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Master Thesis Human Resource Management

Job search behaviour
and job search sources of engineers

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- The engineer is the key figure in the material progress of the world.-
(Sir Eric Ashby)

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This thesis is the completion of my master studies to obtain my Master of Science degree in Business Administration at the Faculty of Management and Governance of the University of Twente. In this thesis, I report about the research on the job search behaviour of engineers consisting of two phases of data collection.

It has been a challenging adventure to dive into the academic world of research and provided me with an additional educational experience. The creation of this thesis has been a long and challenging process, which would not have been possible without the help of some people. Therefore, I would like to express my gratitude to those people supporting me.

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MANAGEMENT SUMMARY

Purpose of the research

The purpose of this master thesis is to contribute to the research about job search behaviour focusing on engineers with special regard to generational differences. The goal of this research is to create a qualitative model for the job search process and to test this model during a qualitative and quantitative process of data collection. In order to accomplish the research objectives the following research question will be answered within the course of this thesis: *How do experienced and inexperienced engineers proceed when searching for jobs?*

Research Method

This research makes use of a *sequential exploratory strategy* involving two phases of data collection. In a first step qualitative data is being collected by conducting individual interviews among engineers. These data are afterwards being analysed and used to design a survey covering the quantitative part of this research. This approach has been chosen as existing instruments were not available or inadequate for the topic under discussion. To enrich the data and give more meaning to the outcomes a secondary data analysis is used.

Findings

The findings suggest that there are significant differences with regard to values and preferences experienced and inexperienced engineers put emphasis on when searching for jobs. Experienced engineers (Baby Boomers) tend to put more emphasis on *job security, the responsibility for taking risks, advancement to high administrative responsibility, clear rules and procedures to follow, and a position that requires supervising others*. Inexperienced engineers (Generation Y) see the following values and preferences as more important: *requires originality and creativeness, makes use of your specific educational background, encourages continued development of knowledge and skills, involves working with pleasant colleagues, provides much leisure time off the job, provides change and variety in duties and activities, requires meeting and speaking with many people, and provides a feeling of accomplishment*. However, both apply a more focused strategy; they tend to make their final choices for positions differently. Experienced engineers of the sample tend to make their choices on a more

rational basis, whereas inexperienced engineers apply a more *intuitive choice method*. Regarding the job search sources, the survey revealed some discrepancies. When asked which job sources they make use of most frequently, experienced engineers scored highest on *local newspapers* and *company websites* and GenYers on *company websites*. But when asked which source has been used to find out about their current position, the scores for GenYers were differently suggesting that they make use of a mixture of *local newspapers, company websites,* and *personal network*.

The usage of professional networks for the process of job search was not widely distributed among the respondents. However, 62.7% indicated to be a member of Xing, and 30.1% of LinkedIn, only 36% of those respondents using Xing and 44.8% of those respondents using LinkedIn answered to make use of these networks for job search. The outcomes with regard to networking theory support Granovetter's strength of weak ties hypothesis (1973) which suggested that during job search, it is mainly made use of contacts one is weakly attached to.

Limitations

The present study has to deal with some kinds of limitations. First, the constructed model is very complex in nature and therefore it cannot be sufficiently looked at all aspects under consideration. Second, during the interviews, I had to deal with different settings, which might have been of influence with regard to the willingness of providing me with sensitive information, especially for those engineers who were interviewed within their offices. Regarding the sample size of the survey, generalisations are difficult to make as we are dealing with engineers of different nationalities and universities and a relatively small sample size as well.

Conclusions

The basic assumption of this research that there are differences in the job search behaviour of experienced and inexperienced engineers could be confirmed in the way that there are significant differences regarding job search objectives of both generations. However both tend to be much *focused*, *experienced engineers* tend to make their choices on a more *rational* basis, whereas inexperienced engineers are more *intuitive*. *Local newspapers* and *company websites* play a central role within the *job search process* of *experienced engineers*; *inexperienced engineers* tend to focus on *company websites* as well as *local newspapers* and their *personal network*. The

usage of social media within the process of job search does not play a central role among the respondents.

Future research

The present study gives a number of implications for further research. First, it suggests that a longitudinal research design would be appropriate to find out whether job search objectives of engineers change over time. Second, it could be an interesting approach for companies to study those engineers currently working for them to find out about what influenced them to decide to work for this company; the outcomes could be used to address engineers more successfully in the future. Moreover, it is useful for international companies to find out about the values and preferences of the nationalities they wish to attract. Finally, I suggest studying the use of professional networks like Xing or LinkedIn more closely as there have been large differences between the present study and the outcomes of the secondary data analysis.

Recommendations for employers

Employers should clearly make a choice of the generational group they wish to address when advertising a position. This is not only the fact with regard to the question where to advertise, but also when thinking about vacancy and organizational characteristics that should be communicated by the company. Moreover, employers should offer *experienced engineers* to apply by mail whereas *inexperienced engineers* prefer applying online but hardly make use of online application forms. In addition, employers should encourage their own employees to attract new ones as networking is a very powerful tool in recruiting new employees.

List of abbreviations

cp.	compare
EEO	Equal Employment Opportunity
et al.	et alii (masculine plural), et aliae (feminine plural), et alia (neuter plural)
e.g.	exempli gratia
etc.	et cetera
FH	Fachhochschule (University of Applied Science)
Fig.	Figure
GE	General Electric
GenY	Generation Y
I.	Interviewee
Inc.	Incorporation
Ltd.	Limited
M	Mean
No.	Number
p.	page
pp.	pages
P	Proposition
Q	Question
RJP	Realistic Job Information
SD	Standard Deviation
SPSS	Statistical Package for the Social Science
USA	United States of America
VDI	Verein Deutscher Ingenieure
Vol.	Volume
VZ	Verzeichnis

List of figures

List of tables

Contents

1. Introduction

1.1. Introduction

It was in 2007, when I first came into touch with the importance of engineers for the company's success. At that time, I was doing an internship at GE Wind Energy, a subsidiary company of General Electric based in Salzbergen, Germany.
As an intern, I was involved in the Recruitment process and got into contact with potential new engineers at job fairs. Through this, I got more and more aware of the fact that it is difficult for companies to attract engineers having some years of practical experience. Screening newspapers and websites revealed a similar picture as there are lots of open positions for this occupational group, but qualified candidates are difficult to find. Simultaneously, I was getting curious about the idea of what companies could do in order to attract this special professional category. Finally, it has been Tebodin in Hengelo, which made me rethink this topic from a different angel: the one of engineers. They were the ones suggesting that it would be a challenge to find out what engineers actually want and what they are looking for. However, Tebodin were not the ones providing me with further information, the idea for my final thesis had been born – and it was a perfect match of market interests and personal preferences.

Although we are facing on-going unemployment and the financial crisis the shortage of skilled workers in the engineering sector is on the increase (Schulz & Windelband, 2009). Acute skill shortages within a company can make future business difficult and will reduce the quality and quantity of outputs (Richardson, 2007). Therefore, it is essential for companies to put emphasis on the recruitment of their future engineers. But in order to do so, it is of importance for employers to know what these engineers are expecting and what they are exactly looking for when searching for jobs. In order to investigate this topic, the main aim of this thesis is to examine the job search behaviour of engineers and identify the job search characteristics of successful job search behaviour. Not before employers know what is expected of them, they can tailor their offers to the needs of those essential for their company's success. Little is known about strategies that are being used when people search for jobs (Koen et al, 2009), but it is exactly here, where employers can intervene and get a position to attract employees more successfully than their competitors. Over the last thirty years, researchers became more and more interested in the topic of employee recruitment (Breaugh & Starke, 2000). Employers not only have to find out how they can reach individuals

being qualified for and interested in their vacancies, but they also have to take into consideration which effects a recruiter might have on potential job candidates and whether applicants see the point with regard to the company's recruitment message (Breaugh & Starke, 2000).

1.2. Problem definition

Engineers can be seen as key actors in product as well as process innovation as they are contributing to various stages of both and are not only involved in the development of new products but also in making processes more effective and efficient. Sir Eric Ashby, a British educator, mentioned that "*the engineer is the key figure in the material progress of the world*". Not only through globalization, but also through increasing competitive pressure the profession of engineers is gaining more and more importance. In the USA and Europe the numbers of engineering graduates are declining, even during the current economic crisis many European countries have to deal with shortages (Grip et al., 2010). The increasing demand for engineers is difficult to satisfy. In Germany for instance, there have been 26,000 more vacancies in February 2011 than unemployed engineers.

These shortages are caused by diverse movements taking place in the labour market. First, pupils show a lack of interest in engineering subjects and second many students decide not to study engineering due to the high failure rate. But it was also the term *mismatch* which has got more and more important within the last years as qualification profiles of many engineers do not match the requirements of employers.

This is the reason why, there is an increasing need for employers to attract engineers who meet their expectations. Qualified engineers have the possibility of choosing between various jobs and companies. Consequently, it is important for employers to know what this occupational group feels attracted by. Therefore, this research is going to examine the job search behaviour of inexperienced engineers as well as the one of experienced engineers. The results should give employers more transparency in understanding engineers' expectations. Furthermore, the results should provide employers with implications of how to attract engineers more successfully than their competitors.

Previous research has focused on gender differences regarding work values or on differences between occupational groups. None of those studies has been looking at generational differences within one occupational group. Shapira and Griffith (1990) mention that engineers have been compared to scientists in previous research with

regard to their work values. The authors compare work values of engineers working in production departments to those of managers as they expect similarities (Shapira & Griffith, 1990). Increasing international competition within the sector of high technology industries raises not only the concern of comparing engineers to other occupational groups, but to study their job search behaviour more closely. Watson and Meiksins (1991) state that describing and analysing values shaping engineers' work lives are of central concern for scientific literature. Following Shapira and Griffith, engineers often end up in managerial positions; Allen (1988) even argued that the profession as an engineer is being seen as a transitional stage when moving to high managerial position by engineering students. Several studies (e.g. Goldner and Ritti, 1967 and Zussman, 1985) suggest referring to engineers as a homogeneous group, which raises the question of whether differences exist among them and whether these can be attributed to generational differences. Therefore, I state the following research question:

How do experienced[*] (aged 45 years or older) and inexperienced[*] (aged 30 years or younger) engineers proceed when searching for jobs?

1.3. Generational differences

Previous studies have revealed that generational work values differ (cp. Smola & Sutton, 2002). Therefore, there is a need to understand generational differences in order to get most of this diversity. Moreover, not understanding different values and perspectives will serve as a breeding ground of conflict in a diverse work environment. This is the first stream of literature I take a closer look at in the light of this research. I have already stated that I am going to focus on different age groups of engineers as it appears to be interesting to find out whether there are essential differences in the job search behaviour of inexperienced and experienced engineers and whether it is suitable to refer to engineers as a homogeneous group.

When studying different age groups of engineers, we have to be aware of the fact that we are dealing with different generations being defined as an identifiable group sharing birth years, age location, and significant life events (Kupperschmidt, 2000). This implies that the results might show differences, which can be attributed to the fact that the generations have got developed different work values. In the context of this research, there are two generations I take a closer look at, the so called *Baby Boomers* and

[*] These concepts will be defined in the following section.

Generation Y. It is especially advisable to focus on the work values of these generations as they give directions for further research. These two generations seem to share many attitudes and behaviours, which separates them from other generations. According to Smola and Sutton (2002) it is important to gain an understanding of the differences in work values in the organizational environment. The value systems of employees may affect organizational values and therefore are a fundamental factor to consider. The Traditionalists born before 1945 and Generation X born between 1965 and 1980 (Eisner, 2004) will not play a central role in the context of this research sample.

1.3.1. Baby Boomers

According to Eisner (2004) *Baby Boomers* are born between 1945 and 1964 and therefore will represent the group of experienced engineers within this research. The key event this generation has been influenced by is the end of the Second World War. The period after the Second World War has been characterized by economic growth and full employment.

The *Baby Boomers* having grown up during this period are said to believe in growth change and expansion (Eisner, 2004). Especially with regard to their work values, it becomes obvious that this generation is very loyal, seeks consensus and dislikes authoritarianism (Eisner, 2004). Following Johns (2003) this generation makes increased use of networking in the context of career building. Consensus building, mentoring, and effecting change could be mentioned as strengths of this generation (Kupperschmidt, 2000). Furthermore, *Baby Boomers* are expected to be an adaptive and flexible generation preferring a collaborative management style. They have a strong work ethic, respect for authority, loyalty and commitment, financial conservatism, long-term planning, and delayed gratification.

In August 2009 the Harvard Business Press published an article written by Sylvia Ann Hewlett, Laura Sherbin, and Karen Sumberg consisting of the results of two surveys that have been conducted. In this article the authors propose five dimensions, which are necessary to address for the *Baby Boomers* Generation. These dimensions are: flexibility and autonomy in their jobs, familial obligations, volunteerism to advance environmental, cultural, educational, or other causes, the need to stay longer in the workforce and also the wish to stay as long as they are enjoying their work.

Baby Boomers appreciate when their efforts are being valued and like to know how their initiatives can contribute to the success of the organization. However this

generation is growing older, they prefer belonging to the core of the organization and of the teams they make part of. They want to get the same opportunities as their younger counterparts and be treated equally (Eisner, 2004 and Kupperschmidt, 2000).
Mentorships between *Baby Boomers* and *Generation Y* work very well as the Baby Boomers generation remind Gen Yers of their parents. These kinds of mentorships can be valuable for both parties as Baby Boomers are able to assist with regard to coaching on workplace and career issues, whereas Generation Y can help Baby Boomers making use of social networking or technology (Rowe, 2010).

1.3.2. Generation Y

Generation Y - Gen Y - is said to include those born after 1980 and thus will represent the inexperienced engineers within this research. This generation grew up in a digitally connected and globalized world. Following Broadbridge et al. (2009) there is little academic research about the characteristics of this generation and to what extent they differ from previous generations. Broadbridge et al. summarise this generation as being confident, self-reliant and that they thrive on challenging work. With regard to their career this generation is said to have a drive for career success, linear promotion, wants to take responsibility for their careers and develop themselves (Broadbridge et al., 2009).
Gen Y is seeking intellectual challenge and highly values personal and professional development (Eisner, 2004 and Broadbridge et al., 2006). This Generation is less addicted to making money, but more to contributing to society and finding a work-life balance. An inclusive style of management is of significance as well as immediate feedback in their work places. *Gen Y* needs direction in order to keep being focused (Eisner, 2004). This generation prefers challenging work in which their abilities are being recognized. Furthermore, they tend to be goal-oriented and highly value self-development as well as teamwork (Eisner, 2004). To their mind, job satisfaction is corresponding to a positive work climate, flexibility, and the opportunity for development. Their career paths are being characterized by long series of short-term and transactional employment relationships. Moreover, this generation does not only have high expectations for themselves, but also for their employers. When graduating *Gen Y* seeks for employment where it is being made use of the knowledge they have developed during their education (Broadbridge et al., 2006). Furthermore, they strive for higher entry levels than non-graduates (Broadbridge et al., 2009). In addition, *Gen Y* has got high expectations with regard to their employers, they do not only desire a

good working environment, but also superiors who are supportive as well as open-minded to their suggestions. This generation seeks opportunities, responsibility and empowerment and is highly pleased when working alone, but values team work as well (Eisner, 2004). What clearly distinguishes this generation from previous ones is their desire for a balanced life style as they want to work to live and not live to work (Broadbridge et al., 2009).

Their way of networking differs from other generations as well as they prefer doing so by making use of social network sites like Facebook and MySpace (Broadbridge et al., 2009). Instead of striving for job security like other generations do, they want good benefit packages and desire performance related salary and bonuses (Broadbridge et al., 2009).

1.4. Relevance of the study

This research is concerned with engineers' job search and makes use of proposition testing. The results should make the process of job searching more transparent. The design process of this research is not focused on a specific organization, and makes use of respondents, who have been studying at the University of Twente, Fachhochschule Münster or Köln, or a member of the "Verein Deutscher Ingenieure"[*] However, the outcomes gained can also be valuable for organizations dealing with alumni of other universities. Moreover, this study has got scientific relevance as it makes a contribution to theory by developing a qualitative model for the process of job search that cannot be found in existing literature. Furthermore, it comprehends recommendations for future actions and stimulates further research on this topic. In addition, this study is said to be of social relevance and practical relevance as the job search behaviour of engineers is being analysed, which results in a better understanding of their values, preferences, and expectations and herewith makes communication between employers and engineers about these considerations possible. The knowledge gained can help employers to set priorities in their efforts to attract engineers.

1.5. Organization of the study

While this chapter provides generic information about the research topic and the direction of the thesis, the following chapter (Chapter 2) contains the theoretical

[*] The "Verein Deutscher Ingenieure" is the major association for engineers and natural scientists in Germany and has been founded in 1856. (http://www.vdi.de)

background and a model that has been developed on the basis of the theory of Breaugh and Stake and herewith provides the research with a theoretical framework. This framework will serve as a basis for the following analyses. Furthermore, the propositions are included to connect them directly to the theoretical part. Chapter 3 incorporates the research design. It starts clarifying the research objectives and defines the concepts that are being used. In addition, the research is described by including research strategy, sample and instruments. Moreover, the process of data collection is enclosed and the questions that are being asked are described in detail. Finally, the secondary data analysis will be introduced. In Chapter 4 the results of this study will be presented. The data presentation will distinguish between the qualitative and quantitative part of the research as well as the secondary data analysis. The thesis will finish with limitations of the different parts, a discussion of the three analyses, implications for future research, and recommendations for employers in Chapter 5.

2. Theoretical background

2.1. Domain and boundaries

As the job search process of engineers is a very broad subject to be studied, it is necessary to define the domain and boundaries of this research clearly to avoid slipping away. The research question underlying this thesis has already been stated in section 1.2.

To answer this question a job search model will be constructed to put emphasis on the boundaries that have to be considered. In this model contingency factors will be specified, which are influencing the various steps of the job search process. I am aware of the fact that not all contingency factors that are influencing the job search process can be taken into account as this would go beyond the scope of this research. Consequently, there will be a focus on three different contingencies, which are expected to influence the job search process of applicants. Moreover, generational differences and herewith the role of networking have to be taken into consideration to complete the present topic in a reasonable manner. Thus this chapter mainly consists of three pillars originating from different parts of literature: generational differences, job search, and networking literature. In order to avoid confusion, the concepts about *job search process, job search sources,* and *experienced and inexperienced engineers* will be defined in advance.

2.2. Definition of concepts

As the present research tends to examine the job search process and job search sources that are being used during the job search process of engineers, it is necessary to state explicitly what is implied by these concepts.

Job search process

In this research a job search process concerns the entire procedure an individual is following when searching for a job. Therefore, I define a job search process as the total time frame starting when an individual decides to search for a job and finishing with the actual decision of accepting a job offer. It will be difficult to include detailed aspects of job interviews as it cannot be guaranteed that respondents have participated in these recently. Therefore, perceptions might have changed over time and appropriate data is difficult to gather. Consequently, this research will focus more on the motives for accepting job interviews and job offers than on the process of interviewing and the

experiences being made by them. As Barber et al. (1994) mention in their article “Job search activities: An examination of changes over time” the process of job search consists of *extensive* and *intensive* search. In this context, *extensive search* includes the identification of the existing job opportunities, whereas *intensive search* deals with acquiring detailed information about those specific opportunities. The term job search process originates from existing literature.

Job search sources

Job search sources is the term that summarizes methods that an individual makes use of in order to establish contact to a company it is interested in pursuing a career in. Job search sources can be newspapers, homepages, job boards as well as networks and job fairs, for instance. Job search sources is a term that is being used throughout existing literature about job search processes (cp. Saks, 2005). Therefore, I will stick to this term and its’ definition throughout this research.

Experienced and inexperienced engineers

Within this research a differentiation will be made between experienced and inexperienced engineers. Whenever the term experienced engineers is being used, I am talking about engineers aged 45 years or older and having worked in the profession of an engineer for more than ten years. These engineers belong to the Baby Boomer generation which has already been discussed in section 1.3. In contrary, the term inexperienced engineers or engineering graduates describes those engineers aged 30 years or younger and having just started their profession and according to the definition belong to Generation Y. However, I am aware of the fact that the group labelled as inexperienced engineers has already gained experience within a few years of working. These terms cannot be found in existing literature and are based on my own definition and understanding of these concepts. According to this definition experienced engineers belong to the so called *Baby Boomer* generation, whereas the inexperienced engineers are part of *Generation Y*. As generational differences are of central importance to all following parts of this thesis, the two generations will be discussed in the following section. Within this research the terms Baby Boomers and experienced engineers refer to the same group of people as well as the terms inexperienced engineers and GenY are being used to describe the same concepts.

2.3. Job search model and propositions

To analyse the job search behaviour of engineers, an organizing framework will be needed to clarify what a job search process consists of. As a suitable framework cannot be found in existing literature, one will be designed in this section of the thesis. A framework describing the recruitment process will serve as a basis. The model had been designed by Breaugh and Starke and has been published in the Journal of Management in 2000. Within their framework they put emphasis on the complexity of the recruitment process (Breaugh & Starke, 2000). Furthermore, the authors indicate that they want to stimulate future research, which makes their framework a suitable starting point for developing a framework from a job seeker's perspective. As Breaugh and Starke refer to prior work of Barber (1998), it is advisable to critically read the work they are intensely referring to, as well. The developed model will be completed and enriched by making use of critical dimensions of job search being utilised by Barber et al. (1994) and originally identified by Schwab et al. (1987).

