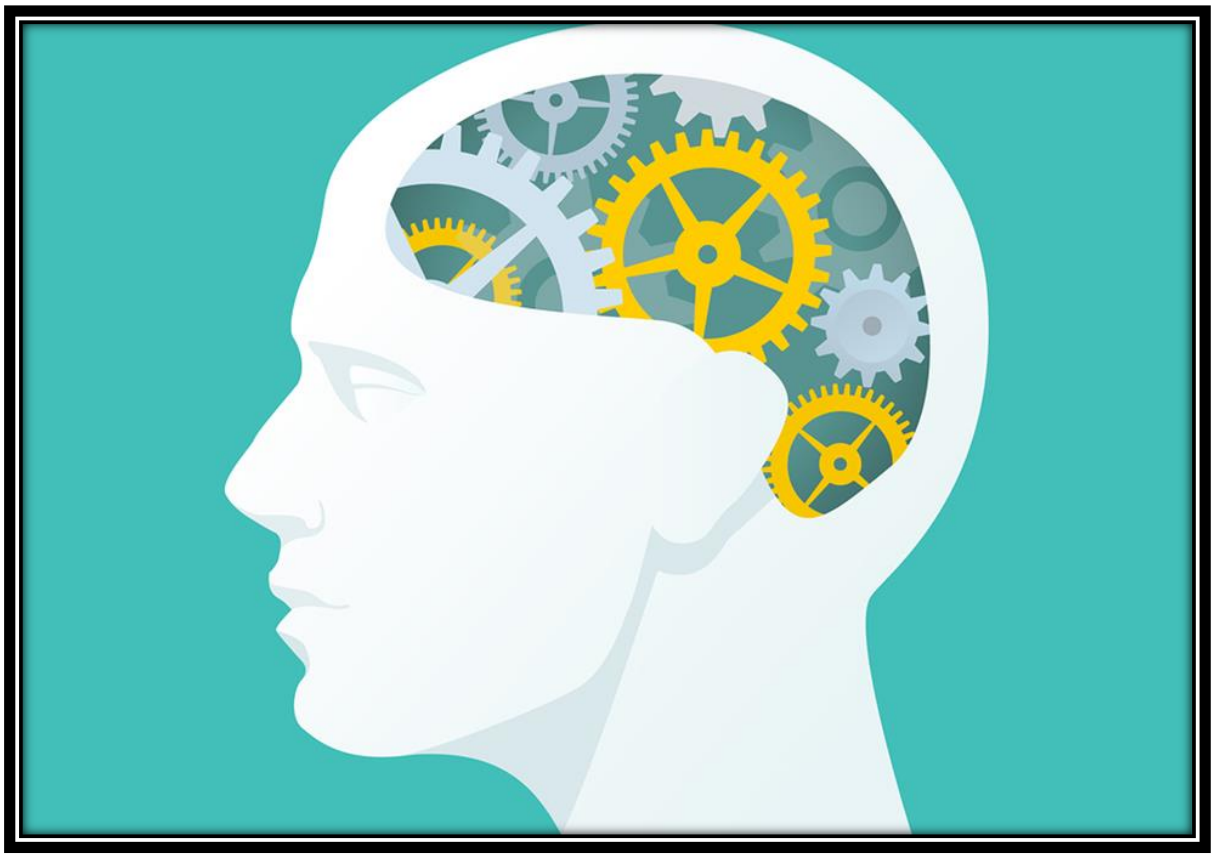
Salutogenesis in the workplace - The role of workplace learning in low-skilled professions and its relation to the Sense of Coherence and General Resistance Resources



HSO - 80333

Master Thesis Health and Society

Stephan Renz – 920723687130

Supervisor: Dr. ir. Lenneke Vaandrager

Wageningen University & Research

27th February 2017

WAGENINGEN
UNIVERSITY & RESEARCH

I. Summary

The tension between a rising pressure at the workplaces in our current society and the wanting for a healthy work environment, asks for including health management into daily work practice. A suitable approach for keeping those factors in balance and to include health into the work life is the concept of Salutogenesis, which focusses on empowering people to take care of their own health and on strengthening one's resources. Salutogenesis includes two major concepts, the Sense of Coherence (SOC) and General Resistance Resources (GRRs), which are interlinked and support each other. In the model of Vaandrager & Koelen (Vaandrager & Koelen, 2013) the Sense of Coherence and the General Resistance Resources are adjusted to the workplace setting and it is assumed, that workplace learning plays a role within this relationship, however the evidence is limited. When it comes to workplace learning, low-skilled employees seem to be a vulnerable group. They are assumed to be disadvantaged in comparison to higher-skilled employees, although they are in great need of learning opportunities. The situation of the low-skilled workers in combination with the need of verifying the model of Vaandrager and Koelen (2013), leads to the research aim of this study: To explore, what role workplace learning plays for low-skilled workers, how it relates to functioning in their job and what role workplace learning plays within the relationship between the Sense of Coherence and the General Resistance Resources.

The role of workplace learning for low-skilled workers and its relation to job functioning was explored with a literature study in the databases of Scopus and Web of Science, resulting in 18 included articles. The role of workplace learning within the relationship between the SOC and GRRs, was examined via an online survey. The SOC-13, the COPSOQ 1 and the Workplace Learning Process Questionnaire were combined and distributed via 15 Facebook groups targeted at low-skilled employees, resulting in 79 respondents.

The results of the literature study confirmed the assumption, that the low-skilled workers have less access and participate less in workplace learning programs. Furthermore, insights into their motivation and attitude towards workplace learning were gained and also about effects of the programs. The online survey once more confirmed the connection between the SOC and GRRs. For workplace learning however, only weak moderation and no meditation effects were found, indicating that workplace learning plays only a very limited role in the relationship between work-related GRRs and the SOC. Future research should examine the workplace learning processes of low-skilled workers in more detail and how they relate to psychosocial aspects, e.g. an improved attitude towards work or self-efficacy. Finally, more research is needed to explain the relationship between the SOC and GRRs. In practice, more attention should be paid to the learning needs of low-skilled workers. Workplace learning

programs should take the attitude and preferences of the low-skilled workers into account and design and evaluate the programs accordingly.

Keywords: salutogenesis - general resistance resources - sense of coherence - workplace learning - low-skilled – online survey

II. Preface

Since writing a thesis is not only an individual process, I would like to give thanks to everybody that supported me during this time.

First of all, I would like to thank Dr. ir. Lenneke Vaandrager from the Wageningen University for providing me with the topic and supervising my research process. She supported me in overcoming the obstacles in this process and guiding me through the research, but also gave me the space to act independently and develop myself.

Furthermore, I would like to thank Stella Weiland for her support in the last six months. Whether it was critical feedback and suggestions for improvements or I simply needed somebody to complain to, you were always willing to lend me an ear.

I am also grateful for everybody who took the time to answer my questions and participated in my research.

Finally, I would like to thank all my family and friends who patiently listened to me and gave support when needed. Without all of you, this thesis would not have been possible.

Table of contents

III. List of figures

IV. List of tables

1. Introduction

The current work environment is in an ongoing state of rapid change. New technological developments increase the pace of working life and challenges major parts of the workforce to constantly reinvent themselves and keep on learning. The boundaries between working hours and private life become more permeable and the effects of globalization become more noticeable for a large number of employees. This puts a high demand on the workforces and can have wide ranging effects on their lives, including their health. On the other hand, organizations are dependent on well-working employees in order to compete in a challenging environment. Together with the consequences of the demographic change, workplace health becomes an increasingly important topic (Hanson, 2007). Investing into the health of the employees thereby benefits both parties, the individual employee and the organization as a whole (Zwetsloot, van Scheppingen, Dijkman, Heinrich, & den Besten, 2010). As the European Network of Workplace Health Promotion states, healthy employees are "fundamental to the future social and economic wellbeing of the European Union" (European Network of Workplace Health Promotion, 2007). Workplace health used to be approached only in a pathogenetic manner, which focusses on occupational stress and accidents as well as on the reduction of illness. In contrast to that, the Salutogenic perspective receives more and more attention. The Salutogenic perspective focusses on supporting people in maintaining or increasing their health and well-being. It thereby concentrates on identifying one's resources and strategies and enables them to use them to positively manage challenging situations and to improve their health (Lindström & Eriksson, 2006).

The following sections will explain in which way focusing and further examining important aspects of the Salutogenic perspective could positively contribute to workplace health.

2. Background

2.1 Salutogenesis in the workplace

Two major concepts of the previously explained Salutogenic approach are the Sense of Coherence (SOC) and General Resistance Resources (GRRs). General Resistance Resources can be either internal or external resources of an individual, a group or a community, that enables them to successfully deal with challenging situations in life (Lindström & Eriksson, 2006). The GRRs can be very wide reaching and include cultural, social, environmental and economic resources, e.g. one's social network or the

amount of money one has to his disposal to deal with upcoming challenges (Blättner, 2007; Mittelmark et al., 2017). The Sense of Coherence is defined as a "global orientation" that enables people to perceive their life as comprehensible, manageable and meaningful (Lindström & Eriksson, 2006). It is a way of thinking and acting which empowers people to cope with the stressors occurring in daily life and to positively influence their health. Those two basic pillars of Salutogenesis are intertwined and complement each other, since a strong SOC increases the capacity of a person to identify and make use of the GRRs. The nature of this reciprocal relationship however, is not fully understood yet. It is assumed that it could play a vital role in the field of workplace health promotion. Vaandrager & Koelen developed the model "Salutogenesis in the workplace: building GRRs and SOC" (2013). They assume, that the SOC and the three GRRs: job control, task significance and social relations are related via learning experiences (figure 1).

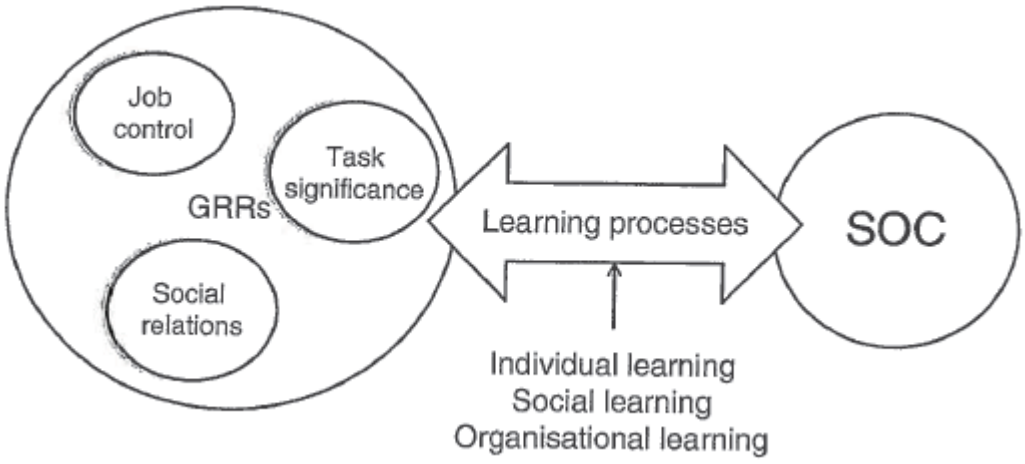


Figure 1: Salutogenesis in the workplace: building GRRs and SOC (Vaandrager & Koelen. 2013. p.85

Job control indicates the level of influence employees have to make their own decisions regarding their work and how to approach their tasks (Lindfors, 2012). Task significance is defined as an individual's perception of the meaningfulness of his or her work. It indicates if the employee believes, that the work one is doing has a positive impact on other people or his environment (Grant, 2008). It thereby is closely related to the concept of meaningfulness, which is part of SOC. The GRR social relations, describes the social relationships one is having within the workplace. It includes the relationship towards the colleagues and the management, as well as the level of support one receives during their daily work (Vaandrager & Koelen, 2013). It thereby relates to the concepts of manageability and comprehensibility. In combination, those three GRRs are assumed to have a major impact on the daily

work life.

As mentioned earlier, those GRRs and the SOC are assumed to be related via learning processes at the workplace. Those learning processes can be multifaceted, ranging from formal workplace trainings to informal learning experiences in everyday work life. Furthermore, they can be distinguished into individual, social and organizational learning, referring to the different levels, on which learning processes can take place in the work setting.

2.2 Previous research

Up to now, there have been several attempts to further examine and verify this new model. Bregulla (2013) used a quantitative approach within the university setting to investigate the correlation between SOC, GRRs and learning experiences. However, her findings could only partly support the model. Hogenbosch (2014) focused on examining the learning processes within the model and concluded, that all three levels of learning (individual, social and organizational) are important parts of a learning environment, but that the relevant processes in this case take place on the individual level. Those findings were taken up by Boer (2015), who conducted a qualitative research, examining the instrumental, social and conceptual learning experiences of Dutch medical specialists.

Instrumental learning can be defined as technical learning, which focusses on developing skills through formal learning activities, like work-related courses (Kemp & Weehuizen, 2005; Roessger, 2014). Social learning refers to the process of learning from one's colleagues and other persons within the same workplace setting. Social learning can therefore be wide ranging, as it includes feedback situations, formal and informal sharing of work-related experiences and cooperation processes at work (Reed et al., 2010). Conceptual learning can be understood as reflecting and evaluating previous situations and thereby getting new insights, which can be used for future situations. It furthermore includes taking another perspective on existing problems and thinking them through from a different viewpoint (Kemp & Weehuizen, 2005).

Boers research (2015) gave evidence that these learning processes play an important role in linking GRRs and SOC, through the experiences that have been made and the skills that were developed. Subsequently, the model of Vaandrager & Koelen (2013) has been slightly adjusted (Figure 2). Based on that, another quantitative study was conducted, which found small mediating and moderating effects of instrumental and social learning within the Dutch healthcare sector (Pijpker, Vaandrager, Bakker, & Koelen, 2018).

In conclusion, the previous research indeed supports the adjusted model Salutogenesis in the workplace: building GRRs and SOC, but not to full satisfaction.

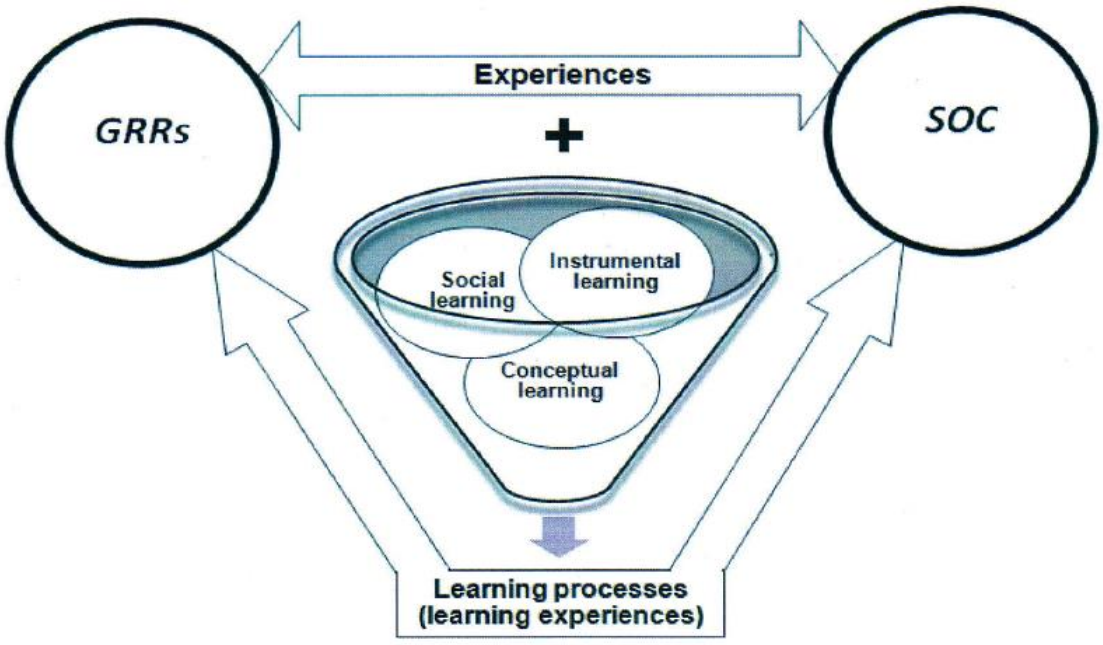


Figure 2: Adjusted model - Salutogenesis in the workplace (Boer 2015)

2.3 Knowledge gap and scientific relevance

In order to complement the previous findings, further research needs to be conducted. Therefore, the same concepts should be examined, but within a different setting. The former research investigated the role of learning experiences with participants on a medium- to high-skill job level and primarily in the healthcare sector (Boer, 2015; Bregulla, 2013; Hoogenbosch, 2014).

Open for discussion is the field of low-skilled occupations. The term of low-skilled work is not clearly defined, but many agree to certain key characteristics. One major characteristic is, that no higher form of education is needed to fulfill the demands of a low-skilled job (Cambridge Business English Dictionary, 2011). Furthermore, the necessary qualifications and skills can be acquired relatively quickly. Finally, the low-skilled work is often manual-work, although not exclusively (Anderton & Brenton, 1999; Cambridge Business English Dictionary, 2011)

People with low-skilled professions have in general less access to work-related learning opportunities, although they are in great need in order to further develop their careers (Pijpker et al., 2018, 2018). This is assumed to be caused by "the nature of the work performed by unskilled workers, alongside peer group pressure" (Rainbird, 2000, p.189). This aspect is also related to the concept of employability, which is a combination of the worker's capacity and willingness to be an active part of the labor market or also as the "the worker's labor market value" (Sanders & Grip, 2004).

Since the labor market is subject to rapid changes, flexibility and employability become important aspect for all employees, including low-skilled workers. Although the concept of employability includes more elements than only workplace learning opportunities, e.g. one's attitude and contextual factors, learning experiences still play an important role in remaining attractive for the labor market (Martini & Cavenago, 2017). Individuals who already have low literacy and numeracy skills after their school education, often end up in lower-skilled professions and thereby receiving comparatively little vocational training as well (OECD, 2013, see figure 3).

