops and other forms of education he/she is going to follow. For instance: - the employer decides which courses, workshops or other form of education the employee is going to participate in	*Positive:* *'If I want something, the initiative is mine'* *Negative:* *'That are obligatory courses (…) those are imposed'*

	- the employer decides in what form of education he/she is going to participate in - both the employer and employee have a say in in which education forms the employee is going to participate in	