2.3.1. Job search objectives

Breaugh and Starke (2000) believe that the establishment of objectives should be the first stage of a recruitment process. This idea can be carried over to the job search process as well as objectives can be seen as the basis for the following job search strategy. Therefore, the individual has to decide what kind of job it is looking for, in what region, whether personal interests suit capabilities, what companies the individual feels attracted by and many more. Not until the individual has thought about these aspects a strategy for the job search process can be developed. The job search objectives guide the job seeker to the job search sources that are worth using, the message that should be communicated towards potential employers and the point in time that seems best for starting job search activities. In this context, job satisfaction plays an important role as the individual has to make a choice about job and organizational characteristics that harmonize best with personal values, preferences and expectations in order to achieve job satisfaction.

Breaugh and Starke (2000) mention that by establishing a set of core objectives, an organization is in a better position to answer the questions about strategy development. This concept can be transferred to the job applicant as well whenever one has a clear idea of the job one, is actually looking for; it becomes easier to search for concrete job ads that match these criteria.

With regard to the establishment of objectives, it makes sense having a look at the process of decision making to find out how criteria for the final job search are being selected. In this context, the Analytical Hierarchy Process suggests that factors are being arranged in accordance to their importance after they have been selected by the individual (Saaty, 1990). In order to construct these hierarchies, the individual has to include aspects considered to be relevant to the process of job search. Therefore, the individual has to identify issues and attributes that are important to establish a set of core objectives. The different levels in the arranged hierarchy can represent different sections (Saaty, 1990), for example social and organizational factors. During the process of decision-making, the individual can start focusing on certain aspects or decide to drop less important elements from further consideration. The elements that are being considered during this process should finally lead to make decisions to find employment that leads to the highest possible job satisfaction. “Job satisfaction refers to an overall affective orientation on the part of individuals toward work roles which they are presently occupying.” (Kalleberg, 1977, p. 126) In order to achieve the highest possible job satisfaction, the individual has to consider the following aspects during the establishment of objectives: diversity of job offers it wants to achieve, quality of job offers it is expecting to get, numbers of job offers, costs of application procedure, time it is willing to spend for the procedure and organizational and vacancy characteristics it feels attracted by. When the individual has established a very narrow set of core objectives, it is not that likely to receive a diversity of job offers. In such a case the individual would also not be expecting this as it has a clear idea of its future position. Instead, it would put more emphasis on the quality of those job offers, as it highly values that these job offers match its skills and preferences. Moreover, the number of job offers would be subordinate in such a case as this would not necessarily be a sign of quality of each offer. The cost of the application procedure for someone being very focused on a certain position could rise as well; as such an individual might be more willing to retain a specialized company. Organizational and vacancy characteristics play a crucial part within the establishment of objectives as the job seeker is confronted with them when exploring ‘the jungle of advertisements’. The way a company is presenting itself, therefore can be the determining factor which makes a job seeker apply or even not apply for a position. After having established the objectives, the job seeker has to find a way to realize them, and it is here were the strategies become involved. According to Crossley and Highhouse (2005) the decision making consists of

two related but separate processes: an information search process and a choice process. This will be explained further in the section about job search strategy.

Fig.1: Elements Of Job Search Objectives

The job search objectives that are being formulated are mainly dealing with job attributes the individual sees as preferable or formulated in a more familiar way: the vacancy characteristics (Rynes, 1991), which are discussed in section 2.4. Another area of consideration are the organizational characteristics the individual sees as desirable when looking for job opportunities. Organizational and vacancy characteristics play a crucial part within the establishment of objectives. These preferred characteristics are being chosen in accordance to the job seekers values, preferences and expectations. In this context, I state the following propositions:

P_{1a}: Values and preferences experienced engineers regard as very important differ significantly from those regarded as very important by inexperienced engineers.
P_{1b}: Values and preferences experienced engineers regard as unimportant differ significantly from those regarded as unimportant by inexperienced engineers.
P_{1c}: The means of experienced and inexperienced engineers with regard to job security are significantly different.

2.3.2. Job search strategy

The strategies that are being used when job seekers search for (re)employment have received little scientific attention (Koen et al., 2010). As basis for the development of a strategy, the job seeker should decide what kind of job he is actually looking for and in what kind of organization it can be performed. Furthermore it should be made a choice on the sources that are being used. Does the individual want to visit job fairs or mainly make use of the internet? The needs of many job applicants have been changing over the past years, therefore their objectives are no longer just finding any job, but more or less finding the job. As has been mentioned before, the process of decision making consists of two related but separate processes (Crossley & Highouse, 2005). In this context, it will be distinguished between the *information search process* and a *choice process*.

Koen et al. (2010) mention that past literature distinguishes between three types of job-search strategies. In this context, Stevens and Turban (2001) proposed the *exploratory, focused, and haphazard strategy* as information search strategies. The *exploratory strategy* involves being dedicated to the process of job search and willing to explore any possible options. A job seeker making use of this kind of strategy involves various sources like friends, family, former employers and employment centres to gather information about different jobs (Koen et al., 2010). A *focused strategy* includes making use of a small number of possible employers who have been screened by the job seeker carefully. In this case the job seeker only applies for jobs; he is qualified for and interested in (Koen et al., 2010). A *haphazard strategy* aims at finding any kind of job and is more or less based on a trial-and-error approach during job search (Koen et al., 2010). The job seeker passively gathers information about potential jobs and does not mind whether potential jobs lie inside or outside the own area of education.

Regarding the choice process numerousness research on decision making suggests making a distinction between a *rational* or *intuitive* method (Crossley & Highhouse, 2005). Whereas a rational choice involves objective measures, a logical sequence and intuitive choices are unstructured and often maligned for its failures and shortcomings (cp. Hammond, Grassia & Pearson, 1987).

Due to the outcomes of the qualitative interviews (see Chapter 4), I expect engineering graduates to fully explore their options during the job search process and remain open to opportunities, which are presented to them. On the contrary, experienced engineers are due to their already developed knowledge and skills more focused on certain companies and kinds of positions they are willing to apply for. The job search strategies

lead to the conclusion that experienced engineers tend to make their choices on a rational basis, whereas inexperienced engineers make their choices based on intuition. Consequently, I state the following propositions:

P_{2a}: Experienced engineers score significantly higher on a focused strategy than exploratory strategy when searching for jobs.
P_{2b}: Inexperienced engineers score significantly higher on an exploratory than focused strategy when searching for jobs.
P_{2c}: Experienced engineers score significantly higher on a rational choice method than on an intuitive choice method.
P_{2d}: Inexperienced engineers on average score higher on items an intuitive choice method than on those items representing a rational choice method.

2.3.3. Job search activities

After a suitable strategy has been developed the individual can start his job search activities, in this context one will focus on sources that have been identified as suitable for the job search process and attention will be paid to realism, completeness and timeliness of the job search process (cp. Breaugh & Starke, 2000). In this context Breaugh and Starke (2000) focus on three activities which they call recruitment sources, recruiters, and realistic job previews. Again, I have a closer look whether these aspects can be transformed to the perspective of the job seeker and therefore fit into our model.

a. Job search sources

Transformation can be done quite easily regarding the recruitment sources, which can be relabelled as job search sources as well and have already been introduced in section 2.2. The amount of research on job sources has shown that it is an important aspect of job search and consequently one that has been studied most often (Saks, 2005). The sources being used have been identified as critical dimensions of search (Schwab et al., 1987). Job sources indicate the means job seekers make use of in order to find out about their job opportunities (Saks, 2005). Within past research, it has mainly been distinguished between *formal* and *informal* sources, whereat formal sources involve the usage of public intermediaries such as advertisements, employment agencies, and campus placement offices and informal sources comprehend private intermediaries among which are friends or relatives (Saks, 2005). In this context, research has revealed that informal sources play a more crucial role in

obtaining employment than do formal intermediaries (Saks, 2005). Moreover, it has been found out that sources can predict post-hire consequences to be mentioned performance or turnover (Wanous & Collela, 1989). Regarding the kind and number of sources that are being used, I state:

P_{3a}: Experienced engineers tend to make more use of local newspapers than of companies' websites to find out about vacancies during their job search process.

P_{3b}: Inexperienced engineers tend to make more use of companies' websites than of local newspapers to find out about vacancies during their job search process.

P_{3c}: The number of job sources that is being used is negatively related to age.

Networking theory

In order to find out about employment opportunities, networking is typically recommended as a job search strategy (Van Hoye et al., 2009). Research about recruitment indicates that making use of other people to find out about job opportunities has a beneficial impact on applicant attraction as well as attitudes of employees when being compared with the usage of other job search sources (Van Hoye et al., 2009). With regard to the increasing importance of networking during the process of job search, it is worthwhile including this part of theory in this research to find out whether networking plays an important role in the job search process of engineers as well.

According to Newman (2003) a network is described as a set of items that are being connected. Examples for networks are the Internet, social networks, organizational networks and networks of business relations. As this thesis is concentrating on individuals searching for jobs, I will put social networks in the centre of attention. These are being described as a set of people or groups of people with some kind of contact or interaction between them (Newman, 2003).

Granovetter's strength-of-weak-ties hypotheses (1973) suggests that people, with whom we are weakly attached are most likely to provide us with new information and thus it is more likely that jobs are being found by making use of these contacts. In this context Granovetter (1973) defines strength of tie as the frequency of social interaction, emotional intensity, intimacy, and reciprocal services characterizing the relationship. Granovetter asked those of his sample who had found a new job through contacts how often they saw the contact while job information has been passed on to them and used these answers as a measure of tie strength (Granovetter, 1973). His findings finally support the use of weakly tied contacts during the job search process. Following Montgomery (1992) a wide network of weak ties such as acquaintances is

prognosticating higher earnings and labour market success. Consequently, networks should be seen as a resource with regard to the process of job search. Searching jobs by making use of social ties reduces the cost of searching and makes applicants get access to more valuable information (Fountain, 2005).

These days social networking is more and more done by the use of social media. These enable companies to talk to potential employees as well as it enables these to talk with each other. Consequently, it is important for companies to know, how they can make use of such a powerful tool to the benefit of the organization. Social media comprehend social networking sites, business networking sites, Internet discussion boards, company-sponsored discussion boards, and virtual worlds like second life to name just a few (Mangold and Faulds, 2009). The internet can be seen as new social space through which job information can flow (Fountain, 2005) and therefore can support the matching of employees with jobs. This sort of matching process relies on available information about the candidate as well as the company and its' vacancies. Through the use of the internet, this kind of information can be made accessible to a larger group of potential applicants and allows applicants to find a larger number of vacant positions in a cheap and easy manner (Fountain, 2005).

Within this research, it will be distinguished between strong and weak ties on the basis of Granovetter. Whereas strong ties are being comprised of friends and relatives, for instance. Thus people one is interacting and communicating with on a regular basis through various sources among which are face-to-face communication as well as web-based applications. The way of communicating with weak ties on the other hand is reduced mainly to web-based applications. These web-based applications can be divided into networks consisting of social and friendship contacts like Facebook and Hives and those having a more professional character like XING or LinkedIn. Due to their professional character this research will focus on the usage of Xing or LinkedIn as these are more likely to be involved in the process of job search.

As the difference between mainly web-based contacts and more or less real life contacts is very hard to make, I will benefit from the categories for frequency of contact, which have been set up by Granovetter (1973). He used the criterion of how often the respondents saw the contact and used the following categories: often = at least twice a week; occasionally = more than once a year but less than twice a week; rarely = once a year or less (Granovetter, 1973). These categories will be used in order to stick to the definition of strong and weak ties within the quantitative survey.

P_{4a}: Engineers making use of networking during their job search are more likely to make use of weak than of strong ties.
P_{4b}: Engineers being a member of a professional network like Xing or LinkedIn are likely to make use of these networks during the process of job search.

b. Recruiter

In a next step it will be discussed whether the term of the Recruiter can be used in the transformed model. Breaugh and Starke state that recruiters have an effect on job candidates as they can provide applicants with certain information and are also regarded as representatives for certain attributes that are being kept up within the organization. Regarding these aspects, the recruiter is part of the intermediaries and therefore will be enclosed within the section of job sources and not handled separately.

c. Realistic Job Information

The third aspect mentioned within the model of Breaugh and Starke is the one of providing applicants with realistic job previews (RJP) as these kind of models suggest "that providing realistic job information to applicants results in their having their job expectations met" (p.415). Following Breaugh and Billings (1988), the RJP consists of five key elements, which are meant to be accuracy, specificity, breadth, credibility and importance. Breaugh and Billings (1988) mention that the timing of the RJP is an important element to consider as it gives employees the possibility to self-select out of jobs that they do not see as suitable for themselves. As RJPs are very focused on the process starting from the job interview, it is difficult to include them in the present research. Half of the sample consists of inexperienced engineers, who might not have had that many job interviews and consequently are not able to evaluate whether the job information, which has been given to them has affected their choice of accepting the job offer. In addition, this kind of information might have been given to experienced engineers a long time ago, whereby it might not produce valuable results when focusing on this aspect. In this context, the realistic job preview could be more successfully integrated when relabelled as realistic job information. The individual has to understand the information given to it and interpret it in an appropriate manner in order to make a decision about applying for and accepting a job offer. Therefore, providing job applicants with information about the job offer is not only crucial for the job seeker, but also for the employer as it will eliminate the likelihood of choosing candidates or positions someone does not feel comfortable with. The realistic job

preview can be seen as the basis for developing a psychological contract, which is defined by Rousseau (1990) as “individual beliefs in reciprocal obligations between employees and employers” (p. 389). This concept of the psychological contract has to be carefully distinguished from the more general concept of expectations (Robinson, 1996 and Rousseau, 1990). In comparison to expectations, psychological contracts are promissory and reciprocal (Rousseau, 1990). For the psychological contract, I suggest to be included in a longitudinal research design. Only when observing and studying respondents at different points in time, it will be possible to study the development of the psychological contract and its changes. This very complex concept is not sufficiently covered by the kind of approach that will be used in this research. Consequently, separate research on the psychological contract using another kind of approach will be valuable.

d. Additional concepts

To complete this section about job search activities, it is advisable having a look at Saks study (2005) in which he examined the effects of five job search behaviours on five criteria of job search success. As job search success will not be a discrete part of this research, I will focus on the job search behaviours Saks (2005) is integrating. These are job source usage, job search intensity, job search effort and job search self-efficacy. As job sources have been mentioned in one of the previous sections, it will be necessary to discuss the three remaining elements.

- Job search intensity

  Following Kanfer et al. (2001), the concept of job search intensity is referring to the frequency job seekers concentrate on specific job search behaviour. Thus are dealing with activities belonging to the application procedure like contacting potential employers or preparing applications. Within his research, Saks sticks to the measures developed by Blau (1993, 1994) and distinguishes between preparatory and active job search intensity. Preparatory job search intensity is dealing with the collection of job information and comprehends the identification of opportunities within the search process. Consequently, it is difficult to make a clear classification of this term in the context of the model that is being developed. Preparatory job search intensity comprises activities that have already taken place within the establishment of objectives as well. The term active job search intensity comprises activities around the actual job search like

sending applications and conducting interviews. The term search intensity is being used by Barber et al. (1994) as well and includes time and effort spent on the process of job search. Within this model, job search effort is handled separately.

P_{5a}: There is a negative relationship between the hours spent job searching and age.

- Job search effort

  According to Blau (1993, 1994) job search effort is dealing with the time and effort that job seekers are spending on their job search, thus it is not about specific job search activities or behaviours. Following Kanfer et al. (2001), job search effort is positively related to the number of job offers. Therefore, it seems advisable to include items related to job search effort within the following research. However, it has to be considered that when asking respondents about the effort they have put into the process of job search, we are dealing with subjective measurements.

P_{5b}: The hours engineers spent on the process of job search are positively related to the perceived effort they have put into the process of job search.
P_{5c}: The perceived effort engineers have put into their job search is positively related to the number of applications that have been sent before receiving the first offer for a full-time employment as an engineer.

- Job search self-efficacy

  The last concept, job search self-efficacy is referring to a job seeker's confidence in performing various job search activities (Saks, 2005). Saks (2005) mentions that several studies have revealed that job search self-efficacy is one of the best predictors of job search behaviour and success. One of these studies is the one of Kanfer et al. (2001), which found out that job search self-efficacy is positively related to the number of job offers and employment status. The concept of self-efficacy is a very complex one and therefore needs special attention. Due to its complexity and the fact that experienced engineers will probably overestimate the confidence they have had in performing various job search activities because of the experience they have gained while working, this concept will be excluded from this research. I suggest that it is more

advisable to study the concept of self-efficacy among those who are actually seeking for a position as self-efficacy is difficult to estimate when these persons have already worked in a position for several years. As I am not exclusively dealing with respondents being currently involved in the job search process, there will be no focus on this concept within my research. For those interested in further information, I suggest to have a look at the study of Kanfer (2001).

Intervening/Process Variables

Breaugh and Starke (2000) emphasize that it is necessary to add intervening/process variables to their model and to work backwards through the model. So it must be taken into consideration whether these intervening variables can be transferred to this new context as well. Therefore, we have to clarify what Breaugh and Starke (2000) actually mean when making use of the term intervening/process variable. They mention that they "use the term intervening/process variable as a label for the factors that have been hypothesized to explain the relationships between recruitment activities and outcomes" (p. 410). Well, which factors can we think of to explain the relationship between job search activities and outcomes? Job search activities are influenced by various aspects which cannot be controlled by the individual but have influence on the final process of decision making during job search. As the job seekers' decisions are contingent (dependent) upon these factors to a certain extent, the next section deals with so called contingency factors, which might influence the job search process. Whereby this research will concentrate on the already mentioned labour market conditions, vacancy, and organizational characteristics as these are expected to influence job search objectives as well as strategies and activities. These will be discussed in the following section.

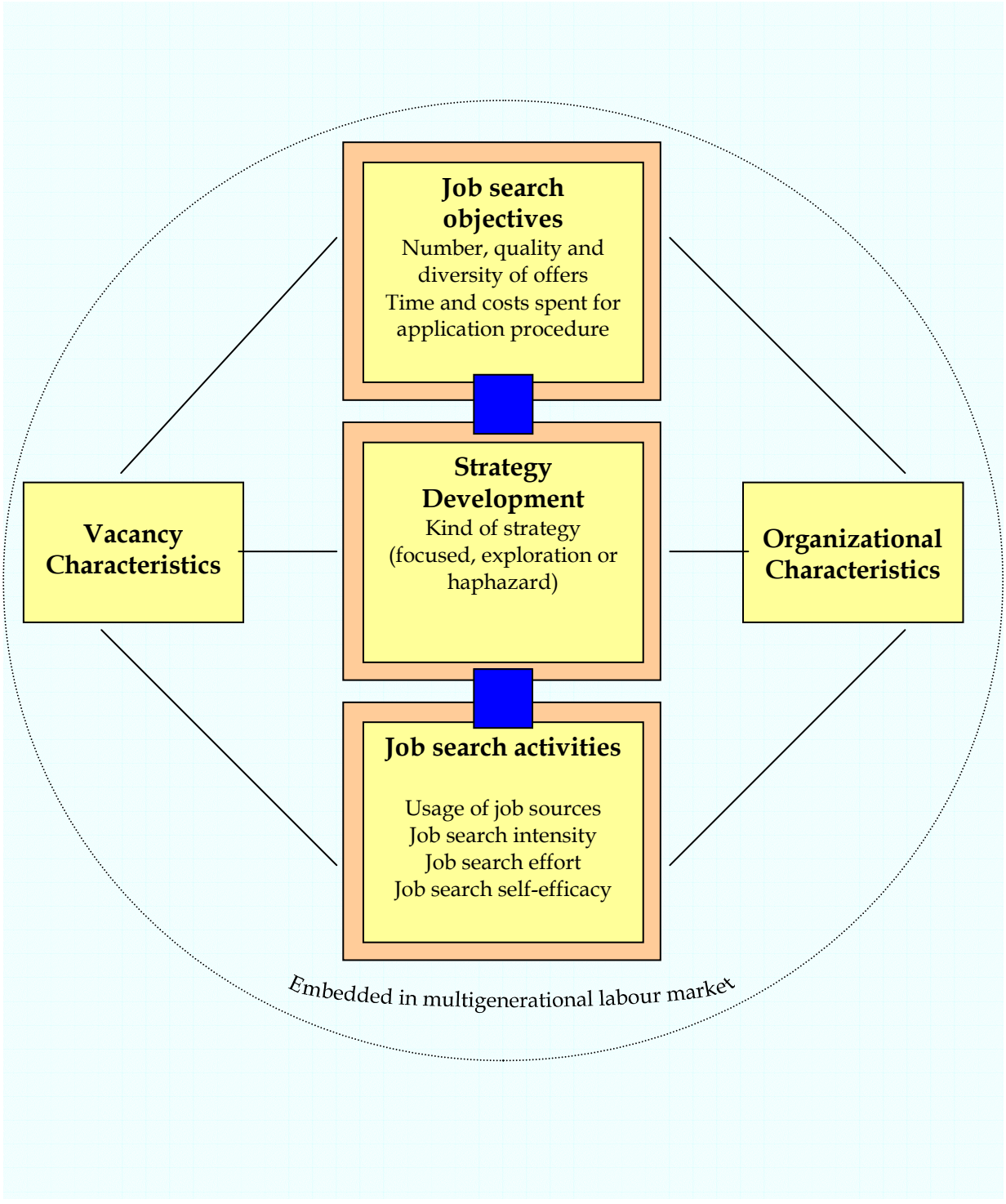

Fig. 2: Elements Of A Job Search Process

Based on Breaugh & Starke (2000)

2.4. Contingency factors

Rynes and Barber (1990) propose a model that focuses on applicant attraction, in this context it outlines three strategies among which are changing recruitment practices, targeting non-traditional applicants and modifying employment inducements. Furthermore, the authors name a number of contingencies being hypothesized to influence the mix of these three strategies. These contingencies are labour market conditions, vacancy characteristics, organizational characteristics, phase of the attraction process and legal considerations (cp. Rynes & Barber, 1990). However the article of Rynes and Barber develops a model from the organization's perspective, it is valuable to integrate these contingency factors within this job search model. Due to the fact that this research is not dealing with respondents currently involved in the process of job search, the phase of the search process will not get further attention. To include this is more valuable in a longitudinal research design, where participants can be surveyed at different stages of their search process. Moreover, the legal considerations will be excluded as they do play a less important role within the job search process of individuals than they do within changing recruitment practices. Consequently, labour market conditions, vacancy and organizational characteristics will be enclosed.