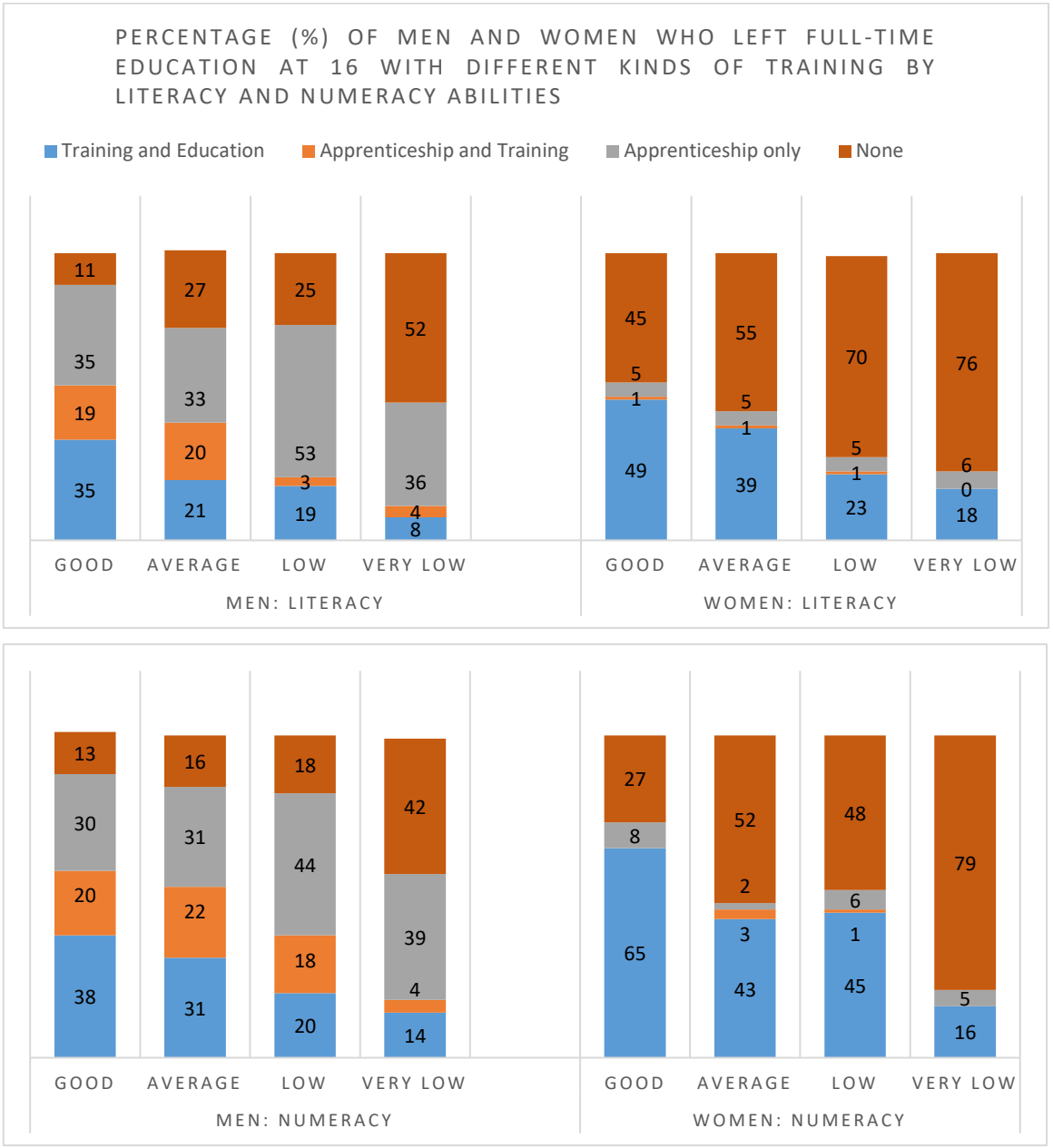


Figure 3: Experience of Apprenticeship & Work-Related Training between Age 16-23 (adapted from OECD, 2013)

In addition to that, the learning types in lower skilled professions can assumed to be different compared to the previously examined settings. In general Illeris (2006) states, that this target group seems to be more skeptical about abstract learning types and more involved with practical on-the-job and social learning. However, further research in this field is needed.

Individuals with low-skilled professions are often part of a lower social class, which is not only disadvantageous for general health but also linked to having a weaker SOC-score (Surtees, 2003). Previous research also indicates that the "type of occupation is significantly related to SOC", meaning that having a low-skilled occupation relates to having a weaker SOC on average (Larsson, 1996; Surtees, 2003). It is furthermore assumed that higher skilled jobs "give more fruitful soil to develop one's SOC", since they offer more opportunities for personal development and growth (Poppius, Tenkanen, Hakama, Kalimo, & Pitkänen, 2003, p.393).

To what extend the SOC is stable, is highly debated (Vastamäki, Moser, & Paul, 2009). Antonovsky, who first developed the concept, believed that the SOC might be slightly influenceable in adults, but generally remains relatively stable once adulthood is reached (Antonovsky, 1979, 1987). Recent studies came to different results. Their findings suggest that the SOC is changeable and can be improved throughout the lifespan (Eriksson, 2011). Vastamäki et al. (2009) found that the SOC is more sensitive to change when people have poor GRRs. Furthermore, they showed that the SOC can be influenced by major life events or interventions.

Although it is not clear if the SOC is changeable, it is nevertheless important to consider the role of learning processes in low-skilled professions. By examining the learning processes of this more disadvantaged group, not only the learning experiences could be tailored to their needs, but also their GRRs and even their SOC. This might unlock unused potential of the low-skilled employees, also causing a change in attitude and possibly strengthening their internal resources. Getting more insights into this process, could be used as a starting point to improve the health and wellbeing of the low-skilled workers. In conclusion, this entitles them as a relevant target group for further investigation.

3. Research aim and questions

The aim of this study is to explore what role workplace learning plays for low-skilled workers, how it relates to functioning in their job and what role workplace learning plays within the relationship between the Sense of Coherence and the General Resistance Resources.

Therefore, the research is split up in two major research questions. The first research question is:

Research Question 1: What role does workplace learning play for low-skilled workers and how does it relate to functioning in their job?

This research question is mainly answered by an exploratory literature study. Furthermore, the following hypothesis is tested, to give additional insights into the role of workplace learning for German low-skilled workers:

Hypothesis 1: The low-skilled participants score on average higher on the social learning subscale of the Workplace Learning Process Questionnaire, than on the instrumental or conceptual learning subscale.

This will be examined with the help of the Workplace Learning Process Questionnaire as part of an online survey, distributed in matching Facebook groups.

The second research question of this study is:

Research Question 2: What role does workplace learning play within the relationship between the Sense of Coherence and the General Resistance Resources for German workers?

Therefore, the following hypothesis will be tested with an online survey.

Hypothesis 2: Each of the three GRRs has a partial positive correlation with the SOC.

Hypothesis 3: Workplace learning moderates the relationship between GRRs and SOC.

Hypothesis 4: Workplace learning mediates the relationship between GRRs and SOC.

4. Methods & study design

4.1 Methodology literature review

For exploring the role of workplace learning and its relation to functioning in low-skilled professions, a literature study was conducted. Since the expected results are not directly in the field of health sciences, the databases of Scopus and Web of Science were used. The search was done with the following search terms:

("workplace" OR "work") AND ("learning" OR "training" OR “on-the-job training” OR “skill development”) AND ("low-skilled" OR "low skilled" OR "blue-collar" OR “blue collar”)

To identify the relevant literature for answering the research question, the following inclusion and exclusion criteria were specified:

Inclusion criteria	Exclusion criteria
Study targeted on low-skilled	Study targeted at high-skilled or temporary working agencies
Targeted at work-related learning	Targeted at non-work-related learning
Full-text available for WUR- students	Full-text not available for WUR-students
Full-text in English or German available	Full-text neither in English or German available

The initial literature search resulted in 268 articles. First 48 duplicates were identified and removed. Then, the titles and abstracts of the remaining articles were scanned and the exclusion criteria were applied (figure 4). The main reason for exclusion at this stage was that the articles were not related to workplace learning or did not examine especially low-skilled employees. After this stage, 80 articles remained which were then examined at full-text level. 52 of them did not fulfill the inclusion criteria after closer consideration, 2 were only available in Spanish and 8 were not available for students of the Wageningen University. However, none of the unavailable articles seemed to be relevant, based on their abstracts. 2 additional articles were added through the snowball method. They were included, since they added valuable information, which were not investigated in the previously identified articles. The remaining 18 articles were analyzed on full-text level and categorized within Microsoft Excel (appendix 10.4). Relevant information, like the authorship, title, date of publication, country and target population, and the methods that were used were recorded. To ensure that the articles were of eligible quality, their quality was assessed with the support of two guidelines. For the quantitative studies the Quality Assessment Tool for Quantitative Studies of the Effective Public Health Practice Project was used. The tool shows strong validity and reliability values and was previously used in various contexts (Thomas, 2003). The qualitative studies were critically appraised with Criteria for the Evaluation of Qualitative Research Papers by Blaxter (1996) which is recommend in the Cochrane handbook for systematic reviews (Noyes et al., 2011). All of the included studies had at least a medium/ moderate quality rating. The most important results of the studies were summarized and compared. Reoccurring topics could be identified and the studies were checked again and arranged according to the different thematic categories (appendix 10.4). The studies were then analyzed within the different topics and commonalities and differences were highlighted.

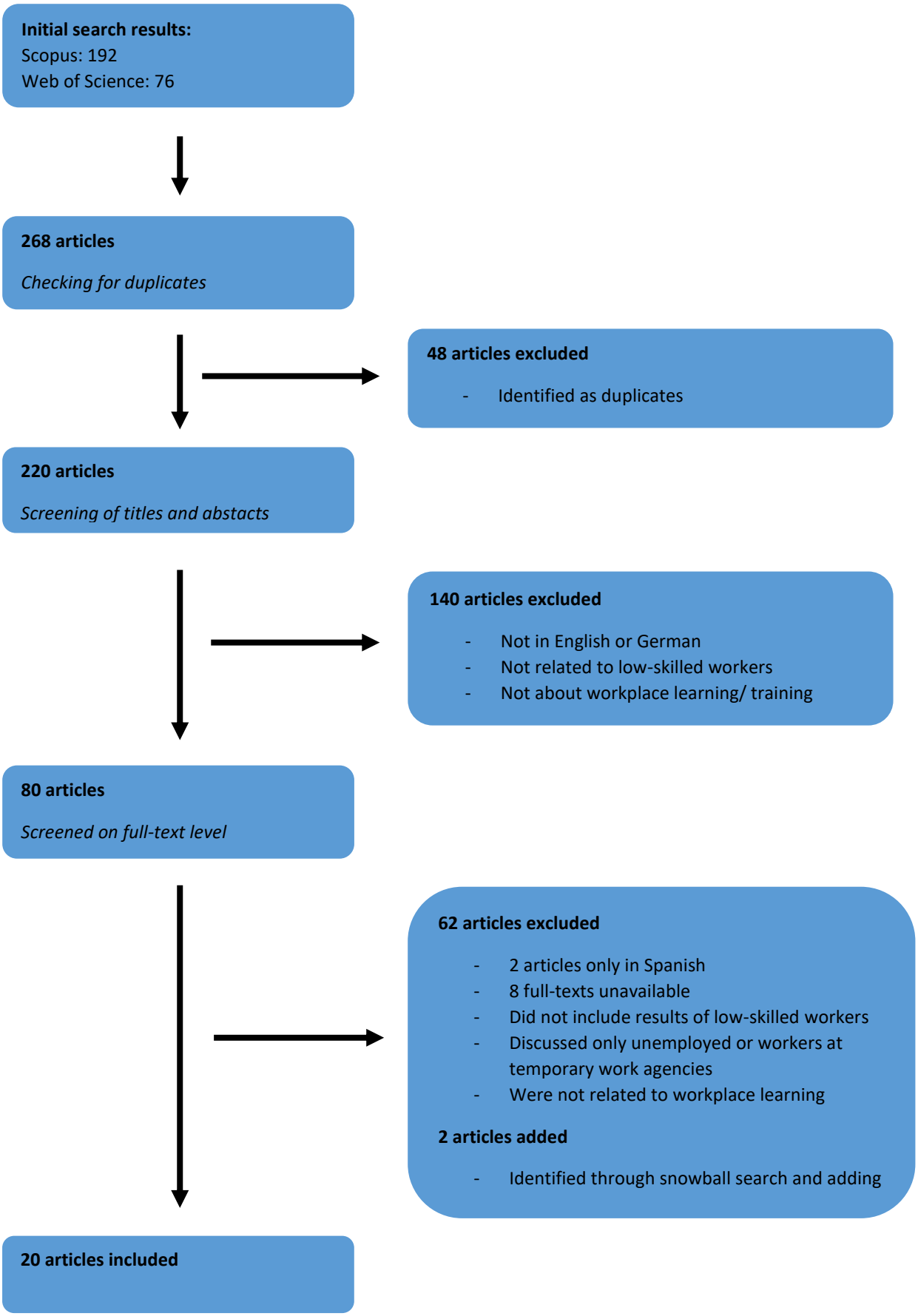


Figure 4: Flow chart of literature research

4.2 Methodology of the survey

4.2.1 Data collection

In order to answer the second research question: “What role does workplace learning play within the relationship between the Sense of Coherence and the General Resistance Resources for German workers?”, quantitative data was gathered via a survey.

The initial idea was to conduct the quantitative data collection within one or several German companies, which employ a large number of low-skilled workers. There were different attempts to realize this. First the author of this study, made use of his personal network to approach suitable companies, researchers and professionals in this field. This network was extended with the help of Dr. Lenneke Vaandrager and professional organizations were approached, ranging from the European Network of Health Promotion to the umbrella organization of all German company health insurances (BKK Dachverband), asking for support. Additional companies and organizations from different sectors (chemical industry, cleaning services, municipalities) were contacted, resulting in more than 30 approached contacts in total. In none of those settings the quantitative data collection would have been feasible for various reasons, e.g. lack of time, administrative barriers and internal regulations.
Since previous research by Pijpker et. al (2018) successfully used a mixed approach, by combining the data collection in local settings together with an online survey in a Facebook group, it was decided to use only an online survey in this study.

Since the initial aim of this study was to gather mainly data from low-skilled workers, the Facebook groups were considered suitable, if they were aimed or connected to low-skilled professions. The chosen groups were mainly job markets for low-skilled professions, like cleaning services, gastronomy or logistics or groups for sharing tips and experiences for professions in the field of craftmanship or construction. First, the administrators of the groups were approached and informed about the study and its procedure. Only if they found their groups suitable and agreed to the study, the survey was posted together with a cover letter, explaining the purpose of the study, ensured anonymity of the data and ethical approval, which was given by the Social Science Ethics Committee of the Wageningen University (appendix 10.3). It also informed about the possibility of participating in the lottery for filling in the questionnaire. 25 Facebook groups were contacted and initially agreed to participate. In 15 groups the survey was actually posted and filled out by the group members. Reasons for the other 10 groups to not participate were discussions between the responsible administrators if the groups should be used for this purpose, slow reaction times of unlocking the survey within the groups or closing down the group in between the moment of contacting the administrators and posting the

survey. A list of the approached groups can be found in appendix 10.5. The data collection started at the 4th of November and was supposed to end at 3rd of December. Since the number of responses was smaller than expected, the survey was prolonged until the 10th of December. Reminders were send out after one and three weeks of the initial posting of the survey. There were send out at the weekends, since the pre-test showed the highest response rates during the weekend. 79 responses were gathered in total.

4.2.2 Design of the online survey

For answering the second research question and testing the according hypotheses, three concepts must be operationalized and measured: General Resistance Resources, Sense of Coherence and workplace learning.

For the measurement of the GRRs, subscales of the German version of the COPSOQ 1 were used. The German COPSOQ 1 has been validated and shown to be very similar to the original Danish version (Nübling, 2005). For the measuring of job control, the subscales "influence at work", "possibilities for development" and "degree of freedom at work" were used. The GRR task significance was measured through the "meaning of work" subscale of the COPSOQ1. Social relations, were measured through the "social support from colleagues", the "social support from supervisors" and the "social community at work" subscale.

For the measurement of the SOC the German version of the SOC-13 (α= .85) was used. There are other possible versions of the SOC in German available, like the Work-SOC (Bauer, Vogt, Inauen, & Jenny, 2015) or the SOC-L9, but they either do not measure the exact same concept or have not been used outside a German context (Bauer & Jenny, 2013; Schumacher, Wilz, Gunzelmann, & Brähler, 2000). The SOC-13 however, is a widely known a validated questionnaire, that has been used also in previous studies related to this research (Bregulla, 2013; Pijpker et al., 2018). It measures the exact same concept as in the model of Vaandrager & Koelen and is used internationally. Therefore, it is the most suitable method for past and future comparability.

For the measurement of the workplace learning processes the Workplace Learning Processes Questionnaire (WLPQ) was used (Lixia, 2016). The WLPQ consist of three subscales, measuring instrumental, social and conceptual learning of the participants within the last year. It is not as established as COPSOQ 1 or the SOC-13, but suitable for this research and also used in one previous study within the same context (Bregulla, 2013; Pijpker et al., 2018). It was translated into German (forward-backward procedure), slightly adjusted in the wording to match the target group of this study and pre-tested. Additionally, demographic questions for age, gender, the level of education and the skill level of the last profession, based on previously used studies, were asked at the beginning (Känel

et al., 2008).