Fig. 3: Contingency factors influencing job search

(based on Rynes and Barber (1990))

Labour market

Labour market conditions are affecting the job search objectives as well as the strategy development and the following job search activities. Regarding this aspect, we have to keep in mind that labour market conditions have been different for those having searched their jobs a few years ago and graduates starting job search now, in a period after a financial crisis. However, it has already been mentioned at the beginning that the shortage of skilled workers especially in the engineering sector is still on the increase. Therefore, this research will only focus on the fact that the labour market is not homogenous and it therefore has to be considered that we are dealing with potential employees of different ages, who have made different experiences during their stages of life. In this context, we are talking about generational differences, which have been of central importance in section 1.3. Whereas the fact that the labour market is not homogenous will be integrated in this research through looking at generational differences other labour market conditions will be excluded from propositions testing. Having a look at various labour market conditions will not make it possible to examine the whole process of job search in the light of this research. Consequently, propositions testing of contingency factors will concentrate on the vacancy and organizational characteristics.

Vacancy characteristics

Vacancy characteristics have already been mentioned in one of the previous sections of this thesis. They are playing a crucial role within the establishment of objectives and the choice of a suitable strategy. Vacancy characteristics can determine whether an individual feels attracted by a certain company or position and thus are a crucial factor for the following stages of the application procedure.

Moreover, vacancy characteristics might have changed within the last years, which can make comparison of the previously mentioned generations difficult. Therefore, it is of great importance to keep an eye on this aspect whenever differences are being analysed. Within their article Barber et al. (1994) examine a critical dimension of search, which is being called the nature of information sought and acquired and has been identified by Stumpf et al. (1983). This concept implies the importance of vacancy characteristics while attracting applicants (Rynes, 1991).

Organizational characteristics

With regard to organizational characteristics, Rynes and Barber (1990) focus on the *ability to pay*, *business strategy*, *culture and values*, and *organizational demographics*. The *ability to pay* or the *reward structure* as it is called by Turban and Koen (1993) can be used to differentiate organizations to applicants (Bretz et al., 1989). According to Turban and Cable (2003), a company's reputation can be seen as an indicator for the amount of applicants that feel attracted by that company. Consequently, it has to be a focus of this research which organizational characteristics engineers feel attracted by. Similar to the already mentioned vacancy characteristics, organizational characteristics that are being communicated to potential job applicants can be a crucial factor for the further success of the companies' recruitment procedure.

The following list of vacancy and organizational characteristics has been used by Barber et al. (1994) and is being made use of within this research:

- Pay
- Benefits
- Job type
- Advancement
- Business/industry
- Location
- Job security
- Co-workers
- Training
- Atmosphere or culture
- Number of openings
- Working conditions
- Transfer and relocation
- Company reputation
- Supervision
- Company size and age
- Turnover
- Hiring practices
- Daycare and/or maternity
- Diversity and EEO (Equal Employment Opportunity)
- Qualifications required

- Ability to use skills
- Challenge and responsibility
- Meaningful work
- Autonomy and input

3. Research Design

Through this research, I want to provide more transparency of the job search behaviour of engineers and give employers the possibility to adapt their Recruitment strategies to what engineers actually desire. By conducting this research, I hope to get a clearer picture of the job search sources that engineers mainly make use of and into the job search behaviour they apply when searching for new positions, their way of networking, and whether generational differences play a role regarding the job search behaviour. The research aims at making the job search process of engineers more transparent and to reveal existing differences between experienced and inexperienced engineers. The analysis of the outcomes will finally show whether the stated research question can be answered by making use of these methods. A secondary data analysis comes into place in order to expand and support the outcomes of my survey with an additional data set.

3.1. Research Method

In order to investigate the topic of job search behaviour and job search sources of engineers, a research has been conducted being comprised of *two phases of data collection*. By having collected qualitative as well as quantitative data, I want to make use of the strength of both methods and consider the use of one of these approaches to be inadequate to address the complexity of this research topic. Through making use of a combination of both methodologies, I expect to be provided with an expanded understanding of the topic under discussion. This kind of approach is being called *sequential exploratory strategy* and involves two phases. First, qualitative data are being collected and analysed, followed by quantitative data collection and analyses building on the results of the first phase (Creswell, 2009). The quantitative data should assist in interpreting the findings of the qualitative phase. In the context of this research, I consider *exploratory* research being an appropriate concept to make use of, as I have to gain an understanding of the problem under discussion first. Regarding the research at hand, exploration will serve as support to develop the final research design. As exploration relies more on qualitative techniques (Cooper & Schindler, 2008) individual depth interviews with about 16 engineers have been held to delve into the topic, first. Existing literature does not provide me with instruments or information that sufficiently cover the topic under consideration, consequently I consider an exploratory approach to be appropriate (cp. Creswell, 2009). Accordingly, the information gathered during the

interviews will be made use of for designing a quantitative survey. Making use of qualitative as well as quantitative data allows generalising from a sample to a greater population simultaneously to gaining a deeper understanding of the topic (Hanson et al., 2005). The goal of using a mixed method approach is to expand ones understanding of the topic at hand. The strength of this mixed approach is that it can be made use of numbers in order to add precisions to words. Moreover, it enables to give answers to a broader research question and provides stronger evidence for a conclusion (Johnson & Onwuegbuzie, 2004).

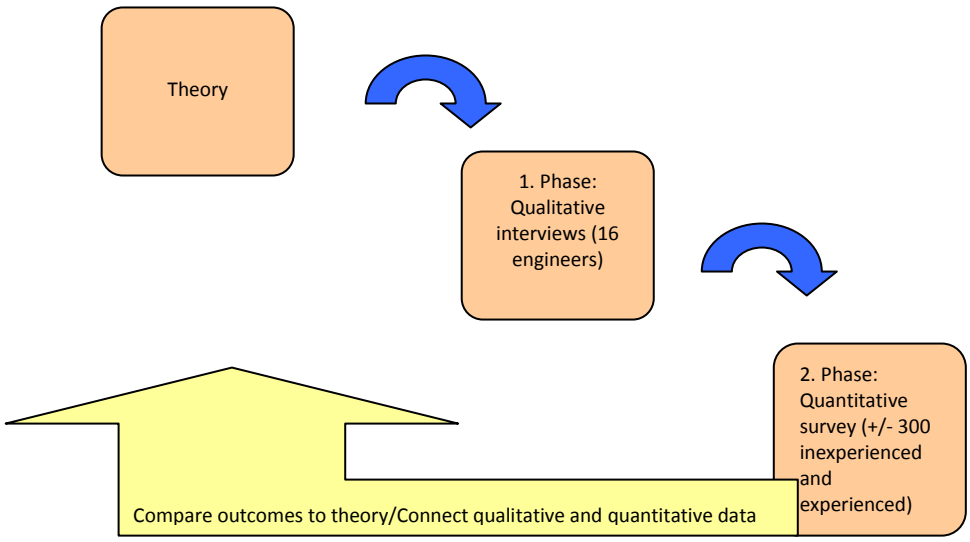

Fig. 4: Research Elements

Source: Own construction

3.2. Research sample

The unit of analysis for both phases of data collection are engineers, thus individuals who have just graduated with an engineering degree and started their profession and those already having obtained work experience of ten years or more. The sample for the qualitative interviews consisted of 16 engineers, eight of them aged 30 years or younger and eight of them aged 45 years or older. By making use of these two age categories, I try to cover two different generations within this research: Baby Boomers and GenY which have already been described in section 1.3. The information gained during this qualitative part is then being used to construct a survey.

The respondents for the quantitative part are students having studied at the University of Twente and consequently might behave in similar ways with regard to their job search behaviour, but their graduation has been some time ago and due to their jobs in different companies, they might have developed different habits. To minimise the risk of a bias sample, I contacted the "Verein Deutscher Ingenieure" (VDI) and two Universities of Applied Sciences in Germany, the Fachhochschule (FH) Köln and Fachhochschule (FH) Münster, to find respondents among them as well. Herewith, I made sure not only surveying one Nationality and broadened the spectrum of possible respondents. It cannot be made a statement about the response rate as it is not known to how many engineers the survey has been sent by the alumni office and how many engineers have access to the alumni websites of the FH Münster and FH Köln.

In total 83 engineers participated in the survey. The main part of all participants of the quantitative survey (85.5%) is male, 12 respondents (14.5%) are female. 42.2% of the respondents are of Dutch nationality, 55.4% are German and 2.4% indicated to belong to other nationalities, which are Indian and Russian. Regarding the highest obtained degree of the respondents, 9.6% have a Bachelor's degree, 39.8% a Master's degree, 45.8% a Diplom[*] and 4.8% a Doctor's degree. 28.9% of the respondents indicated to have a degree in electrical engineering, 34.9% in mechanical engineering, 16.9% in civil engineering and management, 1.2% in construction engineering and management, 6.0% in industrial design engineering and 12.0% indicated to have another engineering degree. 59% of the respondents have been born after 1980 and therefore belong to GenY. 31.3% have been born between 1945 and 1964 and are representatives of the Baby Boomers Generation. Moreover there are six respondents among the sample belonging to Generation X (7.2%) and two belonging to the group of Traditionalists (2.4%).

[*] A Diplom is a degree in German speaking countries which has been replaced by the introduction of the Bachelor and Master system.

3.3. Qualitative data collection

As this type of research requires qualitative as well as quantitative data of engineers, it has been chosen to start with designing an interview for a group of 16 engineers to cover the qualitative part of this research. The questions were asked along the model developed in Chapter 2 and try to cover job search objectives, strategy development, job search activities as well as vacancy and organizational characteristics.

Pre-test

Before the engineers have been interviewed, the questions have been tested on their comprehensibility by asking a group of eight students of the University of Twente whether they consider answering these questions being manageable. This kind of pilot testing has been chosen to avoid confusion and misunderstandings in the original interviews. After this testing, I have decided to exclude terms like objectives and strategy as these tended to make the test group think that certain kind of answers are being expected. By excluding these terms, I wanted to achieve that respondents provide me with information that they think of as being important and not with information they think I was expecting of them. After having discussed the interview questions with each of the pre-test respondents individually, I discussed them in a group of four to get the most out of it and tried to involve other ideas as well. After this discussion, I made the decision to split up questions and ask interviewees about business strategy, culture and organizational characteristics separately. Moreover, I included a question about the usefulness of professional networks.

Setting

The interviews for the qualitative part were held individually as the engineers expect their details to be handled anonymously. Furthermore, the research will profit from detailed individual experiences that will not extract from a conversation with a larger group of participants. Moreover, I had to take under consideration that I am dealing with time-pressed participants, so that it will be complicated to make appointments with greater groups. A structured interview was chosen to allow comparisons of responses (Cooper & Schindler, 2008), but the questions are open-ended. 14 of the interviews have been conducted by telephone, whereas three of these interviewees have been at home during the interview and eleven at their offices. The two remaining interviews have been conducted face-to-face at the homes of the engineers.

Questions

To get some general information about the interviewees, I noted their year of birth, gender, years of work experience, year of engineering degree, and the year of their last applications before starting to ask questions. A list of the interview questions that have been asked is to be found in the appendix (A.). At the beginning of the interview respondents have been asked questions like “What did you want to achieve when you started your job search? or “What was most/least important to them”. Moreover I asked detailed questions about what the interviewees spend on their job search in terms of money and time or whether they followed a certain kind of procedure when they have been searching for jobs. One question was mainly addressed to experienced engineers and asked them whether they think that their procedure for searching jobs has changed in comparison to how they have searched jobs after their graduation. To get to know more about the job search activities the interviewees performed they have been asked how they applied for their current position, which sources they involved, which source was most influential, which websites they visit and whether they make use of professional networks during job search. In addition, I asked questions about the amount of applications they have sent and of job offers they received. The last questions were mainly dealing with organizational and vacancy characteristics the interviewees feel attracted by.

Recording interviews

When conducting the telephone interviews, I made use of a dictation machine to make it possible to refer to exact quotes afterwards. I tested this method in advance and used the speaker on the phone to make sure that the voice of the interviewee will be heard on the machine. The test revealed that this type of recording was not of good quality but it was sufficient enough to be used to write down the interviews afterwards. Another method I have been thinking of was recording the interviews by making use of Skype, but unfortunately most of the interviewees did not use it and therefore I stuck to the dictation machine. During the interviews I made some notes as well to get a first impression of the wide ranging interviews. After having conducted an interview, I immediately made a transcript by making use of the computer. I have chosen to write the interviews down afterwards to see whether further questions come up, which I wanted to address to the interviewee. In case I wanted to have any further information of the interviewee it would be best to ask them as soon as possible to make sure that they still remind themselves of the answers given to my questions. During the face-to-

face interviews, I made notes as well and wrote interesting quotations down. To make sure that I really do not miss any kind of answer, I used a dictation machine here as well, but during these interviews, it has been much easier to make notes directly as interviewees fully understood to wait while I was writing their answers down at the Computer. I had chosen to make notes at the Computer as this is not as time-consuming as writing by hand. During the interviews I did not ask questions step by step, but more or less tried to make a conversation in which questions were being answered.

3.4. Quantitative Data Collection

On basis of the outcomes of the interviews a questionnaire to gain quantitative data has been designed. In this context, a cross-sectional survey is being used to gather information at a single point in time. The questionnaire has been designed as an online survey. This is not only a cheap and quick method to survey a population (Babbie, 2007), but the chance that respondents are more willing to respond to anonymous self-administered questionnaires, is also higher (Babbie, 2007).

Pre-test

Again a pilot testing has been conducted before the questionnaire has been sent out to the research sample to avoid that questions might be misunderstood. The questionnaire has been tested among a group of 15 respondents with different educational backgrounds to test the comprehensibility of the items. The pre-test included people with different levels of English as well to test whether it is possible to answer these questions when respondents do not use the English language regularly. The feedback showed that a clear definition of EEO is being needed; therefore I decided not to make us of this abbreviation. Furthermore, answer categories of question 15 needed to be modified and the possibility for multiple answers had to be given.

Questions

Based on previous research (cp. Kanfer et al., 2001), I included gender, year of birth as well as type of degree, and study programme. Moreover, I asked respondents to enter the year of their engineering degree to get an understanding of the amount of years; they have been able to develop work experience. In addition, I added nationality as another variable as my sample mainly consists of Dutch and German citizens.

After having entered the various control variables, respondents are asked to indicate how often they have changed jobs after their graduation in *question 7*. They can choose between the answer categories *not at all, once, twice, three times, four times* and *five times or more*. This answer gives implications of how much experience respondents have developed in changing jobs and also whether one of the generations tends to change jobs more quickly than the other. To get a complete picture of this aspect *question 8* asks about how long respondents have stayed with their first job after graduation and *question 9* how long respondents have stayed with their former position. Both questions have an open answer category as answers can be diverse and are difficult to be fully covered when providing respondents with multiple choice answers.

When available the Cronbach's alpha of the measurement methods is being indicated revealing whether the items being used in the questionnaire can be considered to be internally consistent. The Cronbach's alpha has been developed by Cronbach (1951) and ranges from zero to one whereas zero indicates that the items are completely unreliable and one that they are completely reliable in forming a variable. An alpha coefficient lower than 0.7 is not desirable.

To find out about values and preferences, it has been made use of a list of items in *question 10* developed by the Personnel Research Section of the company, which Manhardt (1972) joined in 1969. The 25 job characteristics are rated on a 5-point Likert scale[*] (5=very important, 1= not important) and were originally being used to study gender differences between male and female college graduates (Manhardt, 1972). Within this study this scale is being used to find out whether there are differences in job orientation between engineers aged 45 years or older and engineers aged 30 years or younger. The results that Manhardt had found in his sample provided evidence that they are not sample specific but have a high probability of being observed in other samples as well. Therefore, it can be assumed that this measurement method collects the same data in repeated observations concerning sex differences. At this point in time, it is not yet known, whether there actually are differences in job orientation among experienced and inexperienced engineers, but due to its reliability, I consider this list of job characteristics to be a suitable instrument. The Spearman Rank correlation coefficient between the rank orders of male and female mean ratings of this study was .76.

[*] The Likert scale has been developed by Rensis Likert in order to improve the measurement in social research by using standardized response categories in survey questionnaires. These categories determine the relative intensity of different items (Babbie, 2007).

This list of items in *question 11* is being made use of in order to find out how important information about job and organizational characteristics are being considered when engineers are seeking information jobs. Again it will be used to reveal whether there is a difference in importance of the different characteristics. It has originally been used to find out whether job search behaviour changes over time. In their study Barber et al. (1994) address the need for longitudinal research on job search behaviour, which will not be possible within this research as the present questionnaire will just measure the job search behaviour at one point in time. Furthermore the authors address the need to assess the applicability of their findings to job searchers who are not recent graduates. In this research also experienced engineers, aged 45 years or older, will be included. Instead of studying job search behaviours at two time periods, this research will concentrate on studying subjects of two different age groups.

The information search strategy items used in *question 12* have been created based on Stevens and Turban's (2001) measures. As these measures had low reliability several items were modified and other items were added for Crossley and Highouse's study. Furthermore the original scale did not represent the three search strategies in an appropriate manner. The study conducted by Crossley and Highhouse (2005) revealed that Stevens and Turban's (2001) named job search strategies are a useful way to predict search outcomes and job quality. Moreover, the classification is also useful in predicting satisfaction with the chosen job and with the search process (Crossley & Highhouse, 2005). However, the authors highlight the retrospective self-report nature of their questionnaire and the influence that outcome bias or cognitive dissonance may have had on participant ratings (Crossley & Highhouse, 2005). All item-correlations were greater than .30 (cp. Crossley & Highhouse, 2005). *Question 13* aims at finding out about the way choices are being made. By making use of these items it is being assessed whether respondents make use of rational or intuitive choice methods. This measure is based on Scott and Bruce's (1995) measure of decision-making styles. Seven of these items have been rewritten by Crossley and Highhouse (2005) and another three items have been added. In this case all item-total correlations were greater than .45.

Question 14 is being used to find out about the number of sources that engineers make use of during their job search. This question will reveal whether it is useful for employers to communicate their open positions via various channels. The idea for this question originates from Barber et al. (1994), however the exact formulation is not being known. In order to find out where it is advisable for employers to put their

advertisements, it is not just looked at the number of sources that are being used but also on the aspect of which sources are being used most frequently in *question 15*. This question is based on own construction. To include the job search intensity of respondents *Question 16 and 17* have been included, which are similar to the ones Barber et al. (1994) have made use of within their survey. During the interviews, I made the experience that it is difficult for respondents to indicate how many hours they spent job searching a week. Therefore, I decided to stick to the multiple choice format used by Barber et al. (1994) ranging from *one hour or less, one to five hours, five to ten hours, ten to twenty hours* and *more than twenty hours*. In addition, I included the subjective measurement for job search intensity as well (Barber et al., 1994 and Ellis et al., 1995). Respondents were asked how much effort they have put into the job search and to range this from 1 = *very little effort* to 5 = *a great deal of effort* (Question 17).

Question 18 asks how many applications respondents have sent when they have been looking for their first full-time employment as an engineer and provides them with answer categories ranging from *none, I received a job offer without applying, 1 to 5 applications, 6 to 10 applications, 11 to 15 applications, 16 to 20 applications* and *more than 21 applications*. The answer categories are being offered to respondents as the interviews indicated that it is difficult for respondents to estimate the amount of applications they have sent. The answer categories should give respondents an implication and make it easier to find a suitable answer. Furthermore, respondents are being asked where they found out about the job advertisement of their current position in *question 19.* The answer categories are *Advertisement in local newspaper, Advertisement in nationwide newspaper, Advertisement on company's website, Advertisement on job board, Through own network, Unsolicited application, Job fair, Internship* and two open answer categories including *Other, please specify* and *Not applicable, because*. Multiple answers have been possible. All categories have been chosen on the basis of the interviews that have been conducted and the answers I have been provided with. The *Not applicable* answer category has been chosen as there might be respondents, who are not currently holding a position. The next question (*question 20*) asks respondents about the way they applied for their current position. Again, the answer categories are being based on the information of the interviews. Here respondents were able to choose between *Traditional application (by mail), By E-Mail, Through own network, Online application form*, and *Personally on a job fair*.