The expected response rates for web-based questionnaires, which are distributed via social media are usually very low. According to Vicente and Reis (2009) this challenge for web-based questionnaires can be tackled in two ways: by either a very good design of the questionnaire or by providing incentives. In this study both elements were implemented to raise response rates. In their review six essential elements for a good online questionnaire design have been identified: the general structure, the length, the disclosure of survey progress, the visual presentation, the interactivity and the question/ response format of the questionnaire (Vicente & Reis, 2009). Each of those elements was taken into account when designing the questionnaire, in order to result in a lower dropout and non-response rate.

Other reasons to participate in a survey, besides interest in the survey itself, are either altruism or egoistic reasons, e.g. monetary incentives (Porst & Briel, 1995). While incentives do not seem to have huge effects in general, they seem to be more effective for groups with lower income (Singer & Kulka, 2002). While pre-payments have the highest chance of increasing the response-rate, they are relatively expensive (Ploeg, Moffit, & Citro, 2002). Although lotteries seem to have a smaller effect, they are still considered to be a suitable alternative, due to their cost effectiveness. Not only seem they to increase the response rate, but also produce at least equally or slightly higher quality of responses, than surveys without incentives for participation (Ploeg et al., 2002). When it comes to ethical concerns of monetary incentives in research, Grady (2001) argues, that they should be seen as "demonstration of respect and appreciation" for the individuals who are willing to invest time and effort to support research. Therefore, a lottery was added as well to increase the response rate. The participants had the opportunity to win one out of three 10€ Amazon gift vouchers, after completing the questionnaire.

Furthermore, the questionnaire was pre-tested in several ways. The cover letter and questionnaire were spell-checked and examined for unclarities by native German persons who were unfamiliar with the study. Additionally, the questionnaire was pre-tested in one of the smaller Facebook groups. Only slight design changes and changes in the settings of Qualtrics were made.

4.2.3 Data analysis

Data check

Before the analysis of the dataset was started, a data check was conducted. Almost all data were plausible and no suspicious response patterns were detected. Since the data was gathered electronically most of the response options were pre-designed. The data of the questions with free text options, e.g. "What is your age?" were all in a plausible range. In one case the age was entered in

the wrong format in the questionnaire and therefore added manually in SPSS. Some cases (e.g. respondent id = R_25s8pkfyDN6AkMk, see dataset) had consistently high scores on certain items, e.g. all items of the GRR subscales, but since all other items are reasonable, the complete respondent's dataset was considered plausible and included. The only found conspicuities were regarding the subscale asking of social support from one's supervisor (Q15_1 to Q15_3). Here, two respondents indicated for two items that they received some level of support from their supervisor, for one item however, that they had no supervisor. Those responses are expected to be due to either a lack of attention or the fact, that the response option of "not having a supervisor" was newly introduced for this question and therefore likely to be overseen while answering the first item of this subscale. Additionally, all other data of those respondents seem plausible. Therefore, their datasets were also included.

Incomplete data

Out of the 79 datasets, 10 had missing data. Two of the respondents did not answer any questions, their dataset therefore was excluded. Of the remaining eight respondents, 4 were male, 4 female, the average age was 35. In regard to their sex, age, level of education and level of skill they did not differ significantly from the overall dataset. Differences in scores like the SOC, could not be calculated since the data was missing. Since list wise exclusion would reduce the already small sample seize even further, pairwise exclusion was used, excluding the incomplete data sets only when the items required for the specific analysis are missing.

Data preparation

In order to analyze the data, certain transformations of the data had to be made. All of the items regarding the GRR needed to be recoded, switching the order of the values around and assigning the value 0 to the response option "having no supervisor/ colleagues". After the recoding, having high values equals having a high score. Five out of the thirteen items of the SOC-scale needed to be recoded as well, in order to have a consistent score where high values equal a high score. The detailed recoding of every item is depicted in the coding plan (appendix 10.6). The items of the questionnaire were based on the constructs of GRRs, SOC and workplace learning, together with their appertaining subscales. For the analysis, first the subscales (e.g. influence at work) were calculated and then added up to create the associated construct (e.g. influence at work + possibilities for development + degree of freedom = job control). The detailed calculations of the constructs and their subscales can be found in the coding plan (appendix 10.6).

Finally, the data which was only available in German due to the German study population, was translated within SPSS into English. For that, the original questionnaires and their item names, as described in the method section, were used.

Likert scale

The single items measuring SOC, GRRs, workplace learning and the associated subscales are all measured via Likert-scales. When it comes to the analysis, there is an on-going debate in the scientific community whether to treat the variables measured via a Likert-scale as ordinal and therefore only use non-parametric tests or if they can be treated as interval level data and the associated statistic tests can be used. While there are arguments for both sides, this research will treat the items which are a combination of several items, measured via a Likert-scale, as items of interval level in accordance with Carifio and Perla (2008) and Subedi (2016).

Data analysis

The data were analyzed with IBM SPSS Statistics 20 and its addon PROCESS, version 2.16.3 for Windows. The level of significance for all the conducted tests was set at $p \leq .05$.

For testing hypothesis 1: "The low-skilled participants score on average higher on the social learning subscale of the WLPQ than on the instrumental or conceptual learning subscale", the mean scores of all three learning types were compared among the low-skilled employees. For getting further insights, differences in the mean scores of the three learning types were compared amongst the three different skill levels: low-, medium- and high-skilled, using a one-way ANOVA. Additionally, the medium- and high-skilled group were combined into a new group, labeled as higher-skilled and a t-test was conducted to test for differences between the low-skilled and the new higher-skilled group.

For testing the potential correlations for hypothesis 2, Pearson's product-moment correlation and Pearson's partial product moment correlation for the SOC, GRRs and workplace learning were performed.

The moderation effects, expected in hypothesis 3, were checked by using model 1 of the PROCESS addon for SPSS according to Hayes (2017). Thereby, it was tested for potential interaction terms between the SOC, GRRs, overall workplace learning and its three subtypes.

The mediation effects, as expected in hypothesis 4, were checked by model 4 of the PROCESS addon, checking for interaction terms between the SOC, GRRS, overall workplace learning and the subtypes instrumental, social and conceptual learning.

No additional splitting up of the group other than the skill-level was performed, due to the already

small sample seize.

5. Results literature review

The selected literature was analyzed in relation to the research question: What is the role of learning in low-skilled professions? According to this, four core themes have been identified: 1. the current learning situation of low-skilled workers, 2. the motivation of low-skilled workers and their perspective towards learning, 3. preference of learning types of low-skilled workers and 4. the effects of training programs for low-skilled workers. They will be outlined separately in this chapter.

5.1 Learning situation

Several studies have examined the learning situation of low-skilled workers, meaning their access and participation rates in vocational training. One of the most comprehensive ones is the study of Roosmaa and Saar (2012), which examined the work-related training participation rates across Europe. Their study shows, that general participation rates vary greatly between European countries, ranging from 69,4% in Sweden to only 6,8% in Hungary in 2007. These differences are assumed to be due to differences in economic situations, educational systems and country specific policies. However, all of those countries have one thing in common: low-skilled workers have a significantly lower participation rate in non-formal training than high-skilled professionals. The differences in participation rates range from only a few percent, to be four times less likely to participate in workplace learning if one is having a low-skilled occupation (see figure 6).

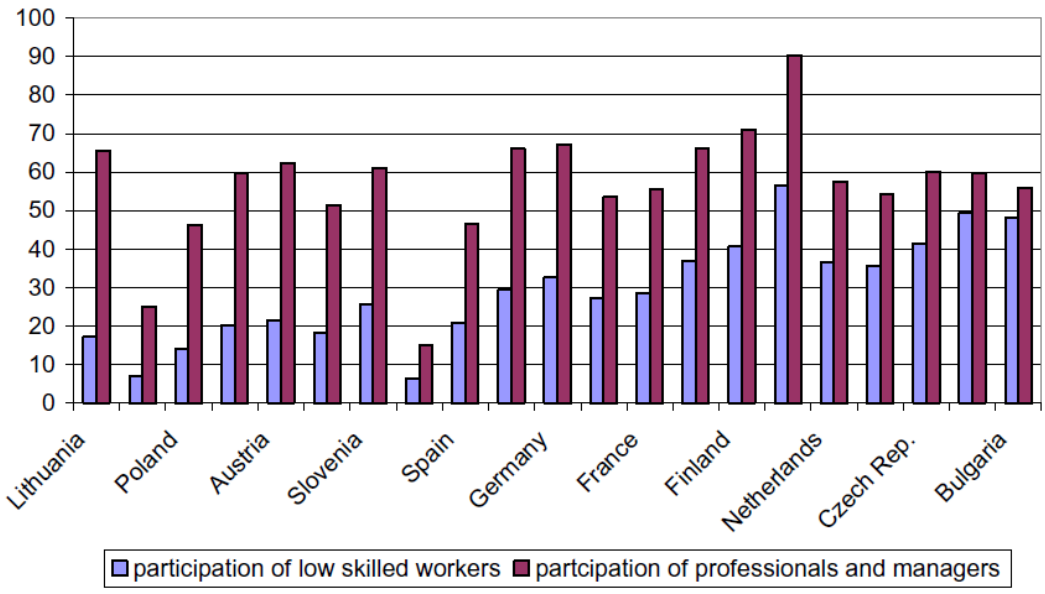


Figure 5: Participation of occupational groups in learning (in percentage) from Roosmaa and Saar, 2012

These results have also been found in several other studies, looking only at the national level. Three studies looking at the learning situation in the UK are indicating, that lower-skilled employees had significantly lower participation rates in work-related training in the examined years 2006, 2007 and 2009 (Abramovsky, Battistin, Fitzsimons, Goodman, & Simpson, 2011; Lindsay, Canduela, & Raeside, 2013; Thomas & Qiu, 2012). Lindsay et al. (2013) furthermore shows that low-skilled not only participate less in work-related training, but also report to "never have been offered training by their employer" in private as well as in the public employment sector (p.219).

Other factors that reduce the likelihood of work-related training are: being older, (Hidalgo, Oosterbeek, & Webbink, 2014; Thomas & Qiu, 2012) being female, (Hidalgo et al., 2014) being less educated (Hidalgo et al., 2014; Lindsay et al., 2013) and being employed in a smaller company (Hidalgo et al., 2014, Lindsay et al., 2013). One single factor, e.g. being employed in a bigger private company with 50 or more employees can increase the chance of receiving training as much as 74% (Lindsay et al., 2013). Having several disadvantaging characteristics in combination with having a low-skilled occupation can have a severe impact on the learning process. Furthermore, the more recent developments of the gap between low-skilled and high-skilled professionals has been investigated. One study compared large samples of workers in the National Health Service in the UK in 2006 and 2009 (Thomas & Qiu, 2012). It shows, similar to the previous discussed studies, a gap of participation in workplace learning opportunities between high- and low-skilled workers. In general, the participation rates of both groups increased from 2006 to 2009 and for three types of training: formal, informal and keeping up-to-date, the differences slightly decreased (table 1). For online training and e-learning however, the gap even increased significantly during those years. This is of particular

interest, since e-learning is likely to become more and more important in the future (Thomas & Qiu, 2012).

Table 1: Comparison of participation rates in different types of learning between low- and high-skilled, (Thomas & Qiu, 2012)

	2006			2009		
Training type	**High-skilled**	**Low-skilled**	**Difference**	**High-skilled**	**Low-skilled**	**Difference**
Formal training	77%	54%	23%	80%	61%	19%
Informal training	44%	32%	12%	47%	38%	9%
E-learning	24%	18%	6%	49%	33%	15%
Keeping up-to-date	84%	39%	45%	84%	44%	40%

So while there are indications, that the gap between low- and high-skilled in regard to work-related training is slightly decreasing, low-skilled workers remain disadvantaged, as shown by the majority of studies. As Johnson et al. expressed it: "skills development provision is often accessed by many of the most able, rather than those most in need" (2009, p.54). This polarization of work-related training traps the low-skilled at the lower end of the labor market and "is likely to have negative impacts on both economic productivity and well-being" (Lindsay et al., 2013, p.222).

5.2 Motivation and attitude towards vocational training

Another core topic of the studies included in this review, were the personal characteristics of the low-skilled employees and their attitude towards vocational learning. Brown (2016) examined the attitude of 105 low-skilled individuals from seven European countries: The Czech Republic, Denmark, England, France, Germany, Italy and Poland. The study investigated their personal characteristics in relation to their career adaptability, which is defined as the psychosocial resources and competences that enable an individual to successfully deal with the development of their career and career-related challenges and changes (Brown, 2016). Within the study, the participants were divided into three groups, according to their career adaptability. The group with the lowest career adaptability had the poorest outlook regarding their future careers and shared certain characteristics. Generally, they had very vague ideas concerning their future and felt helpless. Thinking about their career evoked anxiety and prevented them for further investing. Additionally, the participants of this group perceived that their destiny was controlled by external circumstances and the conditions of the job market, giving them a feeling of fatalism. In combination, those factors led to a very low motivation in engaging in vocational training in order to improve their careers prospects (Brown, 2016).

The middle group had a more open mind about vocational training and learning. However, many did not participate in vocational training due to a lack of confidence in their abilities. Earlier, school-based education was generally not successful and led to negative experiences. This is a re-occurring factor which can also be found in other studies (Maclachlan, 2004). Furthermore, they perceived barriers like lack of time and money, as well as a lack of social support to engage in more vocational training.
In contrast to that, the group with the highest career adaptability had a positive attitude towards learning and valued it as an opportunity to progress in their professional life. They too described negative experiences with school-based learning, but engaging in vocational education changed their perspective to a more positive one. Since they felt passionate about their work, they are more motivated to further improve through learning. This leads to an increased confidence in their own abilities and enables them to take control over their career development, making them likely to progress to a higher skill level (Brown, 2016).

The research of Mariager et al. (2016) adds to that, challenging the common assumption that low-skilled workers are unmotivated. Their research rather argues, that they are "not always directed towards learning defined politically as useful," (Mariager-Anderson et al., 2016, p.172), meaning that their type of learning is not accredited and leads not to a formal qualification, although being potentially useful for their profession. The study confirms the findings of Brown (Brown, 2016) that the motivation towards learning changes throughout the lifespan. Individuals who had negative experiences with school-based learning might engage much more in vocational learning later on. In order to do so, a certain level of perceived self-autonomy is needed. The participants stated that they choose their own learning path and "try to make sense of their (work) lives" (Brown, 2016, p.182). If learning is imposed on them, like it is typical in a school-based learning environment, they are less likely to embrace the opportunity (Maclachlan, 2004).

In addition to that, another study of Brown & Bimrose (2017) identified five different drivers of learning for low-skilled workers, based on the already mentioned data of 105 low-skilled individuals from seven European countries. One of them is to enhance their own self-efficacy and to increase their confidence in their own abilities through learning processes. This newly developed confidence then might lead to even more participation in vocational training, which means that learning itself can act as a driver for further engagement in learning. The second driver is a desire for self-improvement, which includes the endeavor of develop new skills and gain a higher social status. Learning was seen as a possibility to increase one's own worth and skills on a personal level. In addition to that, the third driver of learning was pure work- or market-orientation. For the low-skilled participants mentioning this aspect, learning opportunities were not so much about personal growth but only seen as way of increasing their salary and moving up on the cooperate ladder. Finally, the last driver mentioned by about 25% of the

participants, was motivation caused by family, friends or tutors. Caring or being encouraged by them, was described as a major factor and shows the importance of social support for the low-skilled workers, which are seeking for a better career.

As described above, the characteristics, motivation and attitude towards learning of low-skilled individuals can differ greatly, but also often has commonalities. All of the aforementioned authors in this chapter, emphasized the importance for career counseling services, employers and vocational training providers to take those attributes into account. Despite their initial struggles with school-based learning, the low-skilled employees seem to have great, unused potential if one is able to change their perspective of learning and providing the right learning environment.

5.3 Preference of learning types

Another reoccurring theme in the recent literature is the preference of low-skilled workers of certain learning types. One very prominent feature, is the preference of practical learning in all its forms (Brown, 2016; Brown & Bimrose, 2017; Loos, 2007; Pillay, Kelly, & Tones, 2010; Thomas & Qiu, 2012; Weedon & Tett, 2013). Data received from qualitative interviews show, that low-skilled workers generally seem to prefer practical on-the-job learning over formal learning, which sometimes is still connected to negative learning experiences with formal school-based learning (Brown & Bimrose, 2017). Practical on-the-job learning is also preferred for its direct impact (Loos, 2007) or as one participant described it as “very easy and enriching, because I see immediate value of what I learn” (Brown, 2016, p.227). In contrast to that is reflective or conceptual learning, which is considered as too abstract and of less value, according to the findings of Weedon & Tett (2013).

Since low-skilled workers seem to know what type of learning is appropriate for them, letting them choose their own vocational training seems like a good option. This is supported by Mariager-Anderson et al. (2016) who states that low-skilled workers should have the freedom of choosing on their own, instead of having training “externally imposed upon them” (Mariager-Anderson et al., 2016, p.182). This approach was tested in the Netherlands, by handing out 1000€ vouchers to low-skilled workers to invest into vocational trainings of their choosing (Hidalgo et al., 2014). The participation rates in training programs indeed rose significantly and so did the plans of the participants to engage in further learning in the future. However, the program did not satisfy all expectations, e.g. did not reach all types of low-skilled employees but rather young males.

Research suggests, that a more holistic approach is needed, which takes additional characteristics into account. Good experiences have been made with a vocational program in Ireland, which managed to blend academic learning with actual work experiences (Tiernan & O’Kelly, 2014). In this program,

academic content was provided directly on the factory floor and in relation with the managers and co-workers. This collaborative learning approach or learning in teams was highly valued and seems to be impactful in several studies (Thomas & Qiu, 2012; Tiernan & O'Kelly, 2014). Factors contributing to that, seem to be less didactic workshops and the available peer support. Similar success factors have been found by Nakano et al. (2013). In their research about tacit knowledge sharing amongst low-skilled workers, they found engaging environments at the workplace to be an important factor for social learning and the sharing of knowledge. But in order to do so, the possibilities at the workplace must be created, together with a social climate of trust and openness (Nakano et al., 2013).