The use of the internet is picked up in *question 21*. Respondents just had to indicate whether they make use of the internet for job search (*yes* or *no*). The following question

(question 22) is for those who actually use the internet for job search and asks them to list the three websites they visit most frequently. It is interesting to know which web sites are being used most frequently as this information can also be used by employers to place their advertisements effectively and making efficient use of their recruitment budget.

Question 23 is similar to the one used by Marmaros et al. (2002), however answer categories had to be modified as the survey it originates from only deals with students of Dartmouth and therefore, the answer categories were quite specific. Marmaros et al. (2002) analysed their data by making use of t-statistics; the reliability of the data has not been reported.

To measure tie strength, it is being made use of a measurement in *question 24* developed by Granovetter (1973), who has asked respondents having found a job through contacts how often they saw the contact around the time job information has been passed on to them. Granovetter used the following answer categories *often = at least twice a week; occasionally = more than once a year but less than twice a week; rarely = once a year or less.*

In *question 25* respondents are asked whether they are a member of a professional network like Xing or LinkedIn. This question includes an open answer category to ensure not to miss a professional network as these are numerous. The following question (*question 26*) asks whether respondents are making use of such a network to search for jobs.

The social network categories being used in *question 27* are taken from a survey conducted by Van Hoye et al. (2009) and consists of items that were rated on a 5-point Likert-scale, ranging from 1 = *completely disagree* to 5 = *completely agree*. The items that are included within this research are Network size (question 27) and tie strength in *question 28*. The four items measuring network size have been developed based on previous research by Van Hoye et al. (2009) and refer to the number of people to whom job seekers are tied during job search. These four items showed an alpha coefficient of .85 and therefore are considered to be reliable and appropriate for conducting further research. Regarding the tie strength, it has been made use of three items whereas the first item reflects the general definition of tie strength and the following two items take up two specific dimensions of tie strength: frequency of contact and intimacy. These three items show an alpha coefficient of .78 and therefore are considered to be reliable. Question 27 has been supplemented for the usage within this research by adding two items, namely *I can count on many colleagues or former*

colleagues for information about jobs and I consider networks like Xing or LinkedIn to be useful for job search. Question 28 has been modified by excluding the third item and adding reverse coded items instead.

The following table gives an overview of the Cronbach's alpha of the items used in the present survey.

Scale	Number of items	Cronbach's alpha
Values and Preferences	25	.680
Job and Organizational Characteristics	26	.808
Exploratory strategy	6	.892
Focused strategy	6	.831
Rational choice method	5	.869
Intuitive choice method	5	.857
Social network categories	5	.647

Table 1: Cronbach's alpha of items used in present research

3.5. Secondary data analysis

Access to a secondary data set has been given through a study conducted by Erik Meijerink (2010) aiming at examining the important work values of experienced engineers. This study included seven items of the list of values and preferences of Manhardt (1972). These items are *requires originality and creativeness, encouragement of continued development of knowledge and skills, provides change and variety in duties and activities, is intellectually stimulating, has clear rules and procedures to follow, permits a regular routine in time and place of work, and permits you to develop your own methods of doing the work.* The usage of these items being similar to the present research allows easy comparison of the data. Moreover, the research has made use of the following items being used by Furnham et al. (2005): *advancement and chances for promotion, autonomy and personal freedom, benefits (vacation), benefits (part-time work), benefits (flexible working hours), company image (to be employed by a company for which you are proud to work), clarity of your work goals and targets, contribution to society, independence in work style, influence within the organization as a whole, influence in the work group/team, job security (as*

permanent a job as possible), harmony (among all groups in your organization), opportunity for personal growth and development, opportunity to meet people and interact with them, esteem (sense that you are valued as colleague or worker), resources (being provided with all necessary and up-to-date equipment), responsibility (being encouraged to take responsibility for work outcome), and training opportunities (regular, relevant opportunities to attend useful training courses). Furthermore the data set includes answers to questions about the job search sources that the engineers make use of. Respondents are being asked whether they will or do make use of a list of methods when searching for jobs, including the answer categories: *contact friends/relatives, newspapers, specialist journal ads, posting desks, Recruitment & Selection desks, vacancy sites on the internet, looking at the websites of companies, going to career fairs, direct applying at companies*, and *social media* (LinkedIn and Facebook/Hyves). Moreover, respondents have been asked which way they like to be approached when they are not actively searching for a job themselves. The survey has been conducted among three different age groups, ranging from 31 to 40 years, 41 to 50 years and 51 years or older, which unfortunately does not include the GenY being part of this research. The question about the sources being used has been answered by a sample of 258, whereas the list of values and preferences has a sample size of 272.

4. Results

4.1. Qualitative data analysis

The qualitative interviews held with engineers at different companies, cover five areas of interest that have already been specified in the model based on Breaugh and Starke (2000). These are: job search objectives, strategy development, job search activities, labour market conditions, vacancy and organizational characteristics. Through making use of these five aspects, I try to give an indication about the complex process of job searching. These qualitative interviews should give a very first indication to the wide ranging research question formulated in Chapter 1.

The data that has been gathered is used to develop theories that are guiding the quantitative part of this thesis. As the data collected is very complex in nature, it is necessary to summarize, categorize and restructure it. The questions are held in an open manner and aim at gaining more information in depth about the topic at hand. Thus, it is not the purpose of these interviews to draw conclusions out of them but to dive into the topic more deeply.

4.1.1. General description

In total 16 engineers have been interviewed, eight of them are labelled experienced (Interviewees A 1 to A 8) and eight of them inexperienced (B 1 to B 8). The data has been collected by making use of semi-structured guided interviews. Due to time restrictions and local distances 14 of the interviews have been conducted by telephone and just two face-to-face (A 2 & A 6). All engineers are of German nationality, 14 are male and two female (B 2 & B 8), whereas the two female respondents belong to the group of engineers aged 30 years or younger. Nine engineers have a degree in mechanical engineering, and four in electrical engineering. The three remaining engineers have an engineering degree in applied physics (A 5), supply engineering (A 8), or mechanical engineering with computer science (B 7). The settings for the interviews differ as well, whereas the two face-to-face interviews (A 2 & 6) have been conducted at the homes of the interviewees, eleven telephone interviews have been conducted when interviewees have been in their office; the three remaining interviews (A 5, A 6 & B 1) have been conducted by telephone, when the interviewees have been at home. Only Interviewee B 1 was involved in the process of job search at the time the interview has been conducted. Most of the interviews have been carried out in November 2010, two interviews (B 3 & B 8) in December 2010. The following table

gives an overview of the interviewees, their year of birth, gender, type and year of degree as well as the current industry they are employed in and the year of their last job search.

	Year of birth	Gender	Type of degree	Year of degree	Industry	Last job search
A 1	1959	male	Mechanical Engineering	1975	Automotive	1999
A 2	1960	male	Mechanical Engineering	1984	Renewable Energy	2003
A 3	1960	male	Electrical Engineering	1985	Steel	2002
A 4	1963	male	Electrical Engineering	1989	Automotive	2005
A 5	1963	male	Applied Physics	1990	Screen Printing	2000
A 6	1964	male	Mechanical Engineering	1989	Renewable Energy	2007
A 7	1965	male	Electrical Engineering	1990	Construction service	1999
A 8	1965	male	Supply Engineering	1990	Chemicals	2004
B 1	1980	male	Mechanical Engineering	2004	Transport related engineering	2010
B 2	1980	female	Electrical Engineering	2005	Automotive	2006
B 3	1981	male	Mechanical Engineering	2008	Telecommunication	2008
B 4	1981	male	Mechanical Engineering	2007	Automotive	2007
B 5	1982	male	Mechanical Engineering	2009	Steel	2009
B 6	1982	male	Mechanical Engineering	2009	Automotive	2009
B 7	1983	male	Mechanical Engineering with computer science	2010	Automotive	2010
B 8	1983	female	Mechanical Engineering	2009	Plant engineering and construction	2009

Table 2: Overview of interviewees

4.1.2. Job search objectives

With regard to the job search objectives, it was possible to summarize these into categories. These categories are j*ob security, location of the company, salary, personal development, and gaining experience*. The job search objectives mentioned by experienced engineers are:

1. Job security (mentioned by all experienced engineers)
2. Personal development (mentioned by six experienced engineers)
3. Salary (mentioned by five experienced engineers)
4. Location of company (mentioned by four experienced engineers)

The location is a job search objective, which is not explicitly mentioned by inexperienced engineers. Their objectives are:

1. Gaining experience (mentioned by all inexperienced engineers)
2. Personal development (mentioned by seven inexperienced engineers)
3. Salary (mentioned by four inexperienced engineers)
4. Job security (mentioned by three inexperienced engineers)

Job security

Job security has been mentioned as an important aspect by all experienced engineers and by three inexperienced engineers (B2, B5 & B8). This does not imply that the remaining engineers do not put emphasis on this aspect, but it could also be the case that they just did not think about job security while the interviews have been conducted. However, this outcome raises the question whether there actually are differences between experienced and inexperienced engineers regarding the emphasis they put on job security or whether the differences in answers just occurred by chance. One of the experienced engineers (A7) mentioned that he wanted to secure a position that leads to a lasting work relationship, another one answered (A5) that he wanted to relocate close to his home town and looked for suitable positions in that area providing him with good perspectives for the next years as he was not willing to change positions. In comparison, the three inexperienced engineers who mentioned *job security* as an important aspect did not talk about long lasting relationships or a long-term focus, but about the fact that they wanted to hold a secure position and were in state to switch companies when they themselves decided to do so.

Personal development

The aspect of *personal development* has been mentioned by six experienced engineers, A1 and A3 did not indicate to focus on this aspect during their job search. Regarding the answers of the inexperienced interviewees, B4 did not mention personal development explicitly. Again this does not mean that interviewee B 4 does not put emphasis on *personal development* as the interviewees have not been provided with answer categories. In the context of *personal development* interviewee B8, for example, mentioned that his objective was to work for a company having a flat hierarchy, valuing team-work and offering as much opportunities for training and *personal development* as possible because he wants to get the most out of it. Interviewee A6 answered that he has gained a lot of expertise in the industry he has been working in and wanted to find a position where this expertise is needed, valued, and enriched by opportunities for further development.

Gaining experience

All inexperienced engineers (B1 to B8) mentioned that they aim at *gaining experience* when looking for their first job(s). This was quite closely related to the fact that they desire the opportunity for personal development within their positions. Interviewee B1, for instance, mentioned that he wants to gain as much experience as possible in different fields of work, whereas interviewee B2 answered that he wanted to find a position where the knowledge he has gained during his studies can be enriched with the best expertise possible. Interviewee B4, who has already changed jobs once indicated that he wanted to gain more experience and that the company he has been working for after his graduation was too small to add considerable value to his experience. This raised the question whether inexperienced engineers are more willing to change jobs quickly and therefore, made me include a question about job changes and the years engineers have stayed with their first position in the survey.

Salary

The aspect *salary* has explicitly been mentioned by five experienced engineers (A1, A2, A4, A5 & A8) and four inexperienced (B1, B3, B4 & B7). *Salary* was an aspect that was just mentioned by the interviewees, but according to them it did not need further explanation. When asking these interviewees why they thought salary was important, they answered that they want their experience and work to be valued adequately and that they want to be able to hold a certain standard of living. One interviewee (B4)

indicated that he expects the salary to be adequately to the industry he wants to work in and to the responsibilities he is going to obtain.

Location of company

The *location of the company* has been mentioned as an important aspect by four experienced engineers (A1, A2, A5 & A7). One of these mentioned (A5) that he wanted to relocate close to his home town; therefore, he has been looking for suitable positions in that area. Interviewee A 7 mentioned that he was looking for a new position, but had built a house for his family and did not want to travel more than 50 kilometres a day. The *location of the company* has been mentioned by none of the inexperienced interviewees, which could lead to the conclusion that these interviewees are more flexible and more willing to move or that they just did not think about this aspect while they had been interviewed. This raises the question whether there is a difference regarding the importance of the *location of the company* and recommends including this item within the following survey.

Business strategy

When asking the interviewees about organizational values, it became apparent that it was hard for interviewees to distinguish between business strategy, culture, and organizational values as these are influencing one another. Therefore, I try to give an overview of the aspects being mentioned in this complex connectivity.

Having a look at the answers when being asked about business strategy, there are several terms that have been mentioned by more than one interviewee. Communicating long-term goals is seen to be important by five experienced interviewees (A1, A3, A5, A6 & A7). Interviewees A2 and A3, both see a sustainable competitive advantage or rather a sustainable strategy with a strong set of values as desirable business strategy. A competitive advantage is also seen to be important by three experienced (A4, A7 & A8) and three inexperienced engineers (B2, B3 & B4). Four interviewees belonging to the group of inexperienced engineers (B2, B5, B6 & B8) mention an open and innovative strategy being desirable, three (B2, B3 & B4) see a competitive advantage in one way or another being desirable. Three engineers (A1, A7 & B5) mention growth in general being an important factor. It was quite striking that the interviewees were not very specific about the business strategy they felt attracted by. Three interviewees (A2, A7 & B7) even indicated that they were just reproducing the

strategy their companies indicated to have, but that was not an important aspect they focused on when accepting their job offers.

Company values

When looking at the company values the most obvious thing being mentioned is that ten of the interviewees want the employees and their experience to be valued by their employers. Six interviewees (A1, A3, A7, B1, B6 & B8) do not mention this explicitly; however this does not mean that they did not share this opinion. It might be that this is self-evident for them and therefore, they did not mention it, respectively they did not think about this aspect during the interviews. Furthermore, the interviewees mentioned that they wanted good performance to be rewarded (A3, A8 & B1), they wanted their educational background to be used (B3 & B7), and had the possibility to achieve a work-life balance (B2, B3 & B8). Three interviewees have been quite specific, interviewee A1 mentioned that he expected the company to demonstrate support for innovation and quality and sees social responsibility as an important company value. Interviewee A7 wanted the company to maintain transparency and to provide quality. Interviewee B6 thought it was of importance that employees were encouraged to develop their own ideas.

Company culture

Responses with regard to the preferable culture of the company were very diverse as well. However, seven respondents mentioned that there should be an emphasis on team work or team spirit. Only one of these interviewees was labelled experienced (A7), the six remaining interviewees mentioning this aspect belong to the group of inexperienced engineers (B1, B2, B4, B5, B6 & B8). Three experienced engineers mentioned learning culture (A2, A3 & A6), quite general responses like a good atmosphere was solely mentioned by inexperienced engineers (B3, B5, B7 & B8), or very specific answers like mentorships seen as desirable by two experienced engineers (A2 & 4), high-performance culture (A 2 & 6), a collaborative management style (A 5), or a job rotation program, and a flat hierarchy (B7).

4.1.3. Strategy Development

Regarding the questions about strategy development, all experienced engineers indicated to have a focus on specific jobs, whereas only two inexperienced engineers indicated the same (B2 & B6). The main part of inexperienced engineers (B1, B3, B5,

B7 & B8) wanted to fully explore opportunities. One remaining interviewee (B4) was contacted via Xing and got a job offer there. Consequently, it was not necessary for that interviewee to develop a certain kind of strategy for the job search. As Interviewee B4 indicated to have changed jobs once, I asked him how he had searched his first position after his graduation. The interviewee indicated that he was offered a job in the company he had sent his thesis in. Therefore, he had no need for developing a job search strategy at all.

Changing job search strategy

Experienced engineers have been asked whether they have the impression that their procedure for searching jobs has changed in comparison to how they have searched for jobs after their graduation. The question has also been addressed to the group of inexperienced engineers in case they have already changed their job (B1, B2 & B4). None of those indicated that their way of searching jobs changed in a certain way. The answers given by the experienced engineers could be grouped according to the main aspects to be considered:

- Changing expectations

  Most experienced engineers (A1, A2, A3, A4, A5, A6 & A8) mentioned that the fact that their expectations had changed influenced their way of searching jobs. A1 mentions that he was not willing to compromise as he had an exact picture of his job in mind. A2 indicated that his expectations changed a lot, which he mainly attributed to the changing way of searching for jobs by making use of the Internet, whereas A3 mentioned that his expectations had become more focused. Engineer A4 also indicated to have become more focused especially regarding the emphasis he put on job security. A5 thought that the changing procedure for changing jobs also influenced his expectations. A6 and A8 indicated that their expectations changed as they were able to compare different employers. A6 realised that he puts more emphasis on personal development, whereas A8 puts more emphasis on job security and personal development than he used to at the beginning of his career.

- Use of the Internet

  The usage of the Internet was mentioned as a tool that made it easier to find about suitable job options. Through the Internet it got much easier to compare

and according to A2 this might also increase the chance to switch companies. The fact that the job search became easier through the Internet was also being mentioned by A5. The procedure when searching jobs by making use of newspapers was much more time-consuming. A5 also mentioned the changing in job search as a reason why his expectations changed and that it was much more difficult to choose because one has access to a greater number of vacancies.

- Job security

  The increasing importance of job security was mentioned as a reason for the changing job search procedure by A3 and A4. They indicated that they were not willing to change jobs as quickly as they used to. A4 especially mentioned the economic crisis as a reason why he would apply a different job search strategy at the moment.

4.1.4. Job search activities

Within the part about job search activities, interviewees were asked about their last job search, the number of job changes each interviewee had carried out as well as the sources that were used and the way of applying for the current position. Moreover, the number of applications and the search period necessary to find the actual position were included. The interviewees also were asked to give an indication about the time spent searching and to mention the websites they used in case they were searching jobs via the Internet.

Last job search

Only two of the interviewees recently were involved in the process of job search (B1 & B7). One of them (B1) had been involved in the process of job search, while the interview was conducted. It became obvious that this interviewee was able to provide me with much more detailed information than the remaining interviewees. Five of the inexperienced interviewees (B3, B5, B6, B7 & B8) only searched jobs once in the year of their graduation. Three of the experienced engineers (A1, A5 and A 7) searched jobs in 1999 or 2000, and it was very hard for them to remember detailed aspects regarding their job search activities.

Job changes

None of the experienced engineers still obtained his first position. Three of them changed jobs once (A1, A6 & A7); four of them twice (A2, A3, A5 & A8), and one of them already obtained his fourth position and consequently changed his jobs three times (A4). Five of the inexperienced engineers worked in their first position, two of them have already changed jobs once (B2 & B4), and one was planned his second job change at the time the interview was conducted (B1).

Sources

Only one of the experienced engineers (A5) indicated not to have used newspapers during his job search process and two mentioned not to have used the Internet (A1 & A4). The network was a source used by three experienced interviewees (A1, A3 & A4), whereas one interviewee indicated to have made use of job fairs during the process of job search (A7). Having a closer look at the sources being used by inexperienced interviewees, it becomes obvious that none of them made use of newspapers to find out about open positions, but all made use of the internet. Therefore, it will be interesting to have a look at the usage of sources in the survey as well to find out whether there is a difference in sources being used between experienced and inexperienced engineers. Four inexperienced interviewees indicated to have made use of networking (B2, B4, B5 & B7). One interviewee (B3) went to a job fair to find out about open positions.

Way of applying

When being asked how they applied for their current position, five experienced engineers (A1, A2, A4, A5 & A8), and three inexperienced (B1, B7 & B8) indicated to have used a traditional application by mail, which half of all interviewees did. Applications by e-mail were used by two experienced engineers (A3 & A6) and four inexperienced engineers (B2, B4, B5 & B6). The two remaining interviewees (A7 & B3) applied personally on a job fair.

Within the following three paragraphs, I am going to compare the amount of applications, the search period, and the time spent searching per generation. The numbers are being compared to find out whether there are differences between the experienced and inexperienced engineers being interviewed but will not be considered

in further analysis. They just give implications whether these differences should be examined during the quantitative part.

Number of applications

On the average the interviewees sent twelve applications before receiving a job offer, whereas the experienced engineers had an average of ten applications and the inexperienced of thirteen applications. During the interviews, it became apparent that it was hard for some interviewees to remember the numbers of applications sent. Therefore, these figures are based on estimation. However, it is worth having a look at the number of applications within the survey because it might be the case that inexperienced engineers tended to apply to a greater number of positions, which could be attributed to the usage and the easier application procedure on the Internet.

Search period

On average the interviewees searched 5.5 months to find their current position. The experienced engineers were slightly above that average with 5.75 months, whereas the inexperienced were slightly beneath with an average of 5.25 months. There were two interviewees, who searched for their jobs for a period of twelve months (A4 & B3) and one interviewee (B4) searching for only one month. The remaining interviewees searched between three and eight months.

Time spent searching

The hours spent job searching reveal a greater differences with an average of 6.63 hours for the experienced engineers and an average of 5.25 hours for the inexperienced. This difference gives reason to look at the hours spent on job searching more closely within the survey.

Websites used

When being asked about the websites, the interviewees made use of in order to find out about open positions, the following sites were mentioned:

- Company websites
- http://www.monster.de
- http://www.jobpilot.de
- http://www.stepstone.de
- http://www.arbeitsagentur.de

- http://www.faz.net
- http://www.vdi.de
- http://www.ingenieurkarriere.de

4.1.5. Implications for quantitative analysis

In order to conduct further research among experienced and inexperienced engineers, I will summarize aspects found within the qualitative part of this thesis and will be the focus on further analysis.