As conclusion, most of the found studies highlight the preference of practical on-the-job learning with immediate value for the own work. Giving the low-skilled the workers the freedom to choose their own vocational training programs and act according to their preferences, seems to be successful. Additionally, a supporting environment, which ensures that all low-skilled can be included and supported during their learning processes, seems to play a vital role.

5.4 Effects of recent learning programs

Finally, recent research also examined the effects of learning and vocational training on low-skilled workers, mainly from an economical perspective. One major study analyzed panel data of 11.123 Italian companies from 2002-2005 and the effects of training on productivity (Colombo & Stanca, 2014). It was not only shown that training was generally effective in this regard, but also that the productivity increased on average about 18% for blue-collar (low-skilled) workers and only about 2% for white-collar (high-skilled) workers. Their research thereby assumes, that the low-skilled profited more of the learning processes taking place in this study population. When examining the effects of blended learning at the workplace for low-skilled workers in Ireland, the results were more ambiguous. While mathematical abilities and reading and writing skills improved significantly, there was less or no improvement for information and communications technology (ICT) skills or social communication skills (Tiernan & O'Kelly, 2014). When it comes to improving the financial situation or progress in the labor market, the effects of training of low-skilled seem to be relatively weak. Studies from the UK and the Netherlands have not found convincing evidence for increased wages or higher job mobility (Hidalgo et al., 2014; Pavlopoulos, Muffels, & Vermunt, 2009). There is evidence for an increased wage or more possibilities to move on with one's career after investing in learning, but mainly for the high-instead of the low-skilled (Pavlopoulos et al., 2009). Weedon and Tett (2013) argue, that especially training programs provided by external suppliers, are less effective if the learning processes are not integrated into the actual workplaces and if there is no responsive workplace culture. The research of

Loos (2007) assumes the like, stating that effective learning requires on-going support and integration into the daily working life.

Besides the economic effects, there seem to be also additional effects of learning for the low-skilled. Even though the improvement of skills in the study of Tiernan & O'Kelly (2014) were ambiguous, the training was able to strongly improve the participants social relations at the workplace and their attitude towards work. Another study examined a green-job training program for low-skilled unemployed in the USA with similar results (Falxa-Raymond, Svendsen, & Campbell, 2013). Besides acquiring new skills, participants became more confident and mature, developed a more positive attitude towards work and a sense of accountability. While these effects might not only be due to the learning processes taking place, but also simply by progressing from unemployment into regular employment, it indicates the presence of attitudinal effects and personal growth. These psychosocial aspects seem to be neglected by most of the other examined studies. Nevertheless, they are as important as the economical ones. Increasing confidence and creating a positive attitude towards work are crucial aspects for low-skilled employees, as described in chapter 5.2. They can have wide ranging effects and finally also improve the economical outcomes.

In conclusion, the evidence provided here for the effects of learning for the low-skilled is limited, also because this study did not include "effects" as a key term of the literature search, but still seems to indicate three important aspects. First, the analyzed learning programs were able to teach new skills but there were no effects found for job mobility or higher wages. Secondly, isolated learning programs seem to have only limited effects and should be integrated into the actual work life with on-going support. Thirdly, learning programs do not only teach work skills but can affect one's attitudes and personal development. Nevertheless, it needs to be emphasized that the herein included studies mainly examined the effects of instrumental and partly of conceptual learning. Social learning, the third part of the overall learning concept, was barely addressed.

6. Survey

6.1 Descriptive results

6.1.1 Demographics

The respondents were on average 36,7 years old, ranging from a minimum of 19 years to a maximum of 63 years. The sex ratio was almost equal, with men having a slightly higher proportion of 53,2%. The

biggest share of respondents worked last in gastronomy (n=19) or in the construction sector (n=19). The nine respondents who indicated "other" as category for their last workplace, were working mainly in administration, finances, retail or human resource management. There was no respondent indicating to not have a completed educational degree, other types of educational degrees were almost equally distributed, except for the level of academic degrees. The indicated skill level of the participants was almost equal between low-skilled (42,9%) and medium-skilled (45,5%), with only nine respondents indicating a high-skill level in their last profession. The level of education and the skill level matched, meaning that the higher the level of education the higher the skill level of the last profession. The exact numbers and percentages can be found in table 2.

Table 2: Descriptive statistics of the sample

Variable	**N**	**Minimum**	**Maximum**	**Mean**
Age	77	19	63	36,66
Variable			**N**	**%**
Sex				
Male			41	53,2
Female			36	46,8
Total			77	100
Highest level of education				
No degree			0	0
Basic secondary education			24	31,2
General secondary education			22	28,6
Higher education entrance qualification/ Abitur			24	31,2
Academic degree			7	9,1
Total			77	100
Sector of last workplace				
Logistics			11	14,3
Gastronomy			19	24,7
Construction			19	24,7
Cleaning			10	13
Care			9	11,7
Other (please specify)			9	11,7

Total	77	100
Skill level of last profession		
Low-skilled	33	42,9
Medium-skilled	35	45,5
High-skilled	9	11,7
Total	77	100

6.1.2 The three constructs

Sense of Coherence

The SOC-score was measured via 13 items with values ranging from 1-7. This resulted in potential scores from 13-91. Within the sample the SOC-score ranges from 30 to 81, with a mean of 54,68 (sd = 10,42).

Table 3:Descriptive statistics of SOC-score

	N	Minimum	Maximum	Mean	Std. Deviation
SOC-score	69	30,00	81,00	54,6812	10,42126

General Resistance Resources

The GRR-score consists of three subscales: job control, task significance and social relations.
The subscale job control consists of 11 items, adding up in a possible score range from 11-55. The subscale task significance consists of 3 items, adding up in a possible score range from 3-15. The last subscale social relations consists of 9 items, resulting in a possible score range from 9-45. The combination of the three subscales forms the total GRR score with a possible range of 23-115, resulting in a mean score for total GGRs of 76,81 (sd = 14,09) in the sample. The minimum and maximum scores, as well as the means for each subscale of the sample can be seen in table 4.

Table 4: Descriptive statistics of GRR and its subscales

Variable	N	Minimum	Maximum	Mean	Std. Deviation
GRRs	72	54	109	76,8	14,1
Job control	74	22	55	35,7	8,6
Task significance	74	6	15	11,3	2,5
Social relations	72	19	41	30,1	6,1

Workplace learning

The learning score consists of three subscales which refer to three different kinds of learning: instrumental learning, social learning and conceptual learning. The instrumental learning subscale consists of 5 items, resulting in a possible score range from 5-25. The social learning subscale consists of 8 items, resulting in a possible score range from 8-40. The conceptual learning subscale consist of 4 items, resulting in a possible score range from 4-20. In combination the form the total learning score, which could range from 17-85 and has a mean score of 54,7 (sd = 7,61) The minimum and maximum scores of the study population, as well as the means for each subscale and the total learning score are depicted in table 5.

Table 5: Descriptive statistics of learning and its subscales

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Learning total score	71	36	69	54,7	7,6
Instrumental learning	71	5	25	14,2	4,0
Social learning	71	16	36	27,7	4,2
Conceptual learning	71	8	20	12,9	3,1

In order to compare the different subscales of learning, they were divided by the number of their according items. The examined study population scored lowest on the instrumental learning subscale with an average score of 2,83, the second highest on conceptual learning with an average score of 3,22 and highest on social learning with an average score of 3,46 (table 6).

Table 6: Descriptive statistics of the learning average scales

Variable	N	Minimum	Maximum	Mean
Instrumental learning average	71	1	5	2,8
Social learning average	71	2	4,5	3,5
Conceptual learning average	71	2	5	3,2

6.2 Test of main hypotheses

6.2.1 Differences in learning

While developing this research, literature gave indications that low-skilled employees would prefer social learning at the workplace over more formal (instrumental learning) or abstract types (conceptual learning). Similar indications were found in the literature review of this paper (see chapter 5.3). In order to test this empirically the total learning score and the averages of the three subscales instrumental learning, social learning and conceptual learning of the sample were compared, according to the different skill levels, to test the following hypothesis:

H1: Low-skilled employees score higher on social learning than instrumental learning and conceptual learning

As can be seen in table 7, the low-skilled employees within the sample indeed scored highest on the mean social learning subscale (3,42), second highest on the mean conceptual learning subscale (2,90) and lowest on the mean instrumental learning subscale (2,32), confirming the hypothesis. Since there is no known value of these subscales for the general study population, no T-test can be conducted.

Table 7: Comparison of mean learning scores between skill levels

Skill level		Learning_total	Instrumental_ learning_avg	Social_learning_avg	Conceptual_learning _avg
Low-skilled	Mean	50,61	2,32	3,42	2,90
	N	31	31	31	31
	Std. Deviation	6,70	0,56	0,57	0,67
Medium-skilled	Mean	57,19	3,17	3,42	3,49
	N	32	32	32	32
	Std. Deviation	6,80	0,70	0,50	0,77
High-skilled	Mean	60,63	3,45	3,73	3,38
	N	8	8	8	8
	Std. Deviation	6,23	0,89	0,45	0,73
Total	Mean	54,70	2,83	3,46	3,22
	N	71	71	71	71
	Std. Deviation	7,61	0,80	0,53	0,76

When looking at the medium- and high-skilled employees within the sample, they score almost equally high on social learning, but also higher on instrumental learning and conceptual learning, also resulting in a higher total learning score. In order to compare the three different learning types among the three different skill levels, an ANOVA was conducted.

The subscales, as dependent variables, are assumed to be on interval level and the factor on ordinal level, as required by the ANOVA. When checking for normality with the Shapiro-Wilk test, only the mean instrumental learning and the mean conceptual learning scores of the low-skilled group do not seem to be normally distributed (appendix 10.7). However, due to the group seize of n > 30 and the assumption that the ANOVA is relatively robust against violation of normality, this is not considered problematic.

Additionally, the Levene test shows non-significance for all three subscales, so homogeneity of variance can also be assumed (appendix 10.7).

The ANOVA shows significant differences for mean instrumental learning (p=.000) and mean conceptual learning (p=.006) but no significant results for mean social learning (p=.293).

Table 8: ANOVA of the mean learning scores between skill levels

Variable		Sum of Squares	Mean Square	F	Sig.
Instrumental_learning_avg	Between Groups	14,73	7,36	16,45	0
	Within Groups	30,44	0,45		
	Total	45,17			
Social_learning_avg	Between Groups	0,69	0,35	1,25	0,29
	Within Groups	18,75	0,28		
	Total	19,44			
Concpetual_learning_avg	Between Groups	5,67	2,84	5,47	0,01
	Within Groups	35,27	0,52		
	Total	40,94			

For a more detailed analysis, which of the groups differ significantly from each other for the three subscales, the Tukey post-hoc test was used. For instrumental learning the low-skilled group differs significantly from the medium-skilled group (p=.000) and the high-skilled group (p=.000), while the medium-skilled group did not differ significantly from the high-skilled group (p=.540).

For social_learning_avg none of the groups differed from each other significantly.

For conceptual learning the low-skilled group differed significantly from the medium-skilled group (p=.005) but not from the high-skilled group (p=.231), nor did the medium-skilled group differ significantly from the high-skilled group (p=.911).

So while the low-skilled group differed two times significantly from the medium-skilled (instrumental learning and conceptual learning) group and once from the high-skilled group (instrumental learning), the medium-skilled group never significantly differed from the high-skilled group.

Table 9: Tukey post-hoc test of learning mean scores between skill levels

Dependent Variable	(I) How would you describe the requirements of your last workplace?		Mean Difference	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Instrumental_learning_avg	Low-skilled	Medium-skilled	-0,85	0,17	**0,000**	-1,25	-0,44
		High-skilled	-1,13	0,27	**0,000**	-1,76	-0,49
	Medium-skilled	Low-skilled	0,85	0,17	**0,000**	0,44	1,25
		High-skilled	-0,28	0,26	0,540	-0,92	0,35
	High-skilled	Low-skilled	1,13	0,27	**0,000**	0,49	1,76
		Medium-skilled	0,28	0,26	0,540	-0,35	0,92
Social_learning_avg	Low-skilled	Medium-skilled	0,00	0,13	1,000	-0,32	0,32
		High-skilled	-0,31	0,21	0,300	-0,81	0,19
	Medium-skilled	Low-skilled	0,00	0,13	1,000	-0,32	0,32
		High-skilled	-0,31	0,21	0,295	-0,81	0,18
	High-skilled	Low-skilled	0,31	0,21	0,300	-0,19	0,81
		Medium-skilled	0,31	0,21	0,295	-0,18	0,81
Concpetual_learning_avg	Low-skilled	Medium-skilled	-0,59	0,18	**0,005**	-1,02	-0,15
		High-skilled	-0,47	0,29	0,231	-1,16	0,21
	Medium-skilled	Low-skilled	0,59	0,18	**0,005**	0,15	1,02
		High-skilled	0,12	0,28	0,911	-0,56	0,80
	High-skilled	Low-skilled	0,47	0,29	0,231	-0,21	1,16
		Medium-skilled	-0,12	0,28	0,911	-0,80	0,56

In addition to the ANOVA, a t-test was conducted (appendix 10.7). Therefore, the medium- (n=32) and high-skilled group (n= 8) were combined into one group, labeled as higher-skilled. Comparing the low-skilled and the higher-skilled group, resulted in the same outcome as the ANOVA: instrumental and conceptual learning differs significantly between the lower and higher skill levels, social learning does not.

6.2.2 Correlation of General Resistance Resources, Sense of Coherence and Learning

One basic assumption of the model Salutogenesis in the workplace: building GRRs and SOC by Vaandrager and Koelen (2013) is the connection between the SOC and the GRRs. This was examined by assuming the following hypothesis:

H2: Each of the three GRRs has a partial positive correlation with the SOC.

In order to test for correlations, several assumptions were checked for. The Shapiro-Wilk Test shows a significance of p=.022 for the total GRR scale and p=.974 for the SOC scale stating a normal distribution

for the SOC scale but not for the GRR scale (appendix 10.7). However, the sample seize for both variables is > 30. When looking at the scatterplot, a linear relationship between SOC and GRRs can be assumed. Then the Pearson's product-moment correlation is conducted. The test shows a positive correlation of r=.472 with a significance of p=.000, resulting in a medium positive correlation between SOC and the GRRs in total.

Table 70: Pearson product-moment correlation between SOC and GRRs

Variable		SOC_total	GRR_total
SOC_total	Pearson Correlation	1	,472**
	Sig. (2-tailed)		0
	N	69	69
GRR_total	Pearson Correlation	,472**	1
	Sig. (2-tailed)	0	
	N	69	72

Partial correlation

In addition to that, the correlation between the Sense of Coherence and the three individual General Resistance Resources was tested, testing each resource while correcting for the other two. Therefore, a partial correlation was conducted. The scatterplots show a linear relationship between the SOC and the three GRRs. Normal distribution for the three GRRs is not given, but since n > 30 the necessary assumptions are met (appendix 10.7).

Without controlling for the other GRRs, all three GRRs have a significant positive correlation with the SOC, job control r=.333 (p=.005), task significance r=.428 (p=.000) and social relations r=.466, (p=.000).

Table 8: Pearson product-moment correlation of GRR subscales

Control Variables	SOC_total	Job_control_total	Task_significance_total	Social_relations_total
SOC_total	1	0,333	0,428	0,466
	.	0,005	0	0

When job control is controlled for task significance and social relations, it only has a correlation of r=.033 which is non-significant (p=.794).

Table 9: Partial correlation of job control and SOC

Control Variables		Job_control_total
Task_significance_total & Social_relations_total	SOC_total	0,033 0,794

When task significance is controlled for job control and social relations, the correlation is r=.223 but non-significant (p=.069).

Table 10: Partial correlation of task significance and SOC

Control Variables		SOC_total	Task_significance_total
Social_relations_total & Job_control_total	SOC_total	1 .	0,223 0,069

When social relations is controlled for job control and task significance, there is a medium correlation with SOC of r=.312 which is significant (p=.010).

Table 11: Partial correlation of social relations and SOC

Control Variables		SOC_total	Social_relations_total
Job_control_total & Task_significance_total	SOC_total	1	0,312
		.	0,01

Therefore, social relations remain the only GRR that significantly correlates with SOC when controlling for the other two GRRs. The hypothesis, that each GRR correlates positively with SOC, after correcting for the other two has to be rejected.

For additional information the correlation between learning and SOC and GRRs was tested. The total learning score is normally distributed and the scatterplot shows a linear relationship, therefore the Pearson's product-moment correlation is used.

It shows no significant correlation between the SOC and the total learning scale, nor for one of the learning subscales and the SOC. For the relationship between GRR and learning however, not only does the total learning scale shows a strong correlation of β=.523 which is highly significant (p=.000) but also for each of the subscales: instrumental learning (β=.601, p=.001), social learning (β=.270, p=.023), and conceptual learning (β=.400, p=.001).

Table 12: Pearson product-moment correlation of SOC, GRRs and learning subscales

		SOC_total	GRR_total	Learning _total	Instrumental _learning	Social_learning	Conceptual _learning
SOC_total	Pearson Correlation	1	,472**	0,098	0,064	-0,009	0,175
	Sig. (2-tailed)		0	0,422	0,601	0,943	0,151
	N	69	69	69	69	69	69
GRR_total	Pearson Correlation	,472**	1	,523**	,402**	,270*	,400**
	Sig. (2-tailed)	0		0	0,001	0,023	0,001
	N	69	72	71	71	71	71

6.2.3 Moderation and mediation effects

Moderation

After examining the correlation between SOC and the GRRs, it is also worth investigating what role learning plays in this relationship. Therefore, the following hypothesis was tested:

H3: Learning moderates the relationship between SOC and GRR

Model 1 of the PROCESS plug-in for SPSS, version 2.16.3 by Hayes (2017) is used for the moderation analysis.