Job search objectives

The interviews give reason to have a closer look at the role, *job security* plays for the different generations. This aspect being mentioned by all experienced engineers and three inexperienced and gives implications to study whether the group of engineers can be considered being homogeneous with regard to this item or whether there are significant differences. This is the same for the items *personal development (or training), salary, and location of the company*. Therefore, there is a need to focus on these items when analysing the quantitative data. Moreover, it became obvious that answers to the question about job search objectives were very diverse. Consequently, I have been looking for items representing this diversity, which have finally been found in Manhardt's study (1972). These items have been enriched by making use of a list of items in a study of Barber et al. (1994). The business strategy being part of the interviews will be excluded from further analysis whereas the *company values and culture* are included in the *job search objectives*.

Job search strategy

Regarding answers about the way the interviewees search their jobs, there was a need to find questions aiming at finding out whether respondents were more focused or exploratory with regard to their job search, which supported the idea of making use of the items of Crossley's and Highhouses' study. Moreover, the interviews raised the questions on which basis choices were made and gave implications to find suitable categories to measure these choices. Especially the answers of the experienced engineers gave reason to examine the role of the Internet within the process of job search.

Job search activities

When conducting the interviews, it became obvious that it was difficult for respondents to estimate the time they spent job searching per week. Therefore, I decided to provide respondents with answer categories within the survey. This was the same for the question about the number of applications the engineers sent in. As none of the interviewees was able to indicate how much money he spent on the job search procedure, I made the decision to exclude this question from the survey as it would not produce valuable results. It was the same for the question about the job search period, consequently it was excluded from the survey as well. Another aspect to consider was whether inexperienced engineers were more willing to change jobs quickly and led to the idea of including a question about job changes and about the length of stay regarding the first position. Furthermore, the interviews gave reasons to ask about the way the respondents applied for positions as well as the sources they made use of. The experienced engineers being interviewed tended to make use of newspapers whereas the Internet played a more central role in job searching among the inexperienced engineers.

To summarize, the outcomes of the interviews raised the following questions, which should help answering the stated research question.

1. Are there differences in the job search objectives? Do experienced engineers tend to put more emphasis on job security and personal development, and inexperienced engineers on gaining experience and personal development?
2. Do the two groups of engineers make use of a different type of strategy? Do experienced engineers tend to be more focused with regard to attributes of their future jobs, whereas inexperienced engineers are more willing to explore their opportunities?
3. Are there differences in the job search activities performed by experienced and inexperienced engineers?
4. Are there differences in the usage of job search sources? Do inexperienced engineers tend to put more emphasis on the job search via Internet whereas experienced engineers make more use of a mixture of job search sources with a focus on newspapers?

4.2. Quantitative data analysis

In section 3.2. the composition of the sample has already been described. Within this section the propositions that have already been mentioned in the theoretical part in chapter 2 will be tested by making use of SPSS. In order to reveal significant differences between the two generations, the t-test is used to compare means (cp. Larson-Hall, 2010). The t-test can tell us whether differences between the two generations are big enough to assume that they are not homogeneous (two independent samples t-test) or whether one generation scores significantly higher on one item than on another (one sample t-test). The research hypothesis is that the two generations differ with regard to their job search behaviour, and the null hypothesis states that there is no difference. The significance level that has been chosen is $p < .05$.

Job changes

In order to gain an understanding whether one of the groups under discussion tends to change jobs more quickly, the sample has been asked how often they have changed jobs after their graduation (question 7). 48.2% answered not to have changed jobs at all, 20.5% changed jobs once, 14.5% indicated to have changed jobs twice, 9.6% changed jobs three times, 2.4% four times and 4.8% named to have changed jobs five times or more. When splitting the sample up into the two generations under discussion, it becomes obvious that 97.5% of those who did not change jobs at all belong to GenY and none of them to the Baby Boomers Generation. 47.1% of those who have changed jobs once belong to GenY as well, whereas 41.2% were part of the Baby Boomers Generation. Having a look at those who indicated to have changed jobs twice, 8.3% belong to GenY and 75% to the Baby Boomers. This percentage is similar to the Baby Boomers with regard to having changed jobs three times, 12.5% of those belonging to GenY. Those who indicated to have changed jobs four times belong to the Baby Boomers. With regard to the category of having changed jobs five times or more, 50% belong to the Baby Boomers Generation and 50% to Traditionalists.

Stay with first position

Regarding the data about how long respondents have stayed with their first job after their graduation (question 8), I look at those who have already changed their jobs once or more often ($n = 43$) than those who still obtain their first position mainly belong to the group of GenYers (97.5%) and have graduated recently. The following table gives an

overview about the length of the stay in their first job after graduation. The small size of the sample does not allow generalisations, however, the outcome raises the question of whether GenYers tend to change jobs more quickly than Baby Boomers.

	Generation Y	Generation X	Baby Boomers	Traditionalists	Total
Up to six months	75%	25%	0%	0%	100%
More than six months, but less than one year	60%	40%	0%	0%	100%
More than one year, but less than three years	20%	20%	60%	0%	100%
More than three years, but less than five	0%	0%	100%	0%	100%
More than five years, but less than seven years	0%	0%	83.3%	16.7%	100%
More than seven years, but less than nine years	0%	0%	80%	20%	100%
More than nine years	0%	0%	100%	0%	100%
Total	23.3%	11.6%	60.5%	4.7%	100%

Table 3: Stay with first job after graduation

4.2.1. Job search objectives

The alpha coefficient for the items being used as preferences and values (Question 10, Variable 10-34) is .680, suggesting that the items have relatively low internal consistency because the reliability is considered acceptable with a reliability coefficient of .70 or higher. However, it has to be considered that the items being used refer to different categories of values and preferences.

P_{1a}: Values and preferences experienced engineers regard as very important differ significantly from those regarded as very important by inexperienced engineers.

P_{1b}: Values and preferences experienced engineers regards as unimportant differ significantly from those regarded as unimportant by inexperienced engineers.

The results of the independent samples t-test indicate that there are significant differences regarding 13 of the 25 items. A table included in the appendix (B.) gives an overview of the means and standard deviations of those items where significant differences could be found.

The respondents have been asked to rate on a five point Likert-scale how important it is to have a job showing the listed characteristics. On the average the representatives of GenY scored higher on the items 1 to 8 listed in the following table. On the average the Baby Boomers scored higher on the items 9 to 13. Both generations on average

scored high on the items 14 to 18. The scores on the seven remaining items are to be found in the appendix (C.).

How important is it to you to have a job which…		Generation Y		Baby Boomers		
		Mean	SD	Mean	SD	P-value
1.	requires originality and creativeness	**3.98**	.721	2.69	1.158	.000
2.	makes use of your specific educational background	**3.76**	.751	2.12	.588	.000
3.	encourages continued development of knowledge and skills	**4.33**	1.068	3.81	.981	.043
4.	involves working with pleasant colleagues	**4.31**	.734	3.63	.637	.000
5.	provides much leisure time off the job	**3.49**	.681	2.04	.871	.000
6.	provides change and variety in duties and activities	**3.88**	.696	3.04	.999	.000
7.	requires meeting and speaking with many other people	**3.68**	.769	3.23	.514	.003
8.	provides a feeling of accomplishment	**3.92**	.702	3.38	.496	.001
9.	provides job security	3.86	.979	**4.46**	1.029	.015
10.	gives you the responsibility for taking risks	3.02	.979	**3.54**	.791	.023
11.	permits advancement to high administrative responsibility	2.90	.797	**4.12**	.766	.000
12.	has clear rules and procedures to follow	2.78	.985	**3.35**	.797	.013
13.	requires supervising others	2.94	.876	**3.54**	.859	.006
14.	provides the opportunity to earn high income	3.41	1.039	3.92	1.230	.059
15.	provides comfortable working conditions	4.16	.624	3.73	1.041	.060
16.	permits working independently	3.65	.723	3.69	.970	.843
17.	rewards good performance with recognition	4.14	.764	4.31	.679	.359
18.	is intellectually stimulating	3.94	.719	3.77	.710	.332

Table 4: Values and preferences of both generations

The following box plots give an overview of the sample range, median, distribution and skew of the distribution regarding the first eight items on which high scores of GenY have been achieved.

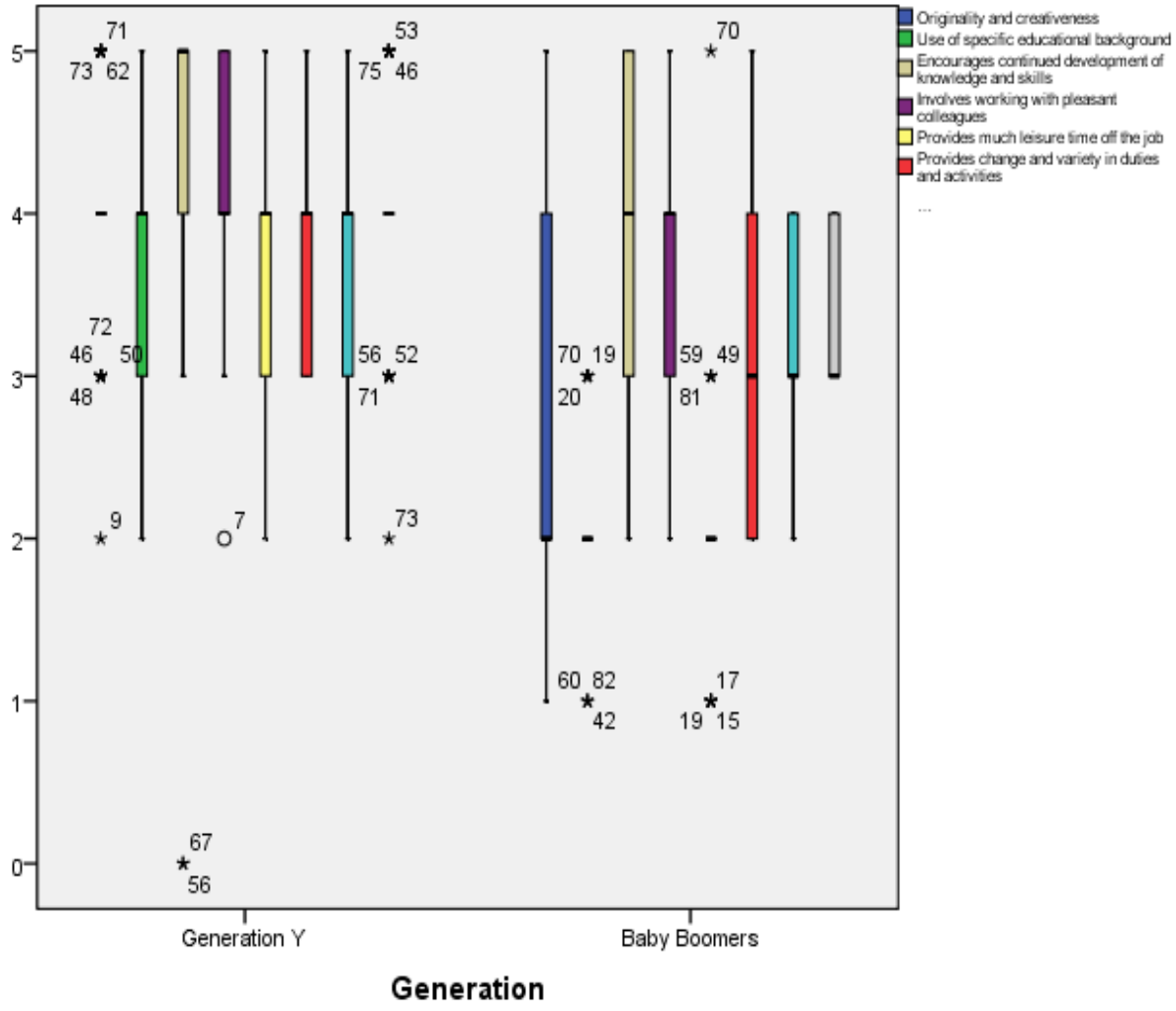

Fig. 5: Boxplot Values and Preferences 1

Having a look at the items of question 11, several items revealed crucial differences between GenY and Baby Boomers when comparing means on behalf of an independent samples t-test. There was a significant difference with regard to *Pay* with GenY (M = 3.69, SD = .796) and Baby Boomers (M = 4.23, SD = 1.032), being revealed by p =.015. Baby Boomers scored significantly higher on this item than GenY. Another item revealing significant differences is *Job security*, which will be discussed in the following section. A significant difference could also be revealed when comparing means of the item *Training*. Here the value .003 clearly revealed a significant difference between GenY (M = 4.10, SD = .770) and Baby Boomers (M = 3.54, SD = .761). Another significant difference could be found with regard to the item *Company reputation* t (73) = 15 p =.015. The mean score of GenY (M = 3.37, SD = 1.035) was significantly different from that of Baby Boomers (M = 4.00, SD = 1.058). Furthermore,

the item *Turnover* revealed a significant difference as well with α =.000, GenY (M = 2.59, SD = .888) scored significantly lower than Baby Boomers (M = 3.92, SD = 1.093). The item *daycare and/or maternity* revealed significant differences between GenY (M = 2.49, SD = .016) and Baby Boomers (M = 3.35, SD = 1.056) with α =.000. A significant difference could also be found regarding the last item *autonomy and input,* t (65) = 6, p =.006 between GenY (M = 3.63, SD = 1.035) and Baby Boomers (M = 4.23, SD = .765). Among all other items significant differences could not be found. The following box plots show the distribution of the items discussed.

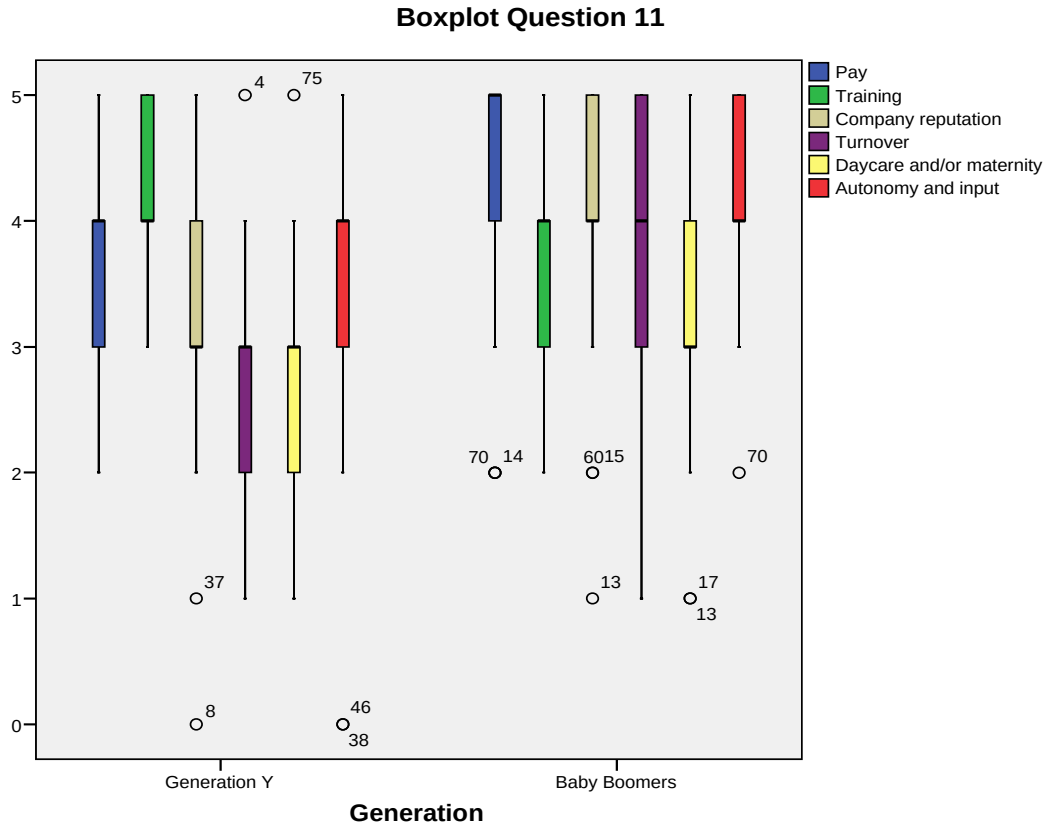

Fig. 6: Boxplot Values and Preferences 2

A table giving an overview of all means and standard deviations of the items being enclosed in question 11 is to be found in the appendix (C.). On average both generations scored highly on the items 1 to 10 being included in the following table. Relatively low scores have been achieved on the items 11 to 14.

How important is it to you to find information about the following job and organizational characteristics when looking for a job…		Generation Y		Baby Boomers		
		Mean	SD	Mean	SD	P-value
1.	Benefits	3.67	.966	3.81	1.096	.586
2.	Job type	4.41	.610	4.42	.758	.926
3.	Advancement	4.06	.852	4.00	.748	.759
4.	Location	3.92	.731	3.62	1.1329	.288
5.	Coworkers	3.88	.754	3.85	.834	.869
6.	Atmosphere or culture	4.29	.677	3.96	.824	.072
7.	Working conditions	4.14	.612	4.00	.800	.391
8.	Ability to use skills	4.06	.626	3.73	.962	.122
9.	Challenge and responsibility	4.06	.659	4.04	.720	.891
10.	Meaningful work	3.88	.696	3.88	.653	.966
11.	Number of openings	2.43	.842	2.12	.816	.126
12.	Company size and age	2.71	.935	3.08	.796	.097
13.	Diversity and Equal Employment Opportunities	2.92	.886	3.12	.952	.375
14.	Hiring practices	2.69	.847	2.31	1.050	.088

Table 5: Means and standard deviations of question 11

Job security

Job security is measured by making use of two items in question 10 and 11 of the questionnaire. Cronbach's alpha of these items is .805, therefore, the items have a relatively high internal consistency, and the reliability is considered to be acceptable.

P_{1c}: The means of experienced and inexperienced engineers with regard to job security are significantly different.

The results of the independent samples t-test indicate that there is a significant difference in the means of job security between GenY and Baby Boomers t (73) = 15, p = .015 and t (73) = 22, p =.022. That is the average score of GenY (M = 3.86, SD = .979 and M = 3.69, SD = .871) that are significantly different from that of the Baby Boomers generation (M = 4.46, SD = 1.029 and M = 4.23, SD = 1.07). This outcome supports proposition 1c.

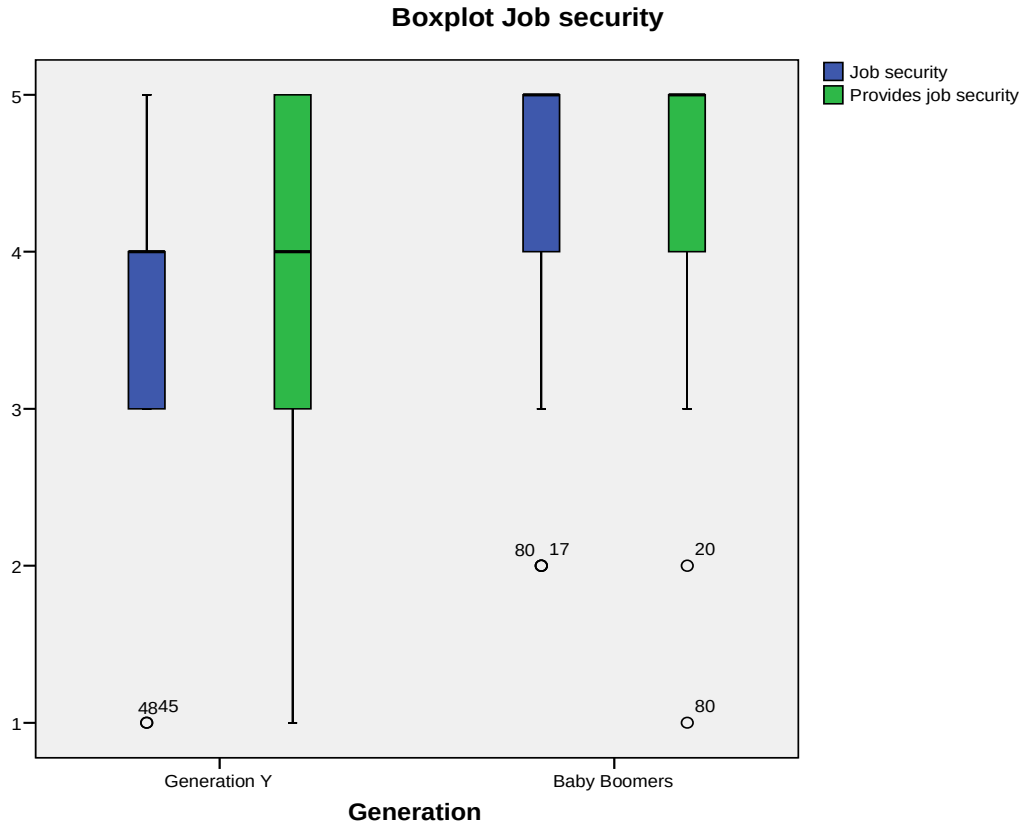

Fig. 7: Boxplot Job security

Significant differences between nationalities

As the sample mainly consists of Dutch and German engineers, it is interesting to look at significant differences between the nationalities as well. In this case, it has to be considered that the Dutch respondents mainly belong to the group of inexperienced engineers (only five experienced among them); therefore I will look more closely at differences between nationalities with regard to GenY. In this case the t-test for equality of means revealed significant differences with regard to the items *provides job security*, *involves working with pleasant colleagues*, p*ermits advancement to high administrative responsibility*, *is intellectually stimulating* and *permits you to develop your own methods of doing the work*. Regarding the item p*rovides job security* the German engineers belonging to GenY on average score significantly (.026) higher (M = 4.29, SD =.920) than the GenYers of Dutch origin (M = 3.63, SD = .964). The Dutch GenYers on average score significantly (.006) higher on the item *involves working with pleasant colleagues* (M = 4.53, SD =.964) than the German GenYers (M = 3.94, SD =.899). The average scores on the item *permits advancement to high administrative responsibility*

reveals a significant difference as well (.017) in the way that German GenYers on average score higher (M= 3.24, SD =.831) in comparison to Dutch GenYers (M = 2.67, SD = .711). The German GenYers on average score higher on the item *permits you to develop your own methods of doing the work* (.015) as well with a mean of 3.94 (SD = .659) in comparison to Dutch GenYers with a mean of 3.23 (SD = 1.251). The last item revealing a significant differences was the one of *is intellectually stimulating* (.013) with Dutch GenYers on average scoring higher (M = 4.13, SD =.629) than German GenYers (M = 3.59, SD =.795).

Moreover, three items being enclosed in question 11 revealed significant differences as well. In this case, we talk about the items *benefits* (.010)*, job security* (.007) and *turnover* (.019)*.* The Dutch GenYers on average score higher on the item *benefits* (M = 3.97, SD = .85) than the German GenYers of this sample (M = 3.24, SD = .970). The German GenYers instead score higher on the items *job security* (M = 4.12, SD =.697) and *turnover* (M = 3.00, SD =.935) in comparison to the Dutch GenYers (Job security: M = 3.43, SD =.858; Turnover: M = 2.37, SD =.809).

4.2.2. Strategy Development

Within this part, it will be distinguished between the information search strategy consisting of the exploratory and focused strategy and the choice method consisting of the rational and intuitive choice methods. These concepts have already been discussed in section 2.3.2.

Information search strategy

The information search strategy is being measured by making use of items belonging to the different kind of strategies (Appendix B, question 12). The six items representing the exploratory strategy have a Cronbach's alpha of .892 and are therefore considered to be reliable. The following six items represent the focused strategy and have a Cronbach's alpha of .831 leading to a conclusion of high reliability as well. Summarising the items belonging to the exploratory and focused strategy, the following means and standard deviations are revealed.

		Generation Y		Baby Boomers	
		Exploratory strategy	Focused strategy	Exploratory strategy	Focused strategy
1.	N	49	49	26	26
2.	Mean	2.8946	3.4626	2.4231	4.5769
3.	Standard Deviation	.84348	.62293	.72300	.44280

Table 6: Exploratory versus focused strategy

P_{2a}: Experienced engineers score significantly higher on a focused strategy than exploratory strategy when searching for jobs.

This outcome of the one sample t-test supports proposition 2a as there are significant differences between the scores (.000), which leads to the conclusion that experienced engineers score significantly higher on a focused than exploratory strategy.

P_{2b}: Inexperienced engineers score significantly higher on an exploratory strategy than focused strategy when searching for jobs.

When testing proposition 2b on behalf of a one sample t-test as well, this outcome reveals a significant difference (.000) between the scores on items representing the exploratory and focused strategy. However, the respondents belonging to GenY on average scored higher on items representing the focused strategy. Consequently, proposition 2b cannot be supported.

As these measurements could not reveal significant differences, I will compare the two generations as well. The p-value of.018 leads to the conclusion that there is a significant difference on the average score of the items representing the exploratory strategy among GenY and Baby Boomers. On average respondents being defined as GenY scored higher on these items than respondents of the Baby Boomers Generation. The p-value lower than .05 indicates that there is a significant difference in the average scores of GenY and Baby Boomers representatives on the items representing the focused strategy. The Baby Boomers of this sample on average score higher on these items than GenY.

Choice method

The rational and intuitive choice method is being measured by making use of the items of question 13. The first five items of this question are representing the rational choice method and have a Cronbach's alpha of .869, suggesting a high internal consistency. The following five items have a Cronbach's alpha of .857 and therefore are considered to be reliable to measure the intuitive choice method.

		Generation Y		Baby Boomers	
		Rational choice	Intuitive choice	Rational choice	Intuitive choice
1.	N	49	49	26	26
2.	Mean	2.8061	3.7224	3.6795	2.5538
3.	Standard Deviation	.55834	.63746	.48056	.66044

Table 7: Rational versus intuitive choice method

P_{2c}: Experienced engineers score significantly higher on a rational choice method than on an intuitive choice method.

Regarding the outcomes of a one sample t-test, a p-value lower than .05 indicates a significant difference between the two means. The Baby Boomers representatives of this sample scored significantly higher than the GenY representatives. Consequently, proposition 2c could be supported.

P_{2d}: Inexperienced engineers score significantly higher on an intuitive choice method than on a rational choice method.

On the contrary, a one sample t-test reveals that GenY participants of this sample score significantly higher on the intuitive choice method than Baby Boomers (.000). When comparing the scores of GenY on both the intuitive and rational choice method, it becomes obvious that this generation scores significantly higher (.000) on the items representing the intuitive choice method. This outcome supports proposition 2d.

4.2.3 Job search activities

To gain an understanding of the job search activities being performed, I will focus on the number of sources being used, the hours spent searching, the sources used, and the way engineers apply for their positions.

Number of sources

Having a look at the number of sources (Q 14) that are being used, 14.5% of all respondents make use of one source to find out about job openings, 32.5% make use of two sources, 27.7% use three sources, 6% use four sources, and even 19.3% make use of five sources or more.

P_{3c}: The number of job sources that is being used is negatively related to age.

The Pearson Correlation of .072 indicates that there is hardly any relationship between the number of sources and age. Therefore, the stated proposition could not be supported.

When being asked about the number of applications they have sent when they have been looking for their first full-time employment (Q 18), 26.5% indicated to have not sent any application as they received a job offer without applying. 30.1% of the sample answered to have sent 1 to 5 applications, 26.5% have sent 6 to 10 applications, 7.2% wrote 11 to 15 applications, 6% sent out 16 to 20 applications, and a relatively low percentage (3.6%) indicated to have sent out more than 21 applications.

Having a look at the amount of applications being sent by each generation, it becomes obvious that the main part of those having received a job offer without applying belong to GenY (85.7%). Moreover, a tendency could be found that GenYers have indicated to send fewer applications. 34.7% of them indicated to have sent 1 to 5 applications. Therefore, those having received a job offer without applying and those having sent 1 to 5 applications built the main part of GenYers. Being compared to the percentages of Baby Boomers, 26.9% have sent 1 to 5 applications and 53.8% 6 to 10 applications.

Regarding the perceived effort the respondents put into the process of job search, 10.8% indicated to have put very little effort into this process, 14.5% had put little effort and 41% had put neither little, nor much effort into their job search process. 31.3% of the questioned engineers indicated to have put much effort into their job search whereas a very small amount of engineers (2.4%) answered to have put much effort into this process.

When being asked how much effort the respondents put into their process of job search, 16.3% of GenY and 0% of Baby Boomers indicated to have spent *very little effort*. The answer category *little effort* was chosen by 18.4% of GenYers and 11.5% of Baby Boomers*, neither little nor much effort* was chosen by 38.8% of GenYers and 46.2% of Baby Boomers. *Much effort* was indicated to be given to the process of job search by 26.5% of GenYers and 38.5% of Baby Boomers. The answer category *a great deal of effort* was chosen by 0% of GenYers and 3.8% of Baby Boomers only.

P_{5c}: The perceived effort engineers have put into their job search is positively related to the number of applications that have sent before receiving the first offer for a full-time employment as an engineer.

The Pearson Correlation of .453 leads to the conclusion of a weak positive relationship between the two variables of effort and number of applications that are significant (.000)

and consequently this correlation will not be observed in the population with a chance of 0,0%. This outcome does not support proposition 5c.

Hours spent job searching

When being asked about how many hours they spent job searching within an average week, 24.1% indicated to have searched one hour or less, 38.6% spent one to five hours on this procedure, 30.1% indicated to have spent five to ten hours, and the remaining 7.2% spent ten hours or more on this process.

Looking at the hours spent job searching with regard to each of the generations, 36.7% of GenYers indicated to have spent one hour or less, whereas none of the Baby Boomers spent so little time on this process. The answer category one to five hours has been named by 36.7% of the representatives of GenY and 50% of the Baby Boomers. 24.5% of GenYers indicated to have spent five to ten hours, whereas this answer was chosen by 38.5% of Baby Boomers. Only 2% of the GenYers indicated to have spent ten to twenty hours and still 11.5% of Baby Boomers marked this answer. None of the respondents indicated to have spent more than 21 hours.

P_{5a}: There is a negative relationship between the hours spent job searching and age.

The Pearson Correlation of .434 indicates a positive relationship between the hours spent job searching and age. Consequently, the hours spent job searching increases with age. This does not support the proposition 5a as it states that the number of hours spent job searching decreases with age.

P_{5b}: The hours engineers spent on the process of job search are positively related to the perceived effort they have put into the process of job search.

The Pearson Correlation of .641 indicates a positive relationship between the hours engineers have spent on their job search procedure and the perceived effort they have put into the search process. This supports the stated proposition. The test of significance with a value of .000 indicates that the variables do not correlate with a percentage of 0% in the population being observed. Thus, it can be concluded that this positive relationship would be observed in the population as well. This outcome supports proposition 5b and shows that the engineers are able to estimate their effort in an appropriate manner as we are dealing with a subjective measurement.

Sources

Regarding the kind of sources that are used, 85.5% of all respondents looked at companies' websites, 50.6% made use of local newspapers, 34.9% used job boards, 24.1% deployed nationwide newspapers, 22.9% visited job fairs, 13.3% involved an employment agency, and 8.4% of all respondents made use of other sources as well. The following bar chart gives an overview of the means of the used sources separated for GenY and Baby Boomers.

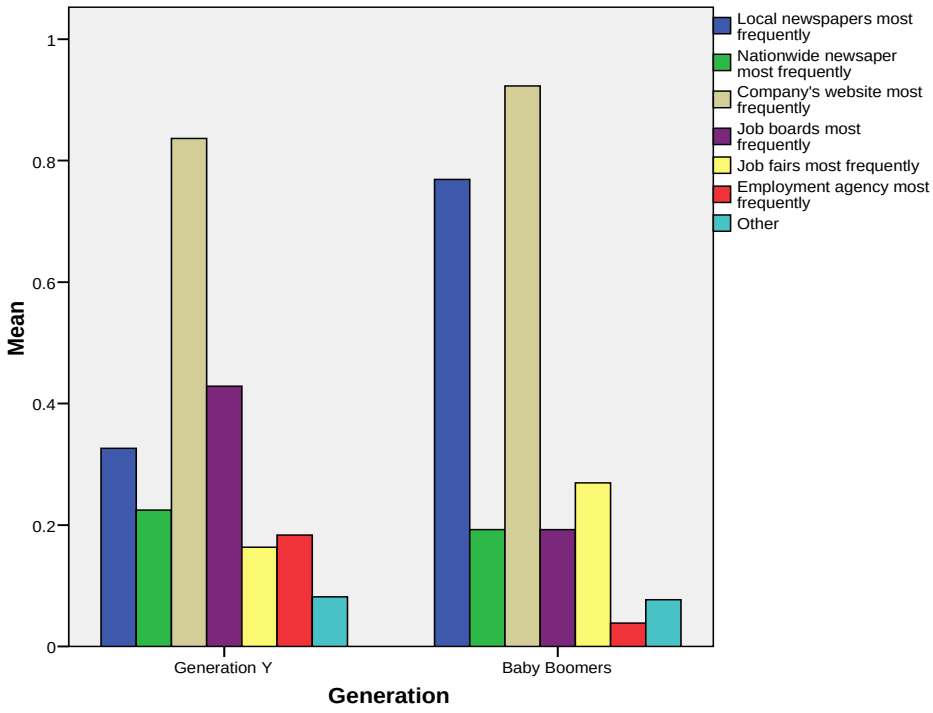

Fig. 8: Boxplot Sources

When asking the sample about how they found out about the job advertisement for their current position (Q 19), 33.7% indicated to have found this in a local newspaper, 2.4% in a nationwide newspaper, 42.2% on the company's website, and 8.4% have found the advertisement for their current position on a job board. 27.7% of the sample indicated to have found out about the advertisement for their current position through their network, 4.8% were informed about it on a job fair, 8.4% got to know about it while doing an internship in that company, and 8.4% answered that they found out about it through an employment agency.

The following table gives an overview of the percentages of the two generations who found out about their current positions via a certain channel. In this case, multiple

answers were possible as respondents might have found out about their positions via various channels and not only a single one.

	Generation Y	Baby Boomers
Local newspapers	20.4%	61.5%
Nationwide newspapers	0%	3.8%
Company's website	38.8%	50%
Job board	6.1%	3.8%
Personal network	28.6%	26.9%
Unsolicited application	4.1%	0%
Job fair	6.1%	3.8%
Internship	14.3%	0%
Employment Agency	12.2%	3.8%

Table 8: Sources current position

P_{3a}: Experienced engineers tend to make more use of local newspapers than of companies' websites to find out about vacancies during their job search process.

Regarding the results of the sources used most frequently, Baby Boomers tended to make more use of companies websites than of local newspapers. When asked about how they found out about their current position, 61.5% of the Baby Boomers answered local newspapers and 50% company website. Consequently, the stated proposition that experienced engineers tend to make more use of local newspapers than of the Internet cannot be supported.

P_{3b}: Inexperienced engineers tend to make more use of companies websites' than of local newspapers to find out about vacancies during their job search process.

The outcome of the sources used most frequently, clearly shows that inexperienced engineers tend to make more use of companies websites than of local newspapers. The answers to the question were they found the advertisements for their current position shows that 38.8% found the advertisement via the company's website and 20.4% via local newspapers. The proposition can be supported by making use of the results shown in Figure 8, but this aspect needs further attention in future research.

Use of the Internet

The following table gives an overview of the usage of the Internet for searching jobs. 89.8% of GenYers and 88.5% of Baby Boomers in this sample use the Internet for searching jobs. Only 10.2% in comparison to 11.5% indicate not to include the Internet in their job search procedure.

	Generation Y	Baby Boomers	Total
Using the Internet for job search	89.8%	88.5%	89.3%
Not using the Internet for job search	10.2%	11.5%	10.7%
Total	100%	100%	100%

Table 9: Use Internet for job search

Websites

Respondents were asked to indicate which websites they visited most frequently to search for open positions. The following two lists include a ranking of these websites according to nationalities.

German websites	Dutch websites
1. Stepstone.de 2. VDI – vdi.de 3. Ingenieur24.de 4. Monster.de 5. Google.de 6. Ingenieurkarrier.de 7. Joppilot.de / Experteer.de 8. Meinestadt.de / ectif.de 9. Arbeitsagentur.de	1. Monster.nl 2. Google.nl 3. Stepstone.nl 4. Intermediair.nl 5. Nationalevacaturebank.nl 6. Experteer.nl/ Qompas.nl 7. Academictransfer.nl 8. Vacaturekrant.nl / Jobtrack.nl / 9. h20job.nl / Career Centre Twente – cctwente.nl

Table 10: Ranking websites

Way of applying

When being asked about how they applied for their current position, 14.3% of the GenYers indicated to have applied by making use of a traditional application via mail in comparison to 73.1% of the Baby Boomers in this sample. 40.8% of the GenYers used an application by e-mail in comparison to 26.9% of the Baby Boomers. 18.4% of the GenYers indicated to have made use of the own network was indicated by, whereas none of the Baby Boomers indicated to have done the same. Online application forms were only used by 2% of GenYers and 6.1% applied personally on a job fair. 10.2% of

the GenYers indicated that they did not have to apply for their current position as the position was formulated around them.

4.2.4. Networking

When being asked who was or is influential in helping to find a full-time job or career, multiple answers were possible. 20.5% indicated family, 19.3% friends, 2.4% relatives, 45.8% colleagues, 48.2% former colleagues, and 6% indicated other relations to be of influence. 18.1% indicated that this question was not applicable because they did not make use of contacts for searching jobs. The following table shows the percentages according to the two generations.

	Generation Y	Baby Boomers
Family	28.6%	3.8%
Friends	24.5%	11.5%
Relatives	4.1%	0%
Colleagues	46.9%	46.2%
Former Colleagues	36.7%	69.2%
Other	4.1%	3.8%
Not applicable	16.3%	23.1%

Table 11: Who was/is most influential?

Kind of contacts used

P_{4a}: Engineers making use of networking during their job search are more likely to make use of weak than of strong ties.

The measurement and definition of strong and weak ties is being taken from Granovetter (1973). I included the additional answer category *not applicable* for those not making use of contacts during job search. 18.1% of the total sample (N= 83) indicated not to have used contacts during their process of job search. Of those finding a job through contacts 19.3% reported that they saw their contact often, 44% said occasionally, and 36.7% rarely (N = 68). The skew in this case is clearly to the weak continuum. This outcome supports proposition 4a.

Regarding the outcomes of question 27, including social network characteristics, there are two items revealing a significant difference between GenY and Baby Boomers. Baby Boomers on average score higher (.017) on the item *Can count on many acquaintances* (M = 3.46, SD =.811) than GenYers (M = 2.94, SD =.922) as well as on the item *Can count on many colleagues and former colleagues* (Baby Boomers: M = 4.27, SD = 1.116 and GenY: M = 3.45, SD = .792).

Question 28 asks about the kind of contacts. In this case significant differences could be found with regard to the item *Most people who might help me find a job are people I know very well* (.005) with GenYers on average score higher (M = 2.82, SD = 1.054) than Baby Boomers (M =2.04, SD = 1.183). Baby Boomers on average score higher on the item *Most people who might help me find a job are people I hardly talk to* (M = 3.77, SD =.992) than GenYers (M = 3.14, SD =1.173).

Professional networks

P_{4b}: Engineers being a member of a professional network like Xing or LinkedIn are likely to make use of these networks during the process of job search.

62.7% indicate to be a member of a professional network, 30.1% are a member of Xing, 34.9% of LinkedIn, and 1.2% indicate to make use of another professional network. 36% of those being a member of Xing (n = 25) make use of Xing during their job search. Regarding the members of LinkedIn (n = 29), 44.8% make use of this professional network during their job search.

The following table shows the answers to the statement whether professional networks are considered to be useful for searching jobs distinguishing whether the respondent him/herself makes use of a professional network or not.

Member of professional network * Consider networks to be useful Crosstabulation

			Consider networks to be useful					
			strongly disagree	disagree	neither agree, nor disagree	agree	strongly agree	Total
Member of professional network	Yes	Count	4	23	10	11	4	52
		% within member of professional network	7.7%	44.2%	19.2%	21.2%	7.7%	100.0%
	No	Count	14	11	5	1	0	31
		% within member of professional network	45.2%	35.5%	16.1%	3.2%	.0%	100.0%
Total		Count	18	34	15	12	4	83
		% within member of professional network	21.7%	41.0%	18.1%	14.5%	4.8%	100.0%

Table 12: Usefulness of networks

The t-test for equality of means reveals that there is a significant difference between the average score of respondents being a member of a professional network (n = 52, M = 2.77, SD = 1.113) and those being no member of a professional network (n = 31, M = 1.77, SD =.845) regarding the item *I consider professional networks to be useful for searching jobs*, the p-value of .000 indicates a significant difference. The stated proposition could not be supported because the rate of those using professional networks is relatively low.

4.3. Secondary data analysis

The data for this analysis has been taken from a research which is marked as confidential. Therefore, the outcomes are not being shown in this public version.

4.4. Major findings

In the survey 13 of 25 items of question 10 revealed significant differences with regard to job orientation of GenYers and Baby Boomers. GenYers scored significantly higher on eight of these items, whereas Baby Boomers scored significantly higher on the remaining five items. Regarding the items of question 11, seven of the 26 items revealed significant differences between the two generations. The qualitative analysis gave reason to focus *on job security, personal development (training), salary, location, and gaining experience*. Regarding these items, significant differences could be found for all of them except for location and gaining experience.

Within the survey that has been made use of for the secondary data being analysed in the previous chapter, some of the items of Manhardt (1972) have been included which allows easy comparison. The following table gives an overview of the means of these items with regard to the present research, the secondary data, and Manhardt's study.

	Present research		Secondary Analysis			Manhardt	
	Generation Y	Baby Boomers	1.*	2.**	3.***	Male	Female
Requires originality and creativeness	3.98	2.69	3.73	3.66	3.85	4.22	4.01
Encourages continued development of knowledge and skills	4.33	3.81	4.04	3.82	3.85	4.56	4.55
Provides change and variety in duties and activities	3.88	3.04	3.92	3.97	3.93	3.84	4.12
Is intellectually stimulating	3.94	3.77	4.21	4.33	4.09	4.40	4.54
has clear rules and procedures to follow	2.78	3.35	2.42	2.49	2.39	2.20	2.37
permits a regular routine in time and place of work	2.96	3.08	2.40	2.31	2.28	2.37	2.48
permits you to develop your own methods of doing the work	3.49	3.35	3.75	3.79	3.78	3.77	3.72
provides job security	3.86	4.46	3.24	3.22	3.26	3.68	3.63
permits advancement to high administrative responsibility/advancement and chances for promotion	2.90	4.12	3.89	3.49	3.11	4.27	3.40
Company reputation/image	3.37	4.00	3.49	3.74	3.67	not included	not included

* Respondents aged 31 to 40 years ** Respondents aged 41 to 50 years *** Respondents aged 51 years or older

Table 13: Comparing means of different studies

Manhardt's sample scores highest on *requires originality and creativeness, encourages continued development of knowledge and skills* and *is intellectually stimulating*. The female respondents of his sample score highest on the item *provides change and variety in duties and activities*. Whereas the sample of the present research scores highest on *has clear rules and procedures to follow, permits a regular routine in time and place of work,* and *provides job security.* The item *permits advancement to high administrative responsibilities* reveals the highest scores with regard to the Baby Boomers generation of the present sample and the male respondents of Manhardt. The item *company reputation* has not been included in Manhardt's sample and reveals the highest scores with regard to the Baby Boomers generation of the present sample.