Table 13: Moderation analysis of learning within the relationship of GRRs and SOC (model 1)

Model summary							
	R	**R-sq**	**MSE**	**F**	**df1**	**df2**	**p**
	0,73	0,53	101,75	38,86	3,00	65,00	0,00
Model							
	coeff	**se**	**t**	**p**	**LLCI**	**ULCI**	
constant	76,33	1,30	58,61	0,000	73,72	78,93	
Learning	0,95	0,15	5,93	0,000	0,63	1,26	
SOC_total	0,56	0,13	4,32	0,000	0,30	0,82	
int_1	**0,54**	0,03	0,01	**0,011**	0,01	0,10	

With p=.000 the overall model is significant. There is a weak interaction term of .054 which is significant, p=.011, thereby conforming hypothesis 3.

When looking at the different types of learning, instrumental learning has an interaction term of .014, which is not significant with p=.715. Conceptual learning has an interaction term of .088, which is also

not significant with p=.101. Social learning has an interaction term of .102, which is significant with p=.006 (appendix 10.7). Therefore, social learning is the only learning type out of the three, that significantly moderates the relationship between SOC and GRRs.

Mediation

In addition to the possible moderation effects, it is also examined if learning acts as a mediator in the relationship between SOC and GRRs. Model 4 of the PROCESS plug-in for SPSS, version 2.16.3 is used to test the following hypothesis

H4: Learning mediates the relationship between SOC and GRRs

The effect of SOC to the mediation variable is .071 but with p=.422 non-significant.

Table 14: Mediation analysis of learning within the relationship of GRRs and SOC (model 4

Model summary							
	R	**R-sq**	**MSE**	**F**	**df1**	**df2**	**p**
	0,1	0,01	56,78	0,65	1	67	0,422
Model							
	coeff	**se**	**t**	**p**	**LLCI**	**ULCI**	
constant	50,62	4,88	10,37	0,000	40,85	60,34	
SOC_total	**0,071**	0,09	0,89	**0,422**	-0,1	0,25	

The direct effect of SOC on the GRRs is .585 which are significant with p=.000. Therefore, there is only a significant direct effect, but no mediation effect of learning. Hypothesis 4 therefore needs to be rejected.

Table 15: Direct effect between GRRs and SOC (model 4)

Direct effect of X on Y				
Effect	t	p	LLCI	ULCI
0,585	4,674	0,000	0,335	0,836

Additionally, the three different types of learning were examined for mediation effects. The effect of SOC on instrumental learning is .026 and non-significant with p=.601. The effect of SOC on social learning is -.004 and non-significant with p=.949. The effect of SOC on conceptual learning is .05 and non-significant with p=.174 (appendix 10.7). Therefore, there are only significant direct effects between SOC and the GRRs, but no mediation effects of the three learning types.

7. Discussion

7.1 The role of workplace learning for low-skilled workers

One of the major aims of this study was to explore what role workplace learning plays for low-skilled workers. Low-skilled workers were chosen because the initially examined literature suggested that they are a neglected group, when it comes to access and inclusion in workplace learning programs (Bimrose, Mulvey, & Brown, 2016; Bynner & Parsons, 1997; Martini & Cavenago, 2017; OECD, 2013). The findings of this study seen to confirm those concerns. The herein analyzed literature, shows that low-skilled employees are disadvantaged throughout the examined European countries (chapter 5.1). Not only are they up to four times less likely to participate in vocational training, they also seem to have generally less access to learning opportunities. Although there is some evidence that the learning gap between high- and low-skilled employees is closing, the evidence is limited. The general picture is still in favor of the high-skilled employees.

This raises the question what is needed, so that workplace learning can play a bigger role for the low-skilled employees. When the low-skilled employees are given the chance to participate in vocational training, it is important to consider their preferences. A reoccurring characteristic in the literature was, that the low-skilled employees seem to have rather negative associations with learning due to negative school experiences. It has been shown that they prefer to choose their own learning paths, instead of having it imposed on them. When it comes to the learning style, practical learning which can immediately applied to the actual work situation is favored (chapter 5.3). Additionally, sharing knowledge with colleagues and learning from them seems to be favored. Therefore, the right learning type and environment are crucial to support the low-skilled workers in their learning process. The herein analyzed literature, gave only very limited advice on how to design those supporting learning environments for low-skilled employees, which suggests that more research in this field is needed.

The preferences of the low-skilled workers as described in the literature, can be found again in the gathered data of this study (chapter 6.2). Within the sample, the low-skilled employees engaged mainly in social learning at the workplace, meaning that they learned most by direct contact and co-operation with their colleagues and receiving feedback from their supervisors. In contrast to that, they seem to learn less from instrumental learning forms, like formal courses or reflecting on their work processes (conceptual learning). More striking however, is the comparison between the low- medium- and high-skilled employees. Not only the low-skilled employees score high on social learning, but the higher-skilled employees profit of this type of learning. What distinguishes them from the low-skilled in regard to learning, is that the higher-skilled employees engage and learn from formal courses and from reflecting and evaluating their previous work processes. That means, they engage highly in all

three types of learning, giving them an advantage over their lower-skilled colleagues and most likely contributes to their higher-skill level and position. These details could not be found in the examined literature and add to the body of knowledge. The circumstances of this, e.g. if the higher-skilled employees had simply more access to instrumental learning opportunities e.g. engaging in formal courses, cannot be clarified by this study, since no background information of the learning situations were gathered.

7.2 The relationship between workplace learning and job functioning

The second part of the first research aim, was about exploring how workplace learning relates to functioning in the job for low-skilled workers.

Learning, in this case especially vocational training for low-skilled employees, has shown not to be a straightforward and simple process. As described in chapter 5.2, low-skilled employees often share certain attitudes and motivational barriers in regard to workplace learning. But they also have certain drivers for learning in common, including a desire to improve their self-efficacy and confidence and progressing not only career-wise but also in their personal development. Literature agrees, that if the workplace training programs can take those factors into account, they have a good chance to unlock a lot of unused potential and improve in their work.

When looking at the effects of learning programs in chapter 5.4 however, it becomes clear that the included literature mainly looked at the economic effects, neglecting the measurement of other aspects, like psychosocial ones. Additionally, they strongly focus on the instrumental types of learning, in its classical formats, like external courses next to work. According to the definition of this study, learning entails more aspects, like social and conceptual learning. Their potential contributions for improving the situation of low-skilled employees, seems to be neglected as well. Only two of the studies looked at effects besides the economical ones and found that the vocational training programs in fact had additional effects, e.g. changing attitudes towards work and increasing the confidence of the participants. However, exactly those additional effects are assumed to have major influence on job functioning. A change of attitude towards lifelong learning and improving one's skills in combination with an improvement of psychosocial factors, like an increased confidence, self-efficacy and a positive attitude towards learning, seems to be the crucial factors for improving the situation of low-skilled employees. This becomes even more important in our todays working environment, where lifelong learning becomes crucial for almost every type of work and skill level. Long-term employment contracts are less and less common and the employer-employee relationship is changing (Fugate, Kinicki, & Ashforth, 2004). Harteis and Goller argue, that today everybody has to "engage in lifelong

learning endeavours" (2014) and that the initially obtained qualifications are not sufficient. Since low-skilled employees were especially at risk to lose their job, e.g. in the recent economic recessions, keeping their knowledge and skills up-to-date and reaping the benefits of workplace learning, is crucial for them (OECD, 2012).

It has to be mentioned although, that these insights only became clear at the later stage of the literature analysis and search terms that would have resulted in more literature in this field, e.g. in the area of social and conceptual learning, have not been included in the initial search. A more extensive literature analysis is therefore needed, in order to complement the findings of this study.

The results of the literature study are also connected to the findings of the quantitative analysis of this study. No significant relationships between workplace learning and the SOC and its three dimensions comprehensibility, manageability and meaningfulness were found. In contrast to that, there is indeed a link between the three GRRs and workplace learning (chapter 6.2.2). This indicates, that the three workplace learning types: instrumental, social and conceptual are related to one's job control, task significance and social relations at work. Since this is a cross-sectional study, no causal relationships can be drawn. Nevertheless, also the results of the survey of this study indicate, that by improving the workplace learning processes one can influence relevant resources for functioning in the job. Since those GRRs are also interlinked with the SOC (figure 6), this could also have additional effects on one's well-being.

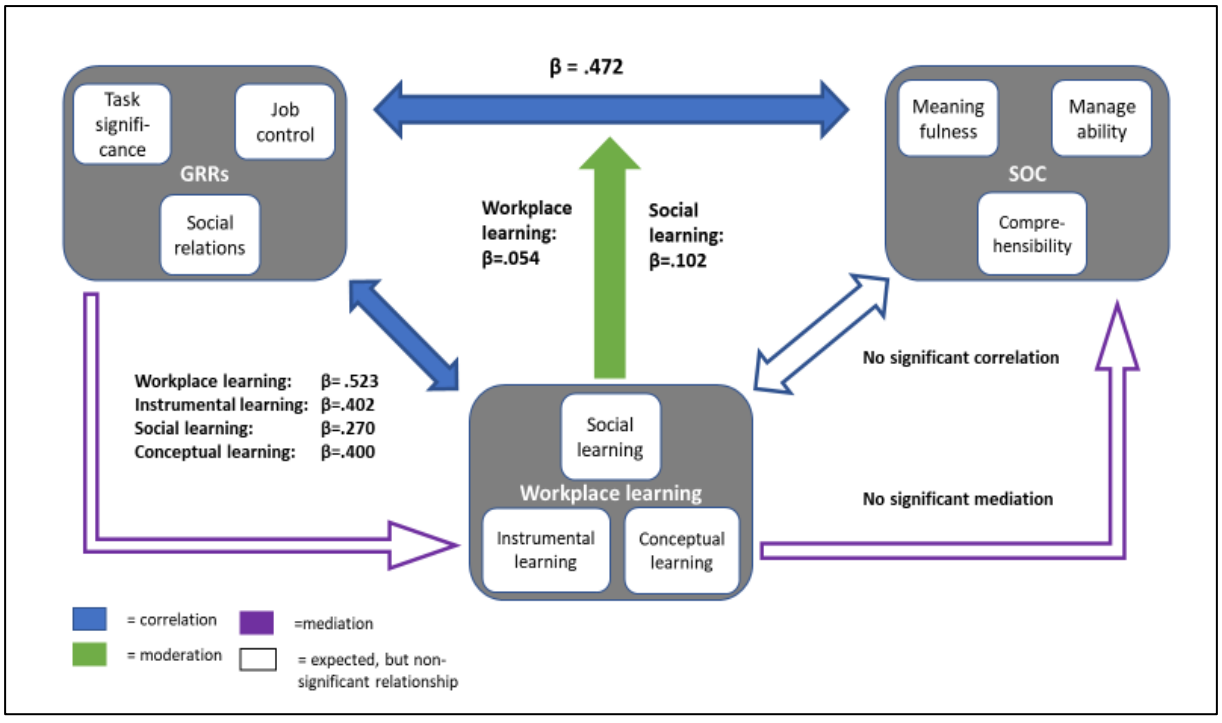


Figure 6: Relationships between GRRs, SOC and workplace learning in this study

However, this interaction is only based on limited findings in the literature, that was herein analyzed. The statistical analysis looked only at quantitative data of a relatively small sample seize, gathered with a cross sectional design. No qualitative data, or data gathered via a longitudinal study, that would give insights into the learning processes and its effects within the sample, was gathered. Nevertheless, the indications seem promising.

7.3 The role of workplace learning within the relationship between SOC and GRRs

Besides looking into the learning situation of the low-skilled employees, the second research question aimed to investigate the role of workplace learning within the relationship between the Sense of Coherence and the General Resistance Resources, as outlined in the model of Vaandrager and Koelen (2013). The foundation of this, is the reciprocal relationship between SOC and GRRs. In the investigated sample, the SOC and GRRs are indeed linked clearly to each other. This underlying connection therefore has been confirmed again, as it is already assumed by the scientific community. When looking at the individual relationship between the three GRRs: job control, social relations and task significance, this was not the case. In this study, only the relationship one is having with his colleagues and the level of support one receives from his social environment at work is linked to an improved Sense of Coherence.

This is in contrast to the findings of Pijpker et al. (2018), who found links between all three GRRs and SOC, meaning that in addition to the social relations, also the perceived meaningfulness of ones work and the level of control of daily decisions at work, were linked to the Sense of Coherence. Pijpker et al. (2018) came to these results by using the same measurement instruments, however the sample size of his study was much bigger, suggesting that his findings are more thorough.

The main aspect of the model of Vaandrager and Koelen (2013) and the adjusted version of Boer (2015) is not the link between SOC and GRRs, which is already well researched, but how workplace learning might play a role in this relationship. Learning is assumed to act as moderator or mediator within the relationship between SOC and GRR. In this study, only significant moderation effects have been found. The combined effect of all three learning types were already relatively small. When looking at the three learning types individually, only social learning remained significant, meaning that the support and knowledge one gains through his colleagues could have a small influence on the relationship between SOC and GRRs. Participating in formal courses to improve one's work skills or reflecting on one's previous tasks and finding room for improvement, had no influence. As for the meditation, no

significant effects were found in this study. In contrast to the initial idea of the model, this means that workplace learning cannot explain the relationship between the job control, social relations at work, task significance and the Sense of Coherence. These results are similar to the findings of Pijpker et al. (2018), who showed some moderation effects for all three learning types combined and also mediation effects of social learning. However, the effects were also relatively small and can strengthen or explain the relationship between SOC and the three GRRs only to a limited extend.

This leads to the conclusion, that the model Salutogenesis in the workplace: building GRRs and SOC might not need to be rejected as a whole, but it seems still incomplete. Workplace learning has shown to have some influence on the relationship between SOC and GRRs, but it might be only one of many factors. This might also be linked to the fact that learning only correlated significantly with the GRRs, not with the SOC, meaning that workplace learning and the three GRRs are connected and influence each other, but that there is no direct link between the workplace learning processes and the SOC (see figure 6). Workplace learning has shown to be complex (chapter 7.2) and the insights into the learning processes within the sample are limited, so this concept has to be treated with care. Also, the additional limitations of this study must be taken into account.

7.4 Strengths and limitations

One of the aims of this study was to reproduce the methods used in previous studies, studying the same or at least a similar topic. The used measurements were validated and used successfully in previous research. They were also successfully translated and applied in a German context, as one step to build up a data set for this topic, which is considered a strength. Additionally, the choice of using a variety of Facebook groups as medium for distributing the online questionnaire, can be seen as a strength. A diverse population was reached, not only from different workplaces but from completely different work sectors, across Germany. Also, a difficult to reach target group, low-skilled employees, was approached and at least participated to a certain extend.

Even so, there are also numerous limitations to consider when interpreting the results of this study. Despite the effort of approaching a wide range of Facebook groups with thousands of potential participants, adding a lottery as incentive, the attempt of designing an appealing online survey, a pre-tested cover letter and regular reminders after posting the survey, the sample size was very small and therefore limits the meaningfulness of the quantitative analysis. This also resulted in refraining from splitting up the sample further during the analysis, e.g. according to gender, age and education level since this would have made the subgroups to small. Despite targeting especially Facebook groups aimed at low-skilled employees, about half of the sample consisted of medium- or high-skilled

employees. Therefore it is possible, that an online survey might not be the best way of approaching this target group. Only 15 of the 25 expected groups finally participated in the study. However, it is not clear if and to what extend the non-participating groups would have differed. Additional biases could be possible due to the fact that the data was self-reported. Although, concepts like the Sense of Coherence are difficult to measure otherwise, so self-reported data is used commonly. A cross-sectional study design was used, whereas a longitudinal design would have been better to examine the expected relationships. However, a longitudinal study design would have been difficult to implement in the given timeframe.

8. Conclusion and recommendations

It has been shown, that workplace learning can and should play a role for low-skilled workers. However, currently low-skilled workers are still disadvantaged in comparison to higher-skilled workers, not only in regard of participation rates but also in access to workplace learning programs. Workplace learning itself is a complex process and in order to effectively reach low-skilled employees, the learning processes should be targeted specifically to their needs and within a supporting environment. By achieving this, the low-skilled employees could be empowered to engage into more workplace learning, either through targeted learning programs or by including learning opportunities in daily work life, e.g. in team meetings or scheduled reflection times. Although the evidence in this study is limited, an increased engagement in workplace learning seems to improve psychosocial aspects related to job functioning and unlock more of the potential of low-skilled workers. The focus thereby should be on improving psychosocial aspects and investigating, how they relate to work-relevant resistance resources.

While the relationship between the SOC and GRRs could be verified once again, the role of workplace learning as moderator or mediator within this relationship, as depicted by the model Salutogenesis in the workplace: building GRRs and SOC by Vaandrager and Koelen (2013), could not be proven fully. Only a weak influence of workplace learning in general and social learning could be found. Workplace learning does not function as a mediator between the Sense of Coherence and the General Resistance Resources in this study. Together with the findings of Pijpker et al. (2018), this leads to the conclusion, that workplace learning only plays a minor role in the relationship between the Sense of Coherence and the General Resistance Resources. Other, so far unknown factors, seem to be necessary to complement the model.

However, no qualitative data about the learning processes of the participants was gathered, which could have influenced the role of workplace learning within the relationship between SOC and GRRs.

Future research should address this knowledge gap. Therefore, it is recommended to do an extended literature analysis, focusing on the psychosocial effects and job functioning of low-skilled employees. Additionally, low- and higher-skilled employees should be approached in an actual setting, instead of using an online survey. The focus should be on investigating the individual learning processes and the effects of workplace learning, especially psychosocial aspects. A qualitative approach is recommended, in order to complement the results gained from the previous quantitative studies. This could provide important insights to promote learning, creating supportive environments and determine the role of learning further. A longitudinal study design would be best, to follow up the participants over time and get insights into their learning processes and the effects. In combination with that, the WLPQ could be validated and ensured that the tool fits well with the target group of low-skilled employees.
Additional research is needed to identify the missing aspects of the model Salutogenesis in the workplace: building GRRs and SOC. One starting point could be to examine the relationship between workplace learning and work-related GRRs (figure 6) further, checking for causations and underlying mechanisms.