Having a look at the *strategy development*, both generations tended to make use of a *focused strategy*; however, the experienced engineers scored higher on the *focused strategy*. This does not support the indication given by the interviews as the answers

revealed that the experienced interviewees tended to make use of a focused and the inexperienced engineers of a more *exploratory strategy*. The measurement of the *choice method* revealed that experienced engineers made their choices on a *rational* basis whereas inexperienced engineers made their choices based on *intuition*. This data could not be enriched by the secondary data analysis because the type of strategy had not been part of that research.

Having a look at the *job search activities*, the propositions could be supported that the perceived effort engineers put into their job search is positively related to age and that the hours engineers spent on the process of job search are positively related to the perceived effort. Regarding the *job search sources* being used, some discrepancies became apparent. Whereas the inexperienced interviewees clearly focused on the Internet and the experienced on local newspapers, the survey revealed that inexperienced engineers tended to look at company websites most frequently. But when being aksed where they found out about their current position, they tended to make use of a mixture of job search sources, namely company websites, personal networks, and local newspapers. Regarding the experienced engineers, there was more consistency with regard to these two questions because they scored highest on local newspapers and company websites in both of them. The percentage of the experienced engineers making use of local newspapers in the survey (61.5%) is similar to the one being revealed by the secondary data analysis (61.9%) and consequently supports the proposition that experienced engineers tend to focus on this job search source. However, the usage of the Internet was higher among the research sample of the secondary data analysis (81.3% looked at vacancy sites and 87.5% looked at websites of companies) than of the present research sample (50% looked at company websites).

5. Discussion & Conclusion

5.1. Limitations

This research has some limitations resulting from different parts that had to be considered: the model, the interviews, and the survey.

Limitations of constructed model

The qualitative model that has been constructed in the theoretical part of this thesis relies on a model describing the recruitment process of Barber et al. (2004); therefore, it might be the case that it has not been sufficiently looked at other subjects influencing the job search process. Job search objectives can be very diverse and therefore might not be sufficiently covered by the concepts that have been used in the survey. Moreover, it was not possible to include all contingency factors. One contingency factor has been part of this research, but not explicitly been mentioned in the constructed model, i.e. technology. The change of technology is influencing the way to search and apply for jobs and is therefore an important factor of the present research.

Limitations of interviews

However, it has been made clear to the interviewees that their data will be handled anonymously; they may have chosen not to make known a certain kind of information as they regard it as sensitive and do not want to give it away to a stranger of whom they do not know if he is trust-worthy. If this is the case for important information for the research, the process of data gathering remains incomplete. Another potential problem is the lack of time we are dealing with when talking to time-pressed interviewees. Time pressure can make the data gathering incomplete as well, due to the fact that interviewees decide not to give complete answers as they consider it to be too time-consuming or they give answers consisting of opinions that have been created under pressure. In such a case the data cannot be considered to be reliable. Obviously, the respondents would not let me know; therefore I have no alternative but to trust that answers given to me consist of opinions that would not have been created due to time pressure. Furthermore, it might have been the case that interviewees wanted to appear knowledgeable and rational. And they consequently constructed a story that is logical and consistent but does not reveal their real process of job search.

Only one engineer has actually been looking for a job. During this interview it became obvious that he had much more to tell about his job search than those engineers did,

who had been searching for jobs some time ago. I entered the interviews with some key questions, other questions aroused during the conversation. Due to the experience gained while conducting the interviews, my questions became more focused, and there might be a concern about imposing my own reference frame on the interviewees that have been interviewed on a later stage. In addition, the process of gaining information depends on the interview skills as well. As I know some of the interviewees personally, it was easier for me to obtain trust and hereby ensure that I will be provided with the information I was looking for. This was more difficult with those engineers only having a nodding acquaintance with me; consequently there could be an imbalance. Another aspect to consider is the location for the interviews. Some of the engineers have been at home during the call while others have been in their offices. For those answering questions in their office, it might have been difficult to answer questions freely as they might have been afraid of someone listening to their answers given. In such a case, it might have been possible that I do not get access to some kind of interesting information. Furthermore, I have to be aware of the fact that the level of English was not the same among all interviewees. Therefore, I gave them the possibility to answer in German as well. Due to the translation process, the meaning of the data might have changed in a certain way.

Limitations of survey

The survey has a small sample size of n = 83 which makes it hard to allow generalizations to a bigger group. The respondents originate from various different groups, i.e. different nationalities, different studies or different universities, which makes generalizations difficult to apply. Moreover, the respondents do not only originate from two different generations (Baby Boomers and GenY), but the survey also includes respondents of Generation X and Traditionalists. Due to the various distribution channels of the survey, the response rate can be considered being very low, but no exact percentage can be mentioned. In first instance, I have not been informed how many alumni of the University of Twente the survey has been sent to, how many alumni have access and use the alumni website of the Fachhochschule Köln or Münster the survey has been put on, and how many respondents have been contacted through the VDI. Therefore, the access to engineers has been restricted, and the motivation to participate has been quite low as well. However, it has been possible to reconstruct that the respondents did not refuse to participate after having a look at the stated questions at thesis tools. As questionnaires that have not been completely filled

in, have been saved as well. Only six respondents broke up the process of answering the questions. This could be attributed to several factors and does not even allow assuming that these respondents decided not to completely fill in the survey due to its length or the type of questions being asked. Another line of interpretation could be that they had time restrictions at the moment they started the survey and decided to complete the survey at a later stage. This statement can be supported by the fact that some of the basic information that has been entered within these six questionnaires could be found similarly in completed questionnaires a few days later.

5.2. Discussion & Conclusion

The focus of the present study was on generational differences regarding the job search behaviour of engineers. The basic assumption was that there are differences in the job search behaviour of experienced engineers being aged 45 years or older and inexperienced engineers being aged 30 years or younger.

Job search objectives

A number of significant conclusions emerge from the analysis in chapter 4. The results indicate that some of the values and preferences differ significantly when being applied to engineers of different generations. On average inexperienced engineers scored higher on the items *originality and creativeness, makes use of specific educational background, encourages continued development of knowledge and skills, involves working with pleasant colleagues, provides much leisure time off the job, provides change and variety in duties and activities, requires meeting and speaking with many people* and *provides a feeling of accomplishment* belonging to the list of values and preferences being used in question 11.

The experienced engineers scored higher on the items *provides job security, gives you the responsibility for taking risks, permits advancement to high administrative responsibility, has clear rules and procedures to follow, and requires supervising others.*

The results of the quantitative part support the outcomes of the interviews where it becomes obvious that the experienced engineers who have been interviewed tend to put more emphasis on job security. This is also being supported by Kupperschmidt (2000) suggesting that long-term planning and job security play an important role in the context of Baby Boomers work values. The differences with regard to personal development being revealed in the survey have not been obvious during the interviews. The answers do not make clear whether respondents clearly distinguished between

personal development and *gaining experience* or whether they refer to it as belonging to the same concept. Personal development could be seen as a means to gain experience but not be viewed separately. Therefore, it might be an interesting approach to discuss the outcomes of the survey with a group of engineers to gain a greater understanding of this phenomenon. The quantitative part reveals that GenYers on average score significantly higher on the items encourages *continued development of knowledge and skills,* and *training*. These findings are in line with Broadbridge et al. (2009) suggesting that GenYers have a drive for career success and linear promotion and highly value professional development (cp. Eisner, 2004).

Within the interviews nine engineers, five of them were experienced and four inexperienced, mentioned salary as one of the most important aspects. The survey revealed a significant difference on this item which was labelled as *Pay*. The fact that a difference was not to be foreseen within the interviews surely depends on the certainty that the sample for the interviews was very small. However, there could be other reasons as well like the observation that all nine engineers mentioning salary as an important aspect were male, and six of them obtained a degree in mechanical engineering. The finding that the scores on *salary* of experienced and inexperienced engineers differ significantly could be attributed to the theory of Eisner (2004) suggesting that this generation is less addicted to making money and consequently does not give the same importance to the item *salary* as other generations probably do. GenYers scored significantly high on the item *provides much leisure time off the job.* This is an aspect being mentioned by Eisner (2004) and Broadbridge et al. (2006) who both suggest that this generation strives to achieve a work-life balance which can only be achieved by finding a mixture of work and leisure time off the job. Another line of interpretation is that the tendencies discussed depend on the different life stages of the respondents, concluding that *daycare and/or maternity* play a more significant role for those already having a family.

During the interviews it became obvious that four of the engineers being labelled as experienced put emphasis on the location of the company, whereas this aspect has not been mentioned by the inexperienced interviewees. The survey did not reveal a significant difference regarding the item *location*. This could be attributed to the fact that not one of the groups puts more emphasis on this item than the other or that the item was not understood properly. GenY had a mean score of 3.92, whereas the Baby Boomers had a mean score of 3.62. Revealing that this item is seen as relatively important by both groups. It might be necessary to phrase this item differently in order

to find out whether respondents think that the *location* of the company is seen as important in the way that they want to find a job close to their home town or whether they see *location* as an important aspect as they prefer certain regions, but do not put an emphasis on staying were they live at the moment, for instance. Unfortunately, the *location* has not been included in the secondary data analysis which would have added value and perhaps would have given more meaning to the outcomes of the present study.

Regarding the standard deviations of question 10 and 11, the mean standard deviations of Baby Boomers (Q10: .8732; Q11: .8893) are generally higher than those of GenY (Q10: .82804; Q11: .821). This indicates that regarding their job orientation Baby Boomers are a less homogeneous group than GenYers.

When I controlled for nationality, a number of differences became apparent as well, with German engineers scoring higher on *provides job security, permits advancement to high administrative responsibilities,* and *permits you to develop your own methods of doing the work.* Dutch engineers on average scored higher on *involves working with pleasant colleagues* and *is intellectually stimulating.* Also the items being included in question 11 revealed some differences with German engineers scoring higher on *job security* and *turnover* whereas Dutch engineers of this sample put more emphasis on *benefits* than their German counterparts.

Comparing the means to the outcomes of Manhardt (1972) studying the job orientation of male and female graduates in business, it becomes obvious that his sample on average scored higher on the items being mentioned in section 4.4. that raises the question of whether the occupation of engineers differs from those obtained by business students and gives implications for further research. The major difference identified by Manhardt (1972) between the job orientation of men and women is the importance placed on long-range aspects being related to career success. The women of his sample rated career success lower in importance than men. Manhardt's analysis relies on completed questionnaires of male and female college graduates being appointed during the years 1966 and 1970. Regarding the fact that Manhardt was dealing with college graduates in those years, it can be concluded that his respondents belong to the Baby Boomers generation or the Traditionalists. The secondary data analysis revealed that the group of engineers aged 31 to 40 years scored significantly higher on the item *advancement and chances for promotion* than the group of engineers aged 41 to 50 years. This outcome could also lead to the conclusion that the desire for advancement and chances for promotion decreases over the years as the

engineers have achieved their personal goals and are satisfied with their current state of affairs and responsibilities. A similar development could be attributed to the item *company reputation* being labelled as *company image* within the secondary data analysis. The engineers aged 41 to 50 scored significantly higher on this item than the group aged 31 to 40 years. This group also had a higher mean score than the inexperienced engineers of the present research. These differences could either be attributed to generational attributes or to different life stages of the engineers. Further research will be needed to determine the validity of such generalisations.

Job search strategy

The interviews revealed that the experienced engineers participating were more focused on certain positions, whereas the inexperienced engineers tended to be more willing to explore their opportunities. This raised the question of whether there are differences regarding the strategy being applied by both generations. The survey did not reveal that inexperienced engineers follow an exploratory strategy. Both generations tend to be focused, however, the experienced engineers scored higher on the items representing the focused strategy than inexperienced engineers did. This could also be an explanation for the positive relationship that could be identified between the hours spent searching and age, indicating that the hours spent on this process increase with age. It could be concluded that due to the more focused strategy applied by experienced engineers they spent more time on the job search process to find out about positions that actually imply what they are looking for.

Based on their research results Koen et al. (2010) showed that an exploratory and focused strategy contributes to the number of job offers received by the applicants; unfortunately the number of job offers has not been integrated within the present study. Crossley and Highhouse (2005) presented results suggesting that a focused strategy is positively related to job satisfaction which leads to the assumption that the experienced engineers of this sample have a higher job satisfaction than the inexperienced engineers as these scored lower on the focused strategy.

The outcomes of the survey revealed that experienced engineers scored significantly higher on the items representing the rational than intuitive choice method, whereas inexperienced engineers scored significantly higher on the *intuitive* than *rational choice method*. According to Hammond et al. (1987) intuitive choices are unstructured and often maligned for their failures and shortcomings. This could be an explanation for the fact that the inexperienced engineers participating in this survey, and already having

changed jobs tended to stay shorter with their first position than the experienced engineers of this sample. The results presented by Crossley and Highhouse (2005) also suggested that respondents being engaged in *focused information search* tend to make use of a *rational choice method*. These findings could not be supported as the inexperienced engineers of this sample scored significantly higher on the *focused strategy* than on the *exploratory* but also on those representing the *intuitive choice method*.

Job search activities

The experienced interviewees clearly focused on job search via newspapers whereas none of the inexperienced interviewees indicated to have made use of this source but all made use of the Internet for their job search. The survey revealed that experienced interviewees clearly focused on local newspapers and companies' websites. The inexperienced engineers mainly focused on companies' websites when being asked about the sources used most frequently. When being asked how they found out about their current position, they had made use of a mixture of company websites, local newspapers, and personal networks. The fact that the group of inexperienced engineers makes less use of local newspapers also leads to the assumption that they are more flexible with regard to their job search and do not only look for positions within a fixed region. This is also described as one of the important characteristics with regard to GenY described by Eisner (2004). The finding that GenYers tend to make use of a mixture of job sources could also be attributed to one of the previous findings, namely GenYers being less focused than Baby Boomers with regard to their job search. They probably make use of different sources to explore their opportunities to a certain extent. The outcomes of this research differ from the secondary data analysis in the way that the secondary data indicated a greater use of the Internet with 81.3% looking at vacancy sites and 87.5% at company websites. These discrepancies could be attributed to different sample sizes as well as a different composition of both samples.

Regarding the way of applying for their current position, half of the interviewees made use of traditional applications by mail. Among them were five experienced and three inexperienced interviewees. Six have made use of applications by e-mail among them were four inexperienced and two experienced interviewees. This raised the questions of whether there are differences in the ways both generations apply for positions. This assumption could be supported by the analysis of the survey revealing that 14.3% of GenYers had made use of traditional applications in comparison to 73.1% of the Baby

Boomers. GenYers of this sample made increased use of e-mail applications (40.8%), whereas only 26.9% of Baby Boomers used this way to apply for positions. These differences could be attributed to the fact that GenYers grew up in a digitally connected world, therefore they use this medium differently from Baby Boomers. Unfortunately, the way of applying has not been part of the data being analysed in the secondary data analysis. Therefore, the secondary data analysis cannot be used to support these outcomes.

Networking

GenYers do not rely that much on former colleagues, which surely can be attributed to the fact that they do not have a long career where they could have established contacts to (former) colleagues. GenYers therefore tend to make more use of networks consisting of family (28.6%) and friends (24.5%) than Baby Boomers (3.8% and 11.5%), which could be due to the fact that GenYers are not able to profit from such a well-established network yet or that the relationships have changed and stronger ties tend to play a more significant role than they used to.

However, with regard to the question of Granovetter (1973) that has been included, a similar skew to the weak end of the continuum could be found. Granovetter had a sample size of N = 54 using contacts during job search (in comparison to N = 68 in the present research). 16.7% of Granovetter's respondents using contacts reported that they saw their contact often (in comparison to 19.3%), 55.6% indicated occasionally (in comparison to 44%), and 27.8% rarely (in comparison to 36.7%). The mentioned categories have been used in accordance to Granovetter; however, I consider these categories to make too large a difference between *often* and *occasionally*. *Often* is being defined as at least twice a week and *occasionally* as more than once a year but less than twice a week. The main part of all respondents answered *occasionally*. This cannot solely be attributed to the fact that these respondents mainly make use of weak ties, but also to the increasing use of the Internet. When Granovetter's article has been published in 1973, the changing way of communication did not play such a crucial role as it does today. Due to the fact that the Internet plays an increased role in today's society, I consider Granovetter's categories to have become inadequate. In order to be enclosed in further research, these categories should be modified and include an additional answer category to minimize the gap between them.

The percentage of those making use of professional networks for the process of job search is quite low regarding the present survey. Only 36% of those being a member of

Xing used it for searching jobs, and 44.8% of those being a member of LinkedIn indicated to use it during their job search. These percentages differ from that of the secondary data analysis because 77.8% indicated to make use of professional networks like LinkedIn. These differences could be attributed to several factors. There might be differences in the usage of professional networks among nationalities, which should be studied in a separate research and could especially be useful for companies aiming at attracting employees on an international basis. It can be concluded that respondents not being a member of a professional network decided that way as they do not consider these networks to be useful for their job search. However, the data collected does not indicate whether the respondents who indicate to consider these networks not to be useful for job searching, have tested them themselves or rely on the opinion of others.

At the beginning of this research, I have already made the decision to exclude social networks consisting of friends like Facebook from further consideration. Regarding the results of the secondary data analysis, this decision could be supported as the usage of these kinds of networks for the process of job search is marginal (7%).

Conclusion

To conclude, it can be said that there are differences in the way experienced and inexperienced engineers search for jobs. These lie in different stages of the job search process of the model being developed in Chapter 2 and consequently, engineers cannot be referred to as a homogeneous group.

The major differences could be found with regard to the job search objectives where the analysis revealed that there are significant differences on several items and that the experienced engineers of the sample tended to put more emphasis on job security. The inexperienced engineers scored higher on personal development; however, a clear distinction between gaining experience and personal development could not be made. Another interesting finding was that the outcomes suggest that both groups do not make use of different strategies as they both scored high on items representing the focused strategy. However, no significant differences could be found with regard to the type of strategy, the experienced engineers tended to score higher on these items. Moreover, the interviews raised the question of whether inexperienced engineers tend to put more emphasis on the job search via Internet whereas experienced engineers make more use of a mixture of sources. The analysis revealed that experienced engineers focus more on local newspapers and company websites whereas

inexperienced tend to make use of a mixture of company websites, local newspapers, and personal networks.

With regard to Granovetter's strength of weak ties hypothesis, the data supported his outcomes. However, it raises the question, whether the categories being used should be modified in order to fit into the sources being used regarding the fact that the technology has changed a lot since his research has been conducted. The data being collected reveals that very few engineers participating in this survey make use of professional networks for their job search, whereas the secondary data analysis revealed a high percentage (77.8%) of users of social media.

The differences in job search behaviour of experienced and inexperienced engineers give implications for further research as well as for employers to attract this occupational group more successfully. These aspects will be discussed in the following sections.

5.3. Future research

One aspect to be addressed in future research could be a longitudinal research design to observe whether the job search objectives of engineers change from the time period after their graduation to a later stage. This would require studying the same objects during several stages in their career and might be difficult to establish. Moreover, the willingness to participate within such a study might not be present as has been realised that engineers are difficult to be recruited to participate in this kind of research.

Another approach would be for companies to study the engineers currently working for them to find out what they feel attracted by and why they decided to accept a position within this company. This could give employers implications of how to attract more of these engineers feeling attracted by certain attributes of the company. However, this might lead to a workforce not being diverse and consequently being not of great interest for the company. But the willingness for engineers to participate in a survey for their own company might be much higher and lead to a greater research sample than the present study did.

This research did not only reveal generational differences, but differences with regard to values and preferences between different nationalities as well. This is an important aspect, especially for companies operating in an international environment and therefore deserves special attention in future research. Another aspect to consider would be differences between male and female engineers. This is especially interesting for companies who want to address more females in an occupation still being

dominated by men. Studying gender differences could give companies implications of how to attract female engineers more successfully. Moreover, this survey suggests conducting additional research about the use of social media in the process of job search as there are large differences on the usage of professional networks like Xing or LinkedIn regarding the present research and the secondary data set that is being analysed in section 4.3.