In practice, employers and vocational education organizations should pay more attention to low-skilled workers and their needs in regard to learning. A superordinate one-for-all approach is not appropriate to effectively reach them. On the contrary, it seems wise to enquire first what the target group of low-skilled employees actually need and prefer or let them participate in the design of the workplace learning programs. Thereby, they could be empowered, to take responsibility for their skill development and make use of their potential. The learning programs, should then not only be evaluated according to economic standards, but also take improvement of psychosocial factors, e.g. confidence and increased motivation into account.

9. References

Abramovsky, L., Battistin, E., Fitzsimons, E., Goodman, A., & Simpson, H. (2011). Providing Employers with Incentives to Train Low-Skilled Workers: Evidence from the UK Employer Training Pilots. *Journal of Labor Economics*, *29*(1), 153–193.

Anderton, B., & Brenton, P. (1999). Outsourcing and Low-skilled Workers in the UK. *Bulletin of Economic Research*, *51*(4), 267–286.

Antonovsky, A. (1979). *Health, stress, and coping*: Jossey-Bass.

Antonovsky, A. (1987). *Unraveling the mystery of health: How people manage stress and stay well*: Jossey-Bass.

Bauer, G. F., & Jenny, G. J. (Eds.). (2013). *Salutogenic organizations and change*. Dordrecht: Springer Netherlands.

Bauer, G. F., Vogt, K., Inauen, A., & Jenny, G. J. (2015). Work-SoC–Entwicklung und Validierung einer Skala zur Erfassung des arbeitsbezogenen Kohärenzgefühls. *Zeitschrift für Gesundheitspsychologie*, *23*(1), 20–30.

Bimrose, J., Mulvey, R., & Brown, A. (2016). Low qualified and low skilled: The need for context sensitive careers support. *British Journal of Guidance & Counselling*, *44*(2), 145–157.

Blättner, B. (2007). Das Modell der Salutogenese. *Prävention und Gesundheitsförderung*, *2*(2), 67–73.

Blaxter, M. (1996). Criteria for the evaluation of qualitative research papers. *Medical Sociology News*, *22*(1), 68–71.

Boer, S. (2015). The unravelling of workplace learning processes of medical specialists from a salutogenic perspective. Wageningen University, Wageningen.

Bregulla, I. (2013). Salutogenesis in Workplaces: The Relationship between Learning Experiences, Resistance Resources and SOC. Wageningen University, Wageningen.

Brown, A. (2016). Career adaptability and attitudes to low-skilled work by individuals with few qualifications: 'getting by', 'getting on' or 'going nowhere'. *British Journal of Guidance & Counselling*, *44*(2), 221–232.

Brown, A., & Bimrose, J. (2017). Drivers of learning for the low skilled. *International Journal of Lifelong Education*, 1–17.

Bynner, J., & Parsons, S. (1997). *It doesn't get any better: The impact of poor basic skills on the lives of 37 year olds : summary of the main findings of research into the National Child Development Study*. London: Basic Skills Agency.

Cambridge Business English Dictionary. (2011). Cambridge, New York: Cambridge University Press.

Carifio, J., & Perla, R. (2008). Resolving the 50-year debate around using and misusing Likert scales. *Medical education*, *42*(12), 1150–1152.

Colombo, E., & Stanca, L. (2014). The impact of training on productivity: Evidence from a panel of Italian firms. *International Journal of Manpower*, *35*(8), 1140–1158.

Eriksson, M. (2011). *Sense of Coherence across the lifecourse: Findings from a systematic review 1992-2010.*

European Network of Workplace Health Promotion. (2007). *Luxembourg Declaration on Workplace Health Promotion in the European Union.*

Falxa-Raymond, N., Svendsen, E., & Campbell, L. K. (2013). From job training to green jobs: A case study of a young adult employment program centered on environmental restoration in New York City, USA. *Urban Forestry & Urban Greening*, *12*(3), 287–295.

Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions, and applications. *Journal of Vocational Behavior*, *65*(1), 14–38.

Grady, C. (2001). Money for research participation: does in jeopardize informed consent? *The American journal of bioethics : AJOB*, *1*(2), 40–44.

Grant, A. M. (2008). The significance of task significance: Job performance effects, relational mechanisms, and boundary conditions. *The Journal of applied psychology*, *93*(1), 108–124.

Hanson, A. (2007). *Workplace health promotion: A salutogenic approach*. Bloomington, Ind, Milton Keynes: AuthorHouse.

Harteis, C., & Goller, M. (2014). New Skills for New Jobs: Work Agency as a Necessary Condition for Successful Lifelong Learning. In T. Halttunen, M. Koivisto, & S. Billett (Eds.), *Promoting, Assessing, Recognizing and Certifying Lifelong Learning: International Perspectives and Practices* (pp. 37–56). Dordrecht: Springer Netherlands.

Hayes, A. F. (2017). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (Second edition). *Methodology in the social sciences*. New York: Guilford Press.

Hidalgo, D., Oosterbeek, H., & Webbink, D. (2014). The impact of training vouchers on low-skilled workers. *Labour Economics*, *31*, 117–128.

Hoogenbosch, B. (2014). Salutogenesis in Workplaces: a new operationalization of Learning processes. Wageningen University, Wageningen.

Illeris, K. (2006). Lifelong learning and the low-skilled. *International Journal of Lifelong Education*, *25*(1), 15–28.

Johnson, S., Sawicki, S., Pearson, C., Lindsay, C., McQuaid, R., & Dutton, M. (2009). Employee Demand for Skills Development: a Review of Evidence and Policy.

Känel, N., Buchenberger, S., Fischer, U., Gnehm, A.-S., Lohr, M., & Ritter, M. (2008). *Der Arbeitsmarkt für Geringqualifierte in der internationalen Bodenseeregion.*

Kemp, R., & Weehuizen, R. (2005). *Policy learning, what does it mean and how can we study it?* Oslo.

Larsson, G. (1996). Sense of coherence, socioeconomic conditions and health. Interrelationships in a nation-wide Swedish sample. *The European Journal of Public Health*, *6*(3), 175–180.

Lindfors, P. (2012). Reducing stress and enhancing well-being at work: are we looking at the right indicators? *European journal of anaesthesiology*, *29*(7), 309–310.

Lindsay, C., Canduela, J., & Raeside, R. (2013). Polarization in access to work-related training in Great Britain. *Economic and Industrial Democracy*, *34*(2), 205–225.

Lindström, B., & Eriksson, M. (2006). Contextualizing salutogenesis and Antonovsky in public health development. *Health promotion international*, *21*(3), 238–244.

Lixia, D. (2016). Development of the "Workplace Learning Processes Questionnaire". Wageningen University, Wageningen.

Loos, R. (2007). Integration of low skilled into lifelong learning and the labour market - A comparison of initiatives in Austria, Denmark and Spain [Integration von gering qualifizierten in das lebensbegleitende lernen und in den arbeitsmarkt - Initiativen aus Österreich, Dänemark und Spanien im Vergleich]. *SWS - Rundschau*, *47*(4), 406–423.

Maclachlan, K. (2004). 'We can giggle about being thick together': Utilising the social dimensions of learning in the workplace. *Research in Post-Compulsory Education*, *9*(3), 337–352.

Mariager-Anderson, K., Cort, P., & Thomsen, R. (2016). 'In reality, i motivate myself! '. 'Low-skilled' workers' motivation: between individual and societal narratives. *British Journal of Guidance & Counselling*, *44*(2), 171–184.

Martini, M., & Cavenago, D. (2017). The role of perceived workplace development opportunities in enhancing individual employability. *International Journal of Training and Development*, *21*(1), 18–34.

Mittelmark, M. B., Sagy, S., Eriksson, M., Bauer, G. F., Pelikan, J. M., Lindström, B., & Espnes, G. A. (Eds.). (2017). *The Handbook of Salutogenesis*. Cham: Springer International Publishing.

Nakano, D., Muniz, J., & Dias Batista, E. (2013). Engaging environments: Tacit knowledge sharing on the shop floor. *Journal of Knowledge Management*, *17*(2), 290–306.

Noyes, J., Booth, A., Hannes, K., Harden, A., Harris, J., Lewin, S., & Lockwood, C. (Eds.). (2011). *Supplementary Guidance for Inclusion of Qualitative Research in Cochrane Systematic Reviews of Interventions.*

Nübling, M. (2005). *Methoden zur Erfassung psychischer Belastungen: Erprobung eines Messinstrumentes (COPSOQ)*. *Schriftenreihe der Bundesanstalt für Arbeitsschutz und Arbeitsmedizin / Forschung: Fb 1058*. Bremerhaven: Wirtschaftsverl. NW, Verl. für Neue Wiss.

OECD. (2012). *OECD Employment Outlook 2012*. Paris: Organisation for Economic Co-operation and Development.

OECD. (2013). *OECD Skills Outlook*: OECD Publishing.

Pavlopoulos, D., Muffels, R., & Vermunt, J. K. (2009). Training and Low-pay Mobility: The Case of the UK and the Netherlands. *LABOUR*, *23*(2), 37–59.

Pijpker, R., Vaandrager, L., Bakker, E. J., & Koelen, M. (2018). Unravelling Salutogenic Mechanisms in the Workplace: the Role of Learning. *Gaceta Sanitaria*.

Pillay, H., Kelly, K., & Tones, M. (2010). Transitional employment aspirations for bridging retirement. *Journal of European Industrial Training*, *34*(1), 70–86.

Ploeg, M. ver, Moffit, R. A., & Citro, C. F. (2002). *Studies of welfare populations: Data collection and research issues*. Washington, DC: National Academy Press.

Poppius, E., Tenkanen, L., Hakama, M., Kalimo, R., & Pitkänen, T. (2003). The sense of coherence, occupation and all-cause mortality in the Helsinki Heart Study. *European journal of epidemiology*, *18*(5), 389–393.

Porst, R., & Briel, C. v. (1995). Wären Sie vielleicht bereit, sich gegebenenfalls noch einmal befragen zu lassen? oder: Gründe für die Teilnahme an Panelbefragungen.

Rainbird, H. (2000). Skilling the Unskilled: Access to work-based learning and the lifelong learning agenda. *Journal of Education and Work*, *13*(2), 183–197.

Reed, M., Evely, A., Cundill, G., Fazey, I., Glass, J., Laing, A., Raymond, C. (2010). What is social learning? *Ecology and Society*, *15*(4).

Roessger, K. M. (2014). The Effects of Reflective Activities on Skill Adaptation in a Work-Related Instrumental Learning Setting. *Adult Education Quarterly*, *64*(4), 323–344.

Roosmaa, E.-L., & Saar, E. (2012). Participation in non-formal learning in EU-15 and EU-8 countries: Demand and supply side factors. *International Journal of Lifelong Education*, *31*(4), 477–501.

Sanders, J., & Grip, A. de. (2004). Training, task flexibility and the employability of low-skilled workers. *International Journal of Manpower*, *25*(1), 73–89.

Schumacher, J., Wilz, G., Gunzelmann, T., & Brähler, E. (2000). Die Sense of Coherence Scale von Antonovsky. Teststatistische Uberprüfung in einer repräsentativen Bevölkerungsstichprobe und Konstruktion einer Kurzskala [The Antonovsky Sense of Coherence Scale. Test statistical

evaluation of a representative population sample and construction of a brief scale]. *Psychotherapie, Psychosomatik, medizinische Psychologie*, *50*(12), 472–482.

Singer, E., & Kulka, R. A. (2002). Paying respondents for survey participation. *Studies of welfare populations: Data collection and research issues*, 105–128.

Subedi, B. P. (2016). Using Likert type data in social science research: Confusion, issues and challenges. *International Journal of Contemporary Applied Sciences*, *3*(2), 36–49.

Surtees, P. (2003). Sense of Coherence and Mortality in Men and Women in the EPIC-Norfolk United Kingdom Prospective Cohort Study. *American Journal of Epidemiology*, *158*(12), 1202–1209.

Thomas, H. (2003). *Quality assessment tool for quantiative studies.* Toronto. McMaster University.

Thomas, H., & Qiu, T. (2012). Work-related continuing education and training: Participation and effectiveness. *Journal of Workplace Learning*, *24*(3), 157–176.

Tiernan, P., & O'Kelly, J. (2014). Blending work and learning: The impact of a workplace learning programme on the low-skilled and long term unemployed. *Industrial and Commercial Training*, *46*(7), 406–414.

Vaandrager, L., & Koelen, M. (2013). Salutogenesis in the Workplace: Building General Resistance Resources and Sense of Coherence. In G. F. Bauer & G. J. Jenny (Eds.), *Salutogenic organizations and change* (pp. 77–89). Dordrecht: Springer Netherlands.

Vastamäki, J., Moser, K., & Paul, K. I. (2009). How stable is sense of coherence? Changes following an intervention for unemployed individuals. *Scandinavian Journal of Psychology*, *50*(2), 161–171.

Vicente, P., & Reis, E. (2009). Using Questionnaire Design to Fight Nonresponse Bias in Web Surveys. *Social Science Computer Review*, *28*(2), 251–267.

Weedon, E., & Tett, L. (2013). Plugging a gap? Soft skills courses and learning for work. *International Journal of Lifelong Education*, *32*(6), 724–740.

Zwetsloot, G. I., van Scheppingen, A. R., Dijkman, A. J., Heinrich, J., & den Besten, H. (2010). The organizational benefits of investing in workplace health. *International Journal of Workplace Health Management*, *3*(2), 143–159.

10. Appendix

10.1 Questionnaire (German)

Sehr geehrter Teilnehmer,

Wir möchte Sie gerne dazu einladen, an dieser wissenschaftlichen Studie der Universität Wageningen teilzunehmen. Wir haben das Ziel, die Gesundheit von Mitarbeitern am Arbeitsplatz zu verbessern und brauchen dazu Ihre Mithilfe!
Die nachfolgenden Zeilen erklären Ihnen die Studie näher und am Ende müssen Sie in die Bedingungen der Befragung einwilligen, um teilnehmen zu können.

Dieses Forschungsprojekt ist Teil einer Abschlussarbeit an der Universität Wageningen. Sie beschäftigt sich mit den positiven Aspekten von Gesundheit und wie man diese stärken und verbessern kann. Da Menschen einen großen Teil Ihrer Zeit auf der Arbeit verbringen, interessieren wir uns besonders für Gesundheit am Arbeitsplatz. Die nachfolgenden Fragen beziehen sich also auch auf Ihre (Lern-) Erfahrungen am Arbeitsplatz. Zum Schluss werten wir Ihre Antworten statistisch aus und hoffen mit den Erkenntnissen die Gesundheit an Arbeitsplätzen verbessern zu können.

Um das zu erreichen, brauchen wir Ihre Hilfe. Wir möchten Sie bitten, im Folgenden einen Fragebogen auszufüllen. Alle Daten werden anonym erfasst, keinerlei Namen oder Adressen werden erfragt. Außerdem werden alle Ihre Antworten vertraulich behandelt, nur ich als Student und meine betreuende Professorin haben Zugang zu den Daten. Wir möchten außerdem betonen - dass die Teilnahme vollkommen freiwillig ist und Sie den Fragebogen jederzeit ohne Angabe von Gründen abbrechen können. Als Dankeschön für Ihre Zeit und Mühe, können Sie jedoch am Ende der Umfrage an einem Gewinnspiel teilnehmen, mit der Chance einen der 10€ Amazon Gutscheine zu gewinnen.

Das folgende Forschungsprojekt folgt den Richtlinien der Universität Wageningen und ist von der Ethikkommission bewilligt.

Falls Sie Bedenken oder Fragen bezüglich der Studie haben, kontaktieren Sie bitte Stephan Renz unter stephan.renz@wur.nl

Wenn Sie an der Studie teilnehmen möchten, klicken Sie bitte unten auf "Ich gebe meine Einwilligung zu dieser Studie". Damit bestätigen Sie, dass Sie mindestens 18 Jahre alt sind, die obigen Informationen gelesen haben und an der Befragung wie bereits beschrieben, teilnehmen möchten. Falls nicht, schließen Sie bitte diese Befragung.

Vielen Dank!

Q2. Teilnahme Studie

- ○ Ich gebe meine Einwilligung zu dieser Studie

Q3.

Q4. Wie alt sind Sie?

_____

Q5. Welches Geschlecht haben Sie?

- ○ Männlich
- ○ Weiblich

Q6. Was ist Ihr bisher höchster Schulabschluss?

- ○ Ohne Schulabschluss
- ○ Haupt-/Volksschulabschluss
- ○ Realschulabschluss
- ○ Fach-oder Hochschulreife
- ○ Akademischer Abschluss

Q7. In welcher der folgenden Branche sind oder waren Sie tätig?

- ○ Logistik oder Fernfahrerbranche
- ○ Gastronomie
- ○ Handwerk/ Baugewerbe
- ○ Reinigung
- ○ Pflege
- ○ Andere (bitte Branche eingeben) _____

Q47. Wie würden Sie die Anforderungen für Ihre letzte Arbeitsstelle am ehesten beschreiben?

- ○ Wenig Vorkenntnisse oder keine mehrjährige Berufsausbildung für Ihre Tätigkeit erforderlich
- ○ Vorkenntnisse und mehrjährige Berufsausbildung für Ihre Tätigkeit erforderlich
- ○ Spezifische Fachkenntnisse oder Hochschulstudium für Ihre Tätigkeit erforderlich

Q9. Die folgenden Fragen beziehen sich auf verschiedene Arbeitssituationen. Bitte beantworten Sie die Fragen im Bezug auf Ihre letzte Arbeitsstelle. Falls Sie Ihre Arbeitsstelle in letzter Zeit oftmals gewechselt haben, berücksichtigen Sie Ihre Arbeitserfahrungen des letzten Jahres.

Q10. Einflussmöglichkeiten

	Immer	Oft	Manchmal	Selten	Nie/ fast nie
Haben Sie großen Einfluss auf Ihre Arbeit?	○	○	○	○	○
Haben Sie Einfluss darauf, mit wem Sie arbeiten?	○	○	○	○	○
Haben Sie Einfluss auf die Menge der Arbeit, die Ihnen übertragen wird?	○	○	○	○	○
Haben Sie Einfluss darauf, was sie bei ihrer Arbeit tun?	○	○	○	○	○

Q11. Entwicklungsmöglichkeiten

	In sehr hohem Maß	In hohem Maß	Zum Teil	In geringem Maß	In sehr geringem Maß
Verlangt es Ihre Arbeit, dass Sie die Initiative ergreifen?	○	○	○	○	○
Können Sie Ihre Fertigkeiten oder Ihr Fachwissen bei Ihrer Arbeit anwenden?	○	○	○	○	○
Haben Sie die Möglichkeit, durch Ihre Arbeit neue Dinge zu erlernen?	○	○	○	○	○

Q12. Entscheidungsfreiheit

	Immer	Oft	Manchmal	Selten	Nie/ fast nie
Können Sie selbst bestimmen, wann Sie eine Pause machen?	○	○	○	○	○
Können Sie mehr oder weniger frei entscheiden, wann Sie Urlaub machen?	○	○	○	○	○
Können Sie Ihre Arbeit unterbrechen, um sich mit einem Kollegen/ einer Kollegin zu unterhalten?	○	○	○	○	○
Wenn sie private Dinge erledigen müssen, können Sie Ihren Arbeitsplatz ohne besondere Erlaubnis für eine halbe Stunde verlassen?	○	○	○	○	○

Q13. Bedeutung Ihrer Arbeit

	In sehr hohem Maß	In hohem Maß	Zum Teil	In geringem Maß	In sehr geringem Maß
Ist Ihre Arbeit sinnvoll?	○	○	○	○	○
Haben Sie das Gefühl, dass Ihre Arbeit wichtig ist?	○	○	○	○	○
Fühlen Sie sich motiviert und eingebunden in Ihre Arbeit?	○	○	○	○	○

Q14. Unterstützung durch Kollegen

	Immer	Oft	Manchmal	Selten	Nie/ fast nie	Habe keine/n Vorgesetzte/n oder Kollegen/innen
Wie oft erhalten Sie Hilfe und Unterstützung von Ihren Kollegen/innen?	○	○	○	○	○	○
Wie oft sind Ihre Kollegen/innen bereit, sich Ihre Arbeitsprobleme anzuhören?	○	○	○	○	○	○
Wie oft sprechen Ihre Kollegen/innen mit Ihnen über die Qualität Ihrer Arbeit?	○	○	○	○	○	○

Q15. Unterstützung durch Vorgesetzte

	Immer	Oft	Manchmal	Selten	Nie/ fast nie	Habe keine/n Vorgesetzte/n oder Kollegen/innen
Wie oft ist ihr/e unmittelbare/r Vorgesetzte/r bereit, sich Ihre Arbeitsprobleme anzuhören?	○	○	○	○	○	○
Wie oft erhalten Sie Hilfe und Unterstützung von Ihrem/Ihrer unmittelbaren Vorgesetzten?	○	○	○	○	○	○
Wie oft spricht Ihr/e Vorgesetzte/r mit Ihnen über die Qualität Ihrer Arbeit?	○	○	○	○	○	○

Q16. Arbeitsatmosphäre

	Immer	Oft	Manchmal	Selten	Nie/ fast nie	Habe keine/n Vorgesetzte/n oder Kollegen/innen
Ist die Atmosphäre zwischen Ihnen und Ihren Arbeitskollegen/innen gut?	○	○	○	○	○	○
Ist die Zusammenarbeit zwischen den Arbeitskollegen/innen gut?	○	○	○	○	○	○
Fühlen Sie sich an Ihrer Arbeitsstelle als Teil einer Gemeinschaft?	○	○	○	○	○	○

Q17. Den längsten Abschnitt haben Sie schon geschafft.
Weiter gehts!

Q18. Der nächste Abschnitt fragt danach, wie oft Sie die Möglichkeit hatten an Ihrem Arbeitsplatz etwas dazu zu lernen oder sich zu verbessern. Bitte beziehen Sie die Fragen auf Ihre letzte Arbeitsstelle.

Q19. Ich habe dazu gelernt, indem ich:

	Nie	Fast nie	Manchmal	Oft	Sehr oft/ immer
Nach Informationen in Büchern, Artikeln, im TV oder im Internet gesucht habe	○	○	○	○	○
Informationsveranstaltungen oder Coaching-Programme besucht habe	○	○	○	○	○
Neue Aufgaben übernommen habe	○	○	○	○	○

Q20. Ich habe arbeitsbezogene Kurse besucht und beendet.

- ○ Nie
- ○ Fast nie
- ○ Manchmal
- ○ Oft
- ○ Sehr oft/ immer

Q21. Ich habe meine Arbeitszeit mit Aufgaben verbracht, bei denen ich Neues lernen konnte.

- ○ Nie
- ○ Fast nie
- ○ Manchmal
- ○ Oft
- ○ Sehr oft/ immer

Q22. Ich habe dazu gelernt, indem ich:

	Nie	Fast nie	Manchmal	Oft	Sehr oft/ immer
Mit meinen Kollegen über meine Arbeit und Aufgaben nachgedacht und sie besprochen habe	○	○	○	○	○
Rückmeldungen/ Feedback über meine Arbeit von meinen Kollegen bekommen habe	○	○	○	○	○
Ich Kollegen bei Ihrer Arbeit beobachtet oder nachgemacht habe	○	○	○	○	○
Kollegen um Rat gefragt habe	○	○	○	○	○
Alleine oder mit Kollegen neue Ideen entwickelt habe	○	○	○	○	○
Alleine oder mit Kollegen neue Lösungen für Probleme bei der Arbeit entwickelt habe	○	○	○	○	○
Im richtigen Moment gehandelt und Verantwortung übernommen habe	○	○	○	○	○
Initiative/Entschlusskraft gezeigt habe	○	○	○	○	○

Q23. Ich habe dazu gelernt, indem ich:

	Nie	Fast nie	Manchmal	Oft	Sehr oft/ immer
Überlegt habe, ob eine Aufgabe auch anders zu erledigen gewesen wäre	○	○	○	○	○
Nach einer Aufgabe darüber nachgedacht habe, was ich dabei gelernt habe	○	○	○	○	○
Über eine frühere Aufgabe nachgedacht und sie beurteilt habe	○	○	○	○	○
Einen Weg gefunden habe, eine Aufgabe besser zu erledigen (durch Versuch und Irrtum)	○	○	○	○	○

Q24. Durchhalten, die folgenden Fragen sind die letzten!

Q25. Die nächsten Fragen drehen sich um Ihre allgemeine Lebenssituation. Beantworten Sie die Fragen einfach so gut Sie können, es gibt hier keine falschen Antworten.

Q26. Haben Sie das Gefühl, dass es Ihnen ziemlich gleichgültig ist, was um Sie herum passiert?

	1	2	3	4	5	6	7	
Äußerst selten oder nie	○	○	○	○	○	○	○	Sehr oft

Q27. Waren Sie schon überrascht vom Verhalten von Menschen, die Sie gut zu kennen glaubten?

	1	2	3	4	5	6	7	
Das ist nie passiert	○	○	○	○	○	○	○	Das kommt immer wieder vor

Q28. Haben Menschen, auf die Sie gezählt haben, Sie enttäuscht?

	1	2	3	4	5	6	7	
Das ist nie passiert	○	○	○	○	○	○	○	Das kommt immer wieder vor

Q29. Haben Sie das Gefühl, ungerecht behandelt zu werden?

	1	2	3	4	5	6	7	
Sehr oft	○	○	○	○	○	○	○	Sehr selten oder nie

Q30. Bis jetzt hatte Ihr Leben…

	1	2	3	4	5	6	7	
... überhaupt keine klaren Ziele oder einen Zweck	○	○	○	○	○	○	○	... sehr klare Ziele und einen Zweck

Q31. Haben Sie das Gefühl, in einer ungewohnten Situation zu sein und nicht zu wissen, was Sie tun sollen?

	1	2	3	4	5	6	7	
Sehr oft	○	○	○	○	○	○	○	Sehr selten oder nie

Q32. Das, was Sie täglich tun, ist für Sie eine Quelle…

	1	2	3	4	5	6	7	
... tiefer Freude und Zufriedenheit	○	○	○	○	○	○	○	... von Schmerz und Langeweile

Q33. Wie oft sind Ihre Gefühle und Ideen ganz durcheinander?

	1	2	3	4	5	6	7	
Sehr oft	○	○	○	○	○	○	○	Selten oder nie

Q34. Kommt es vor, dass Sie Gefühle haben, die Sie lieber nicht hätten?

	1	2	3	4	5	6	7	
Sehr oft	○	○	○	○	○	○	○	Selten oder nie

Q35. Viele Menschen - auch solche mit einem starken Charakter - fühlen sich in bestimmten Situationen wie ein Pechvogel oder Unglücksrabe. Wie oft haben Sie sich in der Vergangenheit so gefühlt?

	1	2	3	4	5	6	7	
Nie	○	○	○	○	○	○	○	Sehr oft

Q36. Wenn etwas passiert, fanden Sie im Allgemeinen, dass Sie dessen Bedeutung…

	1	2	3	4	5	6	7	
... über- oder unterschätzen	○	○	○	○	○	○	○	... richtig einschätzen

Q37. Wie oft haben Sie das Gefühl, dass die Dinge, die Sie täglich tun, wenig Sinn haben?

	1	2	3	4	5	6	7	
Sehr oft	○	○	○	○	○	○	○	Selten oder nie

Q38. Wie oft haben Sie Gefühle, bei denen Sie nicht sicher sind, ob Sie sie kontrollieren können?

	1	2	3	4	5	6	7	
Sehr oft	○	○	○	○	○	○	○	Sehr selten oder nie

Q39. Sehr geehrter Teilnehmer,

vielen vielen Dank für Ihre Teilnahme. Sie waren uns eine große Hilfe und wir hoffen, dass wir mit den Ergebnissen dieser Studie in Zukunft die Gesundheit am Arbeitsplatz von Ihnen und Ihren Kollegen verbessern können. Als Dankeschön für Ihre Zeit und Mühe können Sie nun Ihre Email-Adresse angeben, wenn Sie an der Verlosung teilnehmen und einen der 10€ Amazon Gutscheine gewinnen möchten. Ihre Emailadresse wird separat gespeichert und kann nicht mit Ihrer Umfrage in Verbindung gebracht werden. Zudem versichern wir Ihnen, dass sie ausschließlich dazu genutzt wird Sie darüber zu informieren, ob Sie gewonnen haben.

Q40. Wenn Sie an dem Gewinnspiel teilnehmen möchten, geben Sie bitte unter dem Link Ihre Email-Adresse an und **kehren Sie bitte anschließend zu dieser Umfrage zurück und klicken Sie auf "Nächste Seite" um die Umfrage abzuschließen.**

HIER Email-Adresse für das Gewinnspiel angeben.

Q41

10.2 Overview Facebook groups

Approached groups	Survey posted	Link
Aushilfsjobs- Deutschland	✓	https://www.facebook.com/groups/Aushilfe/
Baggerfaher aus Leidenschaft	✓	https://www.facebook.com/groups/1683913555198597/
Baggerfahrer	On hold	https://www.facebook.com/groups/Baggerfahrer/
Bauarbeiter Aufträge Subunternehmen Handwerker Nachunternehmen	Denied	https://www.facebook.com/groups/469204486431384/
Die Jobbörse von Lkw Fahrer aus Leidenschaft!!!	✓	https://www.facebook.com/groups/1593349447560926/?ref=br_rs
Fernfahrer Chaoten quer durch Deutschland	Denied	https://www.facebook.com/groups/1826382007678172/
Freiberufliche Pfleger	On hold	https://www.facebook.com/groups/jobboersepflegeportal/
Fussbodenforum	✓	https://www.facebook.com/groups/fussbodenforum/
Gebäudereiniger, machen die Welt jeden Tag sauberer.	✓	https://www.facebook.com/groups/228458833858571/
Handwerk, Dienstleistung & Sicherheit	✓	https://www.facebook.com/groups/747697655310536/?ref=br_rs
Handwerker gesucht!!!	✓	https://www.facebook.com/groups/262381993859780/?ref=br_rs#_=_
Job Börse Gastronomie,	✓	https://www.facebook.com/groups/JobBoerseGastro/?ref=br_rs
Jobbörse & Handwerker im Kreis Minden Lübbecke	Denied	https://www.facebook.com/groups/396995820347903/
Jobbörse Altenpflege/ Krankenpflege	On hold	https://www.facebook.com/groups/178025525733360/
Jobbörse für den gesamten Logistikbereich	✓	https://www.facebook.com/groups/1645078925763056/?ref=br_rs
Jobbörse für Volksfestbedienungen	✓	https://www.facebook.com/groups/1416109138601180/
Jobbörse Gebäudereinigung	On hold	https://www.facebook.com/groups/1750578388519175/
Jobs in der Gastronomie !?	✓	https://www.facebook.com/groups/46456326238/?ref=br_rs
Nette-Handwerker Köln	✓	Privat group
Parkett-und Bodenleger	Pre-test	https://www.facebook.com/groups/239680592893186/
Reinigen - Pflegen - Schützen: ,,Die Gebäudereiniger"	✓	https://www.facebook.com/groups/240534972701381/

Speditions-und Firmenerfahrungen	On hold	https://www.facebook.com/groups/365457756919539/
Stellenbörse Altenpflege	On hold	https://www.facebook.com/groups/jobportalambulantepflege/
Volkshandwerker -Handwerker Suchen ???	✔	https://www.facebook.com/groups/1793968757521419/
Winterdienst 2017/2018	Denied	https://www.facebook.com/groups/1697422037183883/

10.3 Ethical approval

WAGENINGEN
UNIVERSITY & RESEARCH

6706 kn Hollandseweg 1 Wageningen | The Netherlands

To whom it may concern

The following project proposal has been reviewed by the Social Sciences Ethics Committee (SEC):

Title: Salutogenesis in the workplace setting. The effects of learning on building the Sense of Coherence and General Resistance Resources in low-skilled professions
Project team: Stephan Renz, Dr Lenneke Vaandrager
Funding: n. a.
Period: September 2017- February 2018
Location: Wageningen University

The Committee has concluded that the proposal deals with ethical issues in a satisfactory way and that it complies with the Netherlands Code of Conduct for Scientific Practice.

With kind regards,

Professor Dr Marcel Verweij
Chair Social Sciences Ethics Committee

DATE
18 October 2017

SUBJECT
Ethical approval of research project

POSTAL ADDRESS
6706 kn Hollandseweg 1
Wageningen
The Netherlands

VISITORS' ADDRESS
Building 201

INTERNET
www.wur.nl/university

CoC NUMBER
09215846

HANDLED BY
Prof. Dr Marcel Verweij

TELEPHONE
+31(0)317484334

EMAIL
esther.roquas@wur.nl

Wageningen University & Research is specialised in the domain of healthy food and living environment.

10.4 Overview literature review

Author	Year	Title	Country	Participants	Method	Quality	Result	Learning situation	Personal attributes	Prefer-ences	Effects
Abramovsky Laura, Battistin Erich, Fitzsimons Emla, Goodman Alissa, Simpson Helen	2011	Providing employers with incentives to train low-skilled workers: evidence from the UK employer training pilots	UK	Panel data of low-skilled employees	Quantitative	Strong	Small impact found, numbers of training did not increase significantly, might due to the design of the program, model: showing the training access for different qualification levels (p.155)	x			
Brown Alan	2016	Career adaptability and attitudes to low-skilled work by individuals with few qualifications: getting by, getting on or going nowhere	Czech Republic, Denmark, England, France, Germany, Italy, Poland	105 low-skilled workers	Qualitative	Medium (11)	Low-skilled have different attitudes, depending on 4 factors of career adaptability: concern, control, curiosity and confidence, practical learning = important, confidence and passion vs. fatalism, career counseling to change perspective towards learning		x	x	

Brown Alan, Bimrose Jenny	2017	Drivers of learning for the low skilled	Czech Republic, Denmark, England, France, Germany, Italy, Poland	105 low-skilled workers	Qualitative	Medium (14)	5 important drivers: enhancing self-efficacy, self-improvement, labor market orientation, work-related practical training, motivation through others		x		
Colombo Emilio, Sanca Luca	2012	The impact of training on productivity: evidence from a panel of Italian firms	Italy	33.700 Italian workers	Quantitative, evaluation of panel data	Strong	Training has a large and significant effect of productivity on blue collar (18%) workers but not on white-collars (2%), in contrast to wages: training increases wages of WC but less for BC				x
Falxa-Raymond, N. Svendsen, E. Campbell, L. K.	2013	From job training to green jobs: a case study of a young adult employment program…	USA	35 low-skilled	Qualitative, evaluation	High (15)	Green job training beneficial, not only for skills but for attitude towards work, self-esteem, confidence, maturity, benefits of working in green environment				x

Hidalgo Diana, Oosterbeek Hessel, Webbing Dinand	2014	The impact of training vouchers on low-skilled workers	Netherlands	1.266 workers from 4 sectors (73-92% low-skilled)	Quantitative, evaluation	Strong	19,6% increase of people taking trainings (45% --> 65%), taking more general trainings (useful for different companies), no impact on wage (due to study limitations), more future training plans	x		x	x
Lindsay Colin, Canduela Jesus, Raeside Robert	2012	Polarization in access to work-related training in Great Britain	UK	43.178 people from all skill levels and sectors	Quantitative	Moderate	Low-skilled (older, less educated, part-time and women + children) have less access, although in need, negative impact on economic and well-being	x			
Loos Roland	2007	Integration von gering Qualifizierten in das Lebensbegleitenden Lernen und in den Arbeitsmarkt: Initiativen aus Österreich, Dänemark und Spanien im Vergleich	Austria, Denmark and Spain	4 low-skilled programs	Qualitative, evaluation	Medium (12)	Learning programs in various EU countries show at least some effect, countries working on it, often only pilot projects and not enough financing, programs should be linked closely to work context, EU program: lifelong learning (LLL)			x	x