5.4. Recommendations for employers

When looking at the process of how to attract engineers successfully to their organization, there are implications resulting of the present research they should keep in mind:

1. ***Addressing values and preferences according to target group*** Employers should make clear what kind of engineer they wish to address whether they try to fill an entry level position or are searching for someone already having obtained years of practical experience. After this choice has been made, they can formulate the advertisement according to their target group keeping in mind that the different generations have other values and preferences with regard to vacancy and organizational characteristics being discussed in section 4.2.
2. ***Carefully consider where to place advertisements*** The employers should not only carefully consider what aspects they want to address within their advertisement but also where to place it. Local newspapers, for instance, are a useful tool for addressing experienced engineers whereas inexperienced mainly focus on the job search via the Internet. Companies, therefore, should place their advertisement on a well-structured website to make it easy for applicants to find out about open positions. Some ideas of job boards employers could make use of in order to link their advertisements are being mentioned in section 4.2.4.
3. ***Offer ways of applying in accordance to target group*** Moreover, employers should carefully consider which ways of applying they want to offer to their candidates. The experienced engineers of this survey clearly focused on traditional applications, which makes it necessary to provide them with suitable contact details, whereas inexperienced engineers seem to be more satisfied when being provided with e-mail addresses. The analysis also revealed that only 2% of the GenYers made use of online application forms leading to the

assumption that the usage of these forms is not highly appreciated. This can be supported by some of the statements made during the interviews as the interviewees suggested that they want to be provided with contact details instead of being forced to make use of online application forms.

4. ***Encourage own employees to attract new ones*** The survey as well as the secondary data set revealed that networking is a powerful tool during the process of job search. In this context, it seems to be valuable for employers to encourage employees to attract new ones. This could be done by communicating that employees are being provided with boni in case they recommend someone to the organization who finally accepts a position. The bonus system should include that employees receive the bonus when the new applicant has stayed within the company for a certain period of time.

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APPENDIX

A. Interview Questions

General information

Year of birth:
Sex:
Years of work experience:
Year of engineering degree:
Year of last application:

Questions

1. What did you want to achieve when you started your job search?
2. What was most/least important to you?
3. Have your expectations been met?
4. Did you intend to receive diverse job offers? If yes, how did you try to?
5. Did you achieve a great variety of job offers? Have there been meaningful differences? Which ones?
6. What did you spent on your job search in terms of money and time?
7. Do you think that your expectations have changed over the last years? If yes, to what extent?
8. How did you search for a job? Did you follow a certain procedure? Please explain.
9. Did you have a focus during your search with regard to type of organization, kind of job, position, industry, region etc.?
10. Did you screen potential employers carefully before applying for a position? How did you do this?
11. Tell me about the kind of positions you applied for.
12. For more experienced engineers: Do you feel that your procedure of searching jobs has changed in comparison to how you have searched jobs after your graduation? If yes, to what extent?
13. How did you apply for your current position?

14. Which sources (like friends, newspapers etc.) did you involve during the process of job search?

15. Which source was most influential in finding your current position?

16. Which websites did you visit most frequently?

17. Did you make use of professional networks (like XING) during your search? Do you consider these networks to be useful for searching jobs?

18. What specific changes (if any) would you like companies to make in their on-line recruiting to make job hunting more “applicant-friendly”?

19. How many applications did you approximately send to potential employers before you received a job offer?

20. How many job offers did you receive?

21. How long did it take you from starting the application procedure to accepting a job offer?

22. What makes you apply for a position that is being advertised?

23. What do you consider to be important with regard to compensation and benefits?

24. What type of business strategy should a company communicate to make you feel attracted?

25. Which kind of culture and values do you put emphasis on when choosing an organization?

26. Are organizational characteristics (average age, percentage of females etc.) important to you? If yes, where do you put emphasis on?

27. Is the company’s reputation an important aspect when you decide to work there?

UNIVERSITY OF TWENTE.

Bernadette Oeinck

Weilautstraße 29b
48607 Ochtrup
Germany

Ochtrup, 25 January 2011

„Research on job search behaviour of engineers"

Dear Sir or Madam,

My name is Bernadette Oeinck, I am a Master student in Business Administration at the University of Twente in Enschede. I am working on my master thesis with the topic "Job search behaviour and job search sources of engineers" to finalise my studies. This thesis is being supervised by Dr. Martijn van Velzen. The intention of this research is to find out how engineers search for jobs and where they put their emphasis on when deciding to accept a position. The results of this research should give employers implications of how to attract this occupational group more successfully.

This quantitative analysis is the second part of my research as I have previously interviewed a group of 16 engineers. These interviews revealed that there seems to be a difference between the job search behaviour of engineers aged 30 years or younger and engineers aged 45 years or older. In order to investigate this topic, I am going to compare these age groups within this research.

I ask you kindly to participate in this interesting and meaningful study in order to assess new outcomes concerning the job search behaviour of your profession. If you are interested you can enter your email address at the end of this survey to receive the results. Your effort will be highly valued, furthermore you have the possibility of **winning a 20€ Amazon gift voucher** when completing this questionnaire until February, 10th via the following link:

www.studentenforschung.de/web/?id=170803

If you have any questions, please contact me using the e-mail address below.

Thanks in advance!

Bernadette Oeinck
b.oeinck@student.utwente.nl

B. Survey Questions

Dear Sir or Madam,
the completion of this questionnaire will take approximately 15 minutes. If you wish to receive the results and/or participate in the drawing of an Amazon gift voucher, please enter your e-mail address at the end of this survey. The results will be treated anonymously.

Thank you for your assistance in this matter!
Bernadette Oeinck

1. Gender
-- please choose --

2. Year of birth

3. Your Nationality
[ ] Dutch
[ ] German
[ ] Other, please specify:

4. Year of engineering degree

5. Highest degree
[ ] Bachelor
[ ] Master
[ ] Diplom
[ ] Doctor's degree
[ ] Other, please specify:

6. Type of study programme
[ ] Electrical Engineering
[ ] Mechanical Engineering
[ ] Civil Engineering and Management
[ ] Construction Management and Engineering
[ ] Industrial Design Engineering
[ ] Other, please specify:

7. How often have you changed jobs after your graduation?
[ ] Not at all
[ ] Once
[ ] Twice
[ ] Three times
[ ] Four times
[ ] Five times or more

8. How long have you stayed with your first job after your graduation?

9. How long have you stayed with your former position?

JOB SEARCH OBJECTIVES

The first section asks about values and preferences to find out which objectives engineers have with regard to the kind of job they are searching for as well as job and organizational characteristics someone is searching information about. This will provide an overview where engineers put their emphasis on. The following list consist of 25 job characteristics and you are kindly asked to indicate how important you consider these aspects to be.

10. How important is it to you to have a job which...

	unimportant	somewhat unimportant	neither important, nor unimportant	somewhat important	important
requires originality and creativeness?					
makes use of your specific educational background?					
encouraged continued development of knowledge and skills?					
is respected by other people?					
provides job security?					
provides the opportunity to earn a high income?					
makes a social contribution by the work you do?					
gives you the responsibility for taking risks?					
requires working on problems of central importance to the organization?					
involves working with pleasant colleagues?					
provides much leisure time off the job?					
provides change and variety in duties and activities?					
provides comfortable working conditions?					
permits advancement to high administrative responsibility?					
permits working independently?					
rewards good performance with recognition?					
requires supervising others?					
is intellectually stimulating?					
satisfies your cultural and aesthetic interests?					
has clear rules and procedures to follow?					
permits you to work for superiors you admire and respect?					
permits a regular routine in time and place of work?					
requires meeting and speaking with many other people?					
permits you to develop your own methods of doing the work?					
provides a feeling of accomplishment?					

11. How important is it to you to find information about the following job and organizational characteristics when looking for a job…

	unimportant	somewhat unimportant	neither important, nor unimportant	somewhat important	important
Pay					
Benefits					
Job type					
Advancement					
Business/industry					
Hours					
Location					
Job security					
Coworkers					
Training					
Atmosphere or culture					
Number of openings					
Working conditions					
Transfer and relocation					
Company reputation					
Supervision					
Company size and age					
Turnover					
Hiring practices					
Daycare and/or maternity					
Diversity and Equal Employment Opportunity					
Qualifications required					
Ability to use skills					
Challenge and responsibility					
Meaningful work					
Autonomy and input					

JOB SEARCH STRATEGY

This section consists of questions related to the strategy you are following when searching for a job. In this context, it is interesting to find out how information about jobs has been gathered and on which basis choices are being made. This can give employers indications of how presenting information about open positions to potential candidates.

12. Information search strategy

Please indicate to what extent you agree or disagree with a certain statement.

	strongly disagree	disagree	neither agree, nor disagree	agree	strongly agree
My job search was more or less haphazard					
My approach to gathering job-related information could be described as random					
I used a “hit or miss” approach when gathering information about my job					
I did not really have a plan when searching for my job					
I followed up on every lead to make sure I didn’t miss any golden opportunities					
I tried to get my resume out to as many organizations as possible					
I followed up on most leads, even long shots					
I gathered as much information about all the companies that I could					
I examined all available sources of job information (e.g., employment centres, friends, internet sites, etc.)					
I gathered information about all possible job opportunities, rather than setting out for something specific					
I gathered information only for job openings that looked like what I wanted					
I gathered information only for jobs that I was really interested in					
My information gathering efforts were focused on specific jobs					
I gathered information only for jobs that I knew I would qualify for					
I targeted my job search toward a small number of employers					

I had a clear idea of what qualities I wanted in a job					

13. Rational and intuitive choice method
Please indicate to what extent you agree or disagree with a certain statement .

	strongly disagree	disagree	neither agree, nor disagree	agree	strongly agree
When making my decision, I carefully considered the pro's and con's of working there					
My job choice was guided by careful consideration					
In choosing this job, I carefully considered its advantages and disadvantages					
I chose my job in a logical and systematic way					
Before choosing my current job, I double-checked information sources to be sure I had the facts right					
I relied upon my instincts about this job					
I trusted my inner feelings and reactions when choosing to accept this job					
My choice to take this job was guided by intuition					
In deciding among jobs, I made the decision that felt right to me					
When I chose this job, it was more important for me to feel the decision was right than to have a rational reason for this					

JOB SEARCH ACTIVITIES

Whereas the first two sections have mainly been about the cognitive part of job search, the following questions ask about activities you are carrying out. These questions are being asked to find out about sources that are being used, the effort spent on the procedure, and ways to apply for a position.

14. How many sources did you make use of to find out about job offers?

[ ] One
[ ] Two
[ ] Three
[ ] Four
[ ] Five or more

15. Where do you look for job advertisements most frequently? [Multiple answers possible]

[ ] In local newspaper
[ ] In nationwide newspaper
[ ] On company's website
[ ] Job boards
[ ] Job fairs
[ ] Employment agency
[ ] Other, please specify:

16. In an average week, how many hours did/do you spend for job search?

[ ] One hour or less
[ ] One to five hours
[ ] Five to ten hours
[ ] Ten to twenty hours
[ ] More than twenty hours

17. How much effort do/did you put into the job search?

[ ] Very little effort
[ ] Little effort
[ ] Neither little nor much effort
[ ] Much effort
[ ] A great deal of effort

18. How many applications did you approximately send when you have been looking for your first full-time employment as an engineer?

[ ] none, I received a job offer without applying
[ ] 1-5 applications
[ ] 6-10 applications
[ ] 11-15 applications
[ ] 16-20 applications
[ ] more than 21 applications
[ ] not applicable

19. How did you find out about the job advertisement for your current posit ion? [Multiple answers possible]

[ ] Advertisement in local newspaper
[ ] Advertisement in nationwide newspaper
[ ] Advertisement on company's website
[ ] Advertisement on Job board
[ ] Trough own network
[ ] Unsolicited application
[ ] Job fair
[ ] Internship
[ ] Employment agency
[ ] Other, please specify:
[ ] Not applicable, because:

20. How did you apply for your current position?

[ ] Traditional application (by mail)
[ ] By email
[ ] Through network
[ ] Online application form
[ ] Personally on a job fair
[ ] Other, please specify:
[ ] Not applicable

21. Do you make use of the internet for searching jobs?

[ ] Yes
[ ] No

22. If you make use of the internet during job search: Which three Web sites do you visit most frequently?

1._____
2._____
3._____

NETWORKING
Networking is an interesting and promising opportunity to search jobs. In this section, I want to find out whether it is actually being used in the job search of engineers and what kind of contacts play an important role.

23. Who was/is influential in helping you find a full time job or career? [Multiple answers possible]
[ ] Family
[ ] Friends
[ ] Relatives
[ ] Colleagues
[ ] Former colleagues
[ ] Others, please specify:
[ ] Not applicable

24. How often do/did you actually see the contact while he passed on job information to you?
[ ] often (at least twice a week)
[ ] occasionally (more than once a year but less than twice a week)
[ ] rarely (once a year or less)
[ ] not applicable

25. Are you a member of a professional network like Xing or LinkedIn? [Multiple answers possible]
[ ] Yes, I am a member of Xing
[ ] Yes, I am a member of LinkedIn
[ ] Yes, I am a member of another professional network, namely:
[ ] No

26. Do you make use of such a professional network when searching jobs? [Multiple answers possible]
[ ] Yes, I make use of Xing
[ ] Yes, I make use of LinkedIn
[ ] Yes, I make use of another network, namely:
[ ] No

27. Social network characteristics
Please indicate to what extent you agree or disagree with a certain statement.

	strongly disagree	disagree	neither agree, nor disagree	agree	strongly agree
I know a lot of people who might help me find a job.					
I can count on many relatives and friends for information about jobs.					
I can count on many acquaintances for information about jobs					
I can count on many colleagues or former colleagues for information about jobs.					
I know few people who might help me search for employment.					
I have connections I can talk to to help me find a job.					
I consider networks like Xing or LinkedIn to be useful for job search.					

28. Please indicate to what extent you agree or disagree with a certain statement.
Most people who might help me find a job:

	strongly disagree	disagree	neither agree, nor disagree	agree	strongly agree
Are people I know very well, such as family or friends.					
Are people I don't know very well, such as colleagues or former colleagues.					
Are people I often talk to.					
Are people I hardly talk to.					

Your answers have been submitted.
Thank you for your support !

C. Means and Standard Deviations of Values and Preferences (Question 10)

Group Statistics

	Generation	N	Mean	Std. Deviation	Std. Error Mean
Originality and creativeness	Generation Y	49	3,98	,721	,103
	Baby Boomers	26	2,69	1,158	,227
Use of specific educational background	Generation Y	49	3,76	,751	,107
	Baby Boomers	26	2,12	,588	,115
Encourages continued development of knowledge and skills	Generation Y	49	4,33	1,068	,153
	Baby Boomers	26	3,81	,981	,192
Provides job security	Generation Y	49	3,86	,979	,140
	Baby Boomers	26	4,46	1,029	,202
Provides the opportunity to earn high income	Generation Y	49	3,41	1,039	,148
	Baby Boomers	26	3,92	1,230	,241
Makes a social contribution by the work you do	Generation Y	49	3,04	,676	,097
	Baby Boomers	26	3,15	,834	,164
Respected by other people	Generation Y	49	3,51	,681	,097
	Baby Boomers	26	3,54	,948	,186
Gives you the responsibility	Generation Y	49	3,02	,989	,141
	Baby Boomers	26	3,54	,761	,149
Requires working on problems of central importance to the organization	Generation Y	49	3,14	1,021	,146
	Baby Boomers	26	3,54	,859	,169
Involves working with pleasant colleagues	Generation Y	49	4,31	,713	,102
	Baby Boomers	26	3,62	,637	,125
Provides much leisure time off the job	Generation Y	49	3,49	,681	,097
	Baby Boomers	26	2,04	,871	,171
Provides change and variety in duties and activities	Generation Y	49	3,88	,696	,099
	Baby Boomers	26	3,04	,999	,196

Provides comfortable working conditions	Generation Y	49	4,16	,624	,089
	Baby Boomers	26	3,73	1,041	,204
Permits advancement to high administrative responsibility	Generation Y	49	2,90	,797	,114
	Baby Boomers	26	4,12	,766	,150
Permits working independently	Generation Y	49	3,65	,723	,103
	Baby Boomers	26	3,69	,970	,190
Rewards good performance with recognition	Generation Y	49	4,14	,764	,109
	Baby Boomers	26	4,31	,679	,133
Requires supervising others	Generation Y	49	2,94	,876	,125
	Baby Boomers	26	3,54	,859	,169
Is intellectually stimulating	Generation Y	49	3,94	,719	,103
	Baby Boomers	26	3,77	,710	,139
Satisfies your cultural and aesthetic interests	Generation Y	49	2,80	,816	,117
	Baby Boomers	26	3,08	,891	,175
Has clear rules and procedures to follow	Generation Y	49	2,78	,985	,141
	Baby Boomers	26	3,35	,797	,156
Permits you to work for superiors you admire and respect	Generation Y	49	3,35	,879	,126
	Baby Boomers	26	3,12	1,071	,210
Permits a regular routine in time and place of work	Generation Y	49	2,96	,912	,130
	Baby Boomers	26	3,08	1,164	,228
Requires meeting and speaking with many other people	Generation Y	49	3,69	,769	,110
	Baby Boomers	26	3,23	,514	,101
Permits you to develop your own methods of doing the work	Generation Y	49	3,49	1,102	,157
	Baby Boomers	26	3,35	,977	,192
Provides a feeling of accomplishment	Generation Y	49	3,92	,702	,100
	Baby Boomers	26	3,38	,496	,097

D. Means and Standard deviations of items in question 11

Group Statistics

	Generation	N	Mean	Std. Deviation	Std. Error Mean
Pay	Generation Y	49	3,69	,796	,114
	Baby Boomers	26	4,23	1,032	,202
Benefits	Generation Y	49	3,67	,966	,138
	Baby Boomers	26	3,81	1,096	,215
Job type	Generation Y	49	4,41	,610	,087
	Baby Boomers	26	4,42	,758	,149
Advancement	Generation Y	49	4,06	,852	,122
	Baby Boomers	26	4,00	,748	,147
Business/industry	Generation Y	49	3,47	,844	,121
	Baby Boomers	26	3,62	,637	,125
Hours	Generation Y	49	3,49	,794	,113
	Baby Boomers	26	3,12	,864	,169
Location	Generation Y	49	3,92	,731	,104
	Baby Boomers	26	3,62	1,329	,261
Job security	Generation Y	49	3,69	,871	,124
	Baby Boomers	26	4,23	1,070	,210
Coworkers	Generation Y	49	3,88	,754	,108
	Baby Boomers	26	3,85	,834	,164
Training	Generation Y	49	4,10	,770	,110
	Baby Boomers	26	3,54	,761	,149
Atmosphere or culture	Generation Y	49	4,29	,677	,097
	Baby Boomers	26	3,96	,824	,162
Number of openings	Generation Y	49	2,43	,842	,120
	Baby Boomers	26	2,12	,816	,160
Working conditions	Generation Y	49	4,14	,612	,087
	Baby Boomers	26	4,00	,800	,157
Transfer and relocation	Generation Y	49	3,33	,875	,125
	Baby Boomers	26	3,54	,989	,194
Company reputation	Generation Y	49	3,37	1,035	,148
	Baby Boomers	26	4,00	1,058	,208

Supervision	Generation Y	49	3,41	,888	,127
	Baby Boomers	26	3,46	,859	,169
Company size and age	Generation Y	49	2,71	,935	,134
	Baby Boomers	26	3,08	,796	,156
Turnover	Generation Y	49	2,59	,888	,127
	Baby Boomers	26	3,92	1,093	,214
Daycare and/or maternity	Generation Y	49	2,49	,916	,131
	Baby Boomers	26	3,35	1,056	,207
Diversity and Equal Employment Opportunity	Generation Y	49	2,92	,886	,127
	Baby Boomers	26	3,12	,952	,187
Qualifications required	Generation Y	49	3,78	,941	,134
	Baby Boomers	26	3,92	,628	,123
Ability to use skills	Generation Y	49	4,06	,626	,089
	Baby Boomers	26	3,73	,962	,189
Challenge and responsibility	Generation Y	49	4,06	,659	,094
	Baby Boomers	26	4,04	,720	,141
Meaningful work	Generation Y	49	3,88	,696	,099
	Baby Boomers	26	3,88	,653	,128
Autonomy and input	Generation Y	49	3,63	1,035	,148
	Baby Boomers	26	4,23	,765	,150
Hiring practices	Generation Y	49	2,69	,847	,121
	Baby Boomers	26	2,31	1,050	,206

E. Distribution of study programs among age groups

Study * Age Crosstabulation

			Age			
			31-40 years	41-50 years	51 years and older	Total
Study	Civil Engineering	Count	33	12	6	51
		% within Age	24,4%	13,2%	13,0%	18,8%
	Applied Physics	Count	23	19	3	45
		% within Age	17,0%	20,9%	6,5%	16,5%
	Mechanical Engineering	Count	25	12	5	42
		% within Age	18,5%	13,2%	10,9%	15,4%
	Chemical Engineering	Count	24	22	9	55
		% within Age	17,8%	24,2%	19,6%	20,2%
	Electrical Engineering	Count	26	24	18	68
		% within Age	19,3%	26,4%	39,1%	25,0%
	other	Count	4	2	5	11
		% within Age	3,0%	2,2%	10,9%	4,0%
	Total	Count	135	91	46	272
		% within Age	100,0%	100,0%	100,0%	100,0%

Statutory declaration

I declare that I have developed and written the enclosed thesis entitled

"Job search behaviour and job search sources of engineers"

entirely by myself and have not used sources or means without declaration in the text. Any thoughts or quotations which were inferred from these sources are clearly marked as such.

This thesis was not submitted in the same or in a substantially similar version, not even partially, to any other authority to achieve an academic grading and was not published elsewhere.

Enschede, May 2011

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