Maclachlan Kathy	2004	We can giggle about being thick together: utilising the social dimensions of learning in the workplace	Scotland	28 low-skilled	Qualitative, focus groups	Medium (12)	Low-skilled have bad learner identity, learning should be based on social relations (learning with friends)				
Mariager-Anderson Kristina, Cort Pia, Thomsen Rie	2016	In reality, I motivate myself. Low-skilled workers motivation: between individual and societal narratives.	Denmark	18 low-skilled workers	Qualitative	Medium (13)	Low-skilled not necessarily unmotivated, but motivated differently (for other things), feeling that education is imposed on them, their motivation needs to be taken into account when designing a learning program		x		
Nakano Davi	2013	Engaging environments: tacit knowledge sharing on the shop floor		14 workers in different positions	Qualitative	Medium (14)	Tacit knowledge sharing (social learning) important also more and more for BC, engaging environment helpful			x	
Pavlopoulos Dimitris, Muffels Ruud, Vermunt Jeroen	2009	Training and low-pay mobility: The case of the UK and the Netherlands	UK, Netherlands	12k males from panel studies (25-55 years)	Quantitative	Strong	Training increases the chance of upward wage mobility (increasing wage) for low-paid, but not really for low-skilled, work-specific training higher effects than general training				x

Pillay Hitendra, Kelly Kathy, Tones Megan	2010	Transitional employment aspirations for bridging retirement	Australia	1.068 government employees	Quantitative	Moderate	Low-skilled get less training, danger of vicious cycle, more training = longer in the workforce	x			
Roosmaa Eve-Liis, Saar Ellu	2012	Participation in non-formal learning in EU-15 and EU-8 countries: demand and supply side factors	Europe	EU countries	Quantitative	Moderate	Lower skilled lower training rates, nice model at p.493, comparing participation rates of non-formal training among countries	x			
Thomas Hywel, Qiu Tian	2011	Work-related continuing education and training: participation and effectiveness	UK	Panel data UK, NHS	Quantitative	Strong	Both HS and LS participated more in training in 2009 than in 2006, but gap is widening (more online learning for HS), LS participation is usually lower, LS prefer informal workshops and peer support over formal learning = more effective	x		x	
Tiernan Peter and O'Kelly Kane	2014	Blending work and learning: the impact of a workplace learning programme on the low-skilled and long term unemployed	Ireland	25 long-term unemployed	Quantitative	Moderate	Positive impact on mathematical, reading and writing abilities, + work environment			x	x

Weedon Elisabeth, Tett Lyn	2013	Plugging a gap? Soft skill courses and learning for work	Scotland	20 workers from 2 companies	Qualitative	Medium (12)	Some learning effects but less than expected, work environment and culture must be supportive, external courses alone not the answer, learning to work + working to learn			x	x

10.5 Literature quality assessment tools

Criteria for the Evaluation of Qualitative Research Papers by Blaxter (1996)

1. Are the methods of the research appropriate to the nature of the question being asked?

• i.e. does the research seek to understand processes or structures, or illuminate subjective experiences or meanings?
• Are the categories or groups being examined of a type which cannot be preselected, or the possible outcomes cannot be specified in advance?
• Could a quantitative approach have addressed the issue better?

2. Is the connection to an existing body of knowledge or theory clear?
• i.e. is there adequate reference to the literature?
• Does the work cohere with, or critically address, existing theory?

Methods

3. Are there clear accounts of the criteria used for the selection of subjects for study, and of the data collection and analysis?

4. Is the selection of cases or participants theoretically justified?
• The unit of research may be people, or events, institutions, samples of natural behaviour, conversations, written material, etc. in any case, while random sampling may not be appropriate, is it nevertheless clear what population the sample refers to?
• Is consideration given to whether the units chosen were unusual in some important way?

5. Does the sensitivity of the methods match the needs of the research questions?
• Does the method accept the implications of an approach which respects the perceptions of those being studied?
• To what extent are any definitions or agendas taken for granted, rather than being critically examined or left open?
• Are the limitations of any structured interview method considered?

6. Has the relationship between fieldworkers and subjects been considered, and is there evidence about the research was presented and explained to its subjects?
• If more than one worker was involved, has comparability been considered?
• Is there evidence about how the subjects perceived the research?
• Is there evidence about how any group processes were conducted?

7. Was the data-collection and record keeping systematic?
• e.g. were careful records kept?
• Is the evidence available for independent examination?
• Were full records or transcripts of conversations used if appropriate?

Analysis

8. Is reference made to accepted procedures for analysis?
• Is it clear how the analysis is done? (Detailed repetition of how to perform standard procedures ought not to be expected)
• Has its reliability been considered, ideally by independent repetition?

9. How systematic is the analysis?
• What steps were taken to guard against selectivity in the use of data?
• In research with individuals, is it clear that there has not been selection of some cases and ignoring of less-interesting ones? In group research, are all categories of opinion taken into account?

10. Is there adequate discussion of how themes, concepts and categories were derived from the data?
• It is sometimes inevitable that externally-given or predetermined descriptive categories are used, but have they been examined for their real meaning or any possible ambiguities?

11. Is there adequate discussion of the evidence both for and against the researcher's arguments?
• Is negative data given? Has there been any search for cases which might refute the conclusions?

12. Have measures been taken to test the validity of the findings?
• For instance, have methods such as feeding them back to the respondents, triangulation, or procedures such as grounded theory been used?

13. Have any steps been taken to see whether the analysis would be comprehensible to the participants, if this is possible and relevant?
• Has the meaning of their accounts been explored with respondents? Have apparent anomalies and contradictions been discussed with them, rather than assumptions being made?

<u>Presentation</u>

14. Is the research clearly contextualised?
• Is all the relevant information about the setting and subjects supplied?
• Are the cases or variables which are being studied integrated in their social context, rather than being abstracted or decontexualised?

15. Are the data presented systematically?
• Are quotations, fieldnotes, etc. identified in a way which enables the reader to judge the range of evidence being used?

16. Is a clear distinction made between the data and its interpretation?
• Do the conclusions follow from the data? (It should be noted that the phases of research - data collection, analysis, discussion - are not usually separate and papers do not necessarily follow the quantitative pattern of methods, results, discussion.) "

17. Is sufficient of the original evidence presented to satisfy the reader of the relationship between the evidence and the conclusions?
• Though the presentation of discursive data is always going to require more space than numerical data, is the paper as concise as possible?

18. Is the author's own position clearly stated?
• Is the researcher's perspective described?
• Has the researcher examined their own role, possible bias, and influence on the research?

19. Are the results credible and appropriate?
• Do they address the research question(s)?
• Are they plausible and coherent?
• Are they important, either theoretically or practically, or trivial?

Ethics

20. Have ethical issues been adequately considered?
• Is the issue of confidentiality (often particularly difficult in qualitative work) been adequately dealt with?
• Have the consequences of the research - including establishing relationships with the subjects, raising expectations, changing behaviour, etc. - been considered?

Quality assessment tool for quantitative studies (Thomas, 2003)

A) SELECTION BIAS

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?

1 Very likely
2 Somewhat likely
3 Not likely
4 Can't tell

(Q2) What percentage of selected individuals agreed to participate?

1 80 - 100% agreement
2 60 – 79% agreement
3 less than 60% agreement
4 Not applicable
5 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
	1	2	3

B) STUDY DESIGN

Indicate the study design

1 Randomized controlled trial
2 Controlled clinical trial
3 Cohort analytic (two group pre + post)
4 Case-control

5 Cohort (one group pre + post (before and after))
6 Interrupted time series
7 Other specify _____
8 Can't tell

Was the study described as randomized? If NO, go to Component C.

No Yes

If Yes, was the method of randomization described?

No Yes

If Yes, was the method appropriate?

No Yes

RATE THIS SECTION	STRONG	MODERATE	WEAK
	1	2	3

C) CONFOUNDERS

(Q1) Were there important differences between groups prior to the intervention?

1 Yes
2 No
3 Can't tell

The following are examples of confounders:

1 Race
2 Sex
3 Marital status/family
4 Age
5 SES (income or class)
6 Education
7 Health status
8 Pre-intervention score on outcome measure

(Q2) If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?

1 80 – 100% (most)
2 60 – 79% (some)
3 Less than 60% (few or none)
4 Can't Tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
	1	2	3

D) BLINDING

(Q1) Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?

1 Yes
2 No
3 Can't tell

(Q2) Were the study participants aware of the research question?

1 Yes
2 No
3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
	1	2	3

E) DATA COLLECTION METHODS

(Q1) Were data collection tools shown to be valid?

1 Yes
2 No
3 Can't tell

(Q2) Were data collection tools shown to be reliable?

1 Yes
2 No
3 Can't tell

RATE THIS SECTION	STRONG	MODERATE	WEAK
	1	2	3

F) WITHDRAWALS AND DROP-OUTS

(Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?

1 Yes
2 No
3 Can't tell
4 Not Applicable (i.e. one time surveys or interviews)

(Q2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).

1 80-100%
2 60- 79%
3 less than 60%
4 Can't tell

Not Applicable (i.e. Retrospective case-
5control)

RATE THIS SECTION	STRONG	MODERATE	WEAK	
	1	2	3	Not Applicable

G) INTERVENTION INTEGRITY

(Q1) What percentage of participants received the allocated intervention or exposure of interest?

1 80-100%
2 60- 79%
3 less than 60%
4 Can't tell

(Q2) Was the consistency of the intervention measured?

1 Yes
2 No
3 Can't tell

(Q3) Is it likely that subjects received an unintended intervention (contamination or co-intervention) that may influence the results?

4 Yes
5 No
6 Can't tell

H) ANALYSES

(Q1) Are the statistical methods appropriate for the study design?

1 Yes
2 No
3 Can't tell

(Q2) Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?

1 Yes
2 No
3 Can't tell

GLOBAL RATING

A	SELECTION BIAS	STRONG	MODERATE	WEAK
		1	2	3
B	**STUDY DESIGN**	**STRONG**	**MODERATE**	**WEAK**
		1	2	3
C	**CONFOUNDERS**	**STRONG**	**MODERATE**	**WEAK**

		1	2	3	
D	**BLINDING**	**STRONG**	**MODERATE**	**WEAK**	
		1	2	3	
E	**DATA COLLECTION METHOD**	**STRONG**	**MODERATE**	**WEAK**	
		1	2	3	
F	**WITHDRAWALS AND DROPOUTS**	**STRONG**	**MODERATE**	**WEAK**	
		1	2	3	Not Applicable

Global ratings for this paper (circle one):

1. Strong (no weak ratings)
2. Moderate (one weak rating)
3. Weak (two or more weak ratings

10.6 Coding plan

Coding plan

Construct	Subscale		Items												
Learning _total	Instrumental_learning		Q19_1	Q19_2	Q19_3	Q20	Q21								
	Social_learning		Q22_2	Q22_3	Q22_4	Q22_5	Q22_6	Q22_7	Q22_8	Q22_9					
	Conceptual_learning		Q23_1	Q23_2	Q23_3	Q23_4									
GRR _total	Job_control	Influence_at_work	Q10_1	Q10_2	Q10_3	Q10_4									
		Possibilities_for_ development	Q11_1	Q11_2	Q11_3										
		Degree_of_freedom	Q12_1	Q12_2	Q12_3	Q12_4									
	Task_significance	Meaning_of_work	Q13_1	Q13_2	Q13_3										
	Social_relations	Social_support_ colleagues	Q14_1	Q14_2	Q14_3										
		Social_support_ supervisors	Q15_1	Q15_2	Q15_3										
		Social_community_wor k	Q16_1	Q16_2	Q16_3										
SOC _total			Q26_1	Q27_1	Q28_1	Q29_1	Q30_1	Q31_1	Q32_1	Q33_1	Q34_1	Q35_1	Q36_1	Q37_1	Q38_1

10.7 Additional statistical tables

Additional tables for chapter 6.2.1

Assumptions for ANOVA

Shapiro-Wilk test of Normality for ANOVA

	How would you describe the requirements of your last workplace?	Shapiro-Wilk		
		Statistic	df	Sig.
Instrumental_learning_avg	Low-skilled	,931	31	,047
	Medium-skilled	,959	32	,250
	High-skilled	,972	8	,913
Social_learning_avg	Low-skilled	,953	31	,191
	Medium-skilled	,968	32	,454
	High-skilled	,918	8	,417
Concpetual_learning_avg	Low-skilled	,895	31	,006
	Medium-skilled	,964	32	,360
	High-skilled	,949	8	,705

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Instrumental_learning_avg	1,719	2	68	,187
Social_learning_avg	,694	2	68	,503
Concpetual_learning_avg	,484	2	68	,618

T-test comparing learning of low- and higher skilled

Tests of Normality

	Low_higher_skilled	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Instrumental_learning_avg	Low-skilled	,199	31	,003	,931	31	,047
	Medium- or high-skilled	,118	40	,166	,976	40	,537
Social_learning_avg	Low-skilled	,155	31	,056	,953	31	,191
	Medium- or high-skilled	,089	40	,200*	,963	40	,214
Concpetual_learning_avg	Low-skilled	,179	31	,013	,895	31	,006
	Medium- or high-skilled	,115	40	,200*	,970	40	,371

Group Statistics

	Low_higher_skilled	N	Mean	Std. Deviation	Std. Error Mean
Instrumental_learning_avg	low-skilled	31	2,3226	,56492	,10146
	medium- or high-skilled	40	3,2250	,74032	,11706
Social_learning_avg	low-skilled	31	3,4234	,56796	,10201
	medium- or high-skilled	40	3,4844	,49855	,07883
Concpetual_learning_avg	low-skilled	31	2,9032	,66670	,11974
	medium- or high-skilled	40	3,4688	,75147	,11882

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Instrumental_learning_avg	Equal variances assumed	3,161	,080	-5,631	69	**,000**	-,90242	,16026	-1,22212	-,58271
	Equal variances not assumed			-5,825	68,991	,000	-,90242	,15491	-1,21145	-,59338
Social_learning_avg	Equal variances assumed	,847	,360	-,481	69	,632	-,06099	,12678	-,31392	,19194
	Equal variances not assumed			-,473	60,053	,638	-,06099	,12892	-,31886	,19688
Concpetual_learning_avg	Equal variances assumed	,522	,472	-3,302	69	**,002**	-,56552	,17129	-,90724	-,22381
	Equal variances not assumed			-3,352	67,685	,001	-,56552	,16869	-,90217	-,22888

Additional tables for chapter 6.2.2

Tests of Normality

	Shapiro-Wilk		
SOC_total	,993	69	,974
GRR_total	,958	69	,022
Job_control_total	,926	69	,001
Task_significance_total	,949	69	,007
Social_relations_total	,959	69	,023
Learning_total	,975	69	,189

Additional tables for chapter 6.2.3

Table 16: Moderation analysis of instrumental learning within the relationship of SOC and GRRs

Model Summary						
R	R-sq	MSE	F	df1	df2	p
,6073	,3688	136,7383	12,1303	3,0000	65,0000	,0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	76,7013	1,4535	52,7692	,0000	73,7984	79,6042
Instrumetal	1,4022	,3607	3,8874	,0002	,6818	2,1225
SOC_total	,6214	,1636	3,7976	,0003	,2946	,9482
int_1	**,0144**	,0393	,3671	**,7147**	-,0640	,0929

Table 17: Moderation analysis of social learning within the relationship of SOC and GRRs

Model Summary						
R	R-sq	MSE	F	df1	df2	p
,6381	,4072	128,4235	13,0966	3,0000	65,0000	,0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	76,7781	1,4076	54,5467	,0000	73,9670	79,5893
Social_l	,9670	,3108	3,1117	,0028	,3464	1,5877
SOC_total	,6408	,1455	4,4036	,0000	,3502	,9315
int_1	**,1024**	,0361	2,8381	**,0060**	,0303	,1745

Table 18: Moderation analysis of conceptual learning within the relationship of SOC and GRRs

Model Summary						
R	R-sq	MSE	F	df1	df2	p
,6065	,3679	136,9359	18,6686	3,0000	65,0000	,0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	76,2665	1,5496	49,2169	,0000	73,1717	79,3612
Conceptu	1,7214	,5415	3,1790	,0023	,6400	2,8029
SOC_tota	,5197	,1580	3,2897	,0016	,2042	,8352
int_1	**,0884**	,0531	1,6652	**,1007**	-,0176	,1944

Table 19: Mediation analysis of the instrumental, social and conceptual learning within the relationship of SOC and GRRs

Outcome: Instrumental_learning						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
,0641	,0041	16,0156	,2957	1,0000	67,0000	,5884
Model						
	coeff	se	t	p	LLCI	ULCI
constant	12,7474	2,6035	4,8963	,0000	7,5508	17,9440
SOC_total	**,0245**	,0451	,5437	**,5884**	-,0654	,1144
**********						
Outcome: Social_learning						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
,0087	,0001	18,4792	,0042	1,0000	67,0000	,9485
Model						
	coeff	se	t	p	LLCI	ULCI
constant	27,8178	3,0790	9,0346	,0000	21,6720	33,9637
SOC_total	**-,0036**	,0549	-,0648	**,9485**	-,1132	,1061
**********						
Outcome: Conceptual_learning						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
,1749	,0306	8,7144	1,8843	1,0000	67,0000	,1744
Model						
	coeff	se	t	p	LLCI	ULCI
constant	10,0367	2,0652	4,8598	,0000	5,9144	14,1589
SOC_total	**,0500**	,0364	1,3727	**,1744**	-,0227	,1226