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Bachelorarbeit

Exploring the motivations of developers to stay with their current company

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Commenced:	June 14, 2018
Completed:	December 14, 2018

Abstract

Although the companies know the factors that motivate software developers to stay at their current company, the employer change rate is still too high. As this is a serious problem for employers, we decided to explore and investigate more research into the motivations for developers to stay with their current company. We conducted a study with professional software developers to find detailed information about factors which change the mind and perception of developers when it comes to the company they currently work for. According to our results, the most important factor for developers is *Work/Life balance*. Moreover, additional differences can be found, when we compare younger and older or inferior and superior employees regarding the position within a company. Finally, we can see that numbers exclusively are not always good information to orientate on.

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1 Introduction

1.1 Motivation of the work

It is a known fact that the world is getting digitalized. If we look at the car industry, for example, we see new technologies like automatic parking, track hold assist or autonomous driving. What creates these technologies or makes them work together is the operation method of hardware and software. Also if we look at current smartphone technologies, especially artificial intelligence, which we can describe as intelligent computer programs, can accomplish and further evolve the technologies humans already found. To develop such technologies and software, companies need developers which are highly sought-after and demand will increase even more as technology keeps evolving rapidly and becomes more and more essential in everyone's daily life¹.

Hiring new developers is not the only challenge for employers. According to the *Stack Overflow Developer Survey* [Exc18], 19.4% of developers hope to be doing the same work in five years and 59.8% are not actively looking but are open for new opportunities. For companies, this is a problem. Losing an employee not just means a loss of a human capital, but also a loss of relational capital and thus giving competitors the possibility to hire employees who are of high-quality [GSJS13]. To compensate for the loss of employees, companies have to spend time and money to recruit new employees and train them to the point where they can add value to the companies. During that time the loss of employees have a negative impact on the work procedure and can also affect other employees by unsettling them and questioning their view on the company. If a company has a problem of continuous employee turnover, it is not good for the image of the company, since potential candidates will do research before applying for a new job.

Motivators for employees to stay in their current company should be no secret, but why is the turnover rate still high? While older research exploring these motivators already exist, we think it is a good idea to explore them more diligently and deal with the fine details. Therefore, we decided to conduct a study to receive further information and create relations between factors which influence the motivation of developers to stay with their current company and also what companies have to look out for when it comes to employees.

¹<https://www.zeit.de/campus/2018/s1/informatik-bewerben-arbeitsmarkt-jobaussichten>

1.2 Structure of the work

The next chapter provides both background knowledge for conducting interviews which in our case inherits the types of interviews, the wording of questions and the *grounded theory* and related work on scientific literature as well as online surveys which are related to our study. Chapter 3 describes our research methodology and our study design. We describe our participants, our data gathering method and the analysis of the data. In chapter 4 we describe the findings of our study. Chapter 5 is where we discuss our findings from the previous chapter and compare them to the results of related work. In Chapter 6 we summarize our work and provide recommendations for future work.

2 Background

In this section, we give some basic knowledge on how to conduct interviews, which can help to understand the decisions we make in Section 3.1. Later, we describe literature and online surveys in order to create a connection between our work and the work that was already published by other authors.

2.1 Conducting interviews

2.1.1 Interview type

We differentiate between four types of interviews: 1. Informal conversational interview, 2. General interview guide approach, 3. Standardized open-ended interview and 4. Closed, fixed-response interview.

1. When conducting “informal conversational interviews”, the researcher does not ask specific questions but tries to “go with the flow” [VS02]. The researcher develops questions while moving forward in the interview and thus, this type of interview depends on the interaction with participants [Tur10]. While many people consider this type of interview as positive, because of the flexibility the researcher has through the lack of structure, there are also many people who consider it as negative, because of the inconsistency of the questions which make it difficult to code the data.
2. The “general interview guide approach” is a bit more structured than “informal conversational interviews”. In this case, the researcher has questions, but they are worded differently depending on the participant and the actual “atmosphere” during the interview [Tur10]. The positive aspect of this type of interview is that it allows a degree of freedom and adaptability in getting information from the interviewee [VS02] whereas the main negative aspect is the lack of consistency how research questions are posed by the researcher that may result in interviewees not answering the same questions [Tur10].
3. Structured in terms of wording the questions is the “standardized open-ended interview”. The researcher follows a guide with fixed open-ended questions allowing him to ask follow-up questions based on what the participant answers. One positive aspects is that the open-ended questions allow the interviewee to express his viewpoints and experiences [Tur10]. Another positive aspects is that this type of interview leads to faster interviews which can also be compared and analyzed easier [VS02].

4. The last type of interview is the “closed, fixed-response interview” which is also the most structured one. This means that every participant is asked the same questions and the participants have a set of answers they can choose from [VS02]. It comes very close to surveys with the difference that we still have an interviewer and the advantage of this type of interview is that it is beginner-friendly for interviewers.

2.1.2 Question wording

Developing interview questions is a very important part of conducting interviews. While being simple, the questions should also be constructed in a way that we can receive the longest answers from the respondent. Another point is that we should not be afraid of asking questions which may be embarrassing for some people, because if we do not ask such questions we might miss out information the participant would tell us [Har17].

Harvard Department of Sociology [Har17] further describes some types of questions of which we also want to mention in the following. “Direct questions” are questions which inherit a precise description of the action and information like who is involved. Therefore, these questions which limit the range of answers the interviewer can get should be asked at the end of the interview, because they could influence the direction of the interview and the mindset of the interviewee. “Indirect questions” aim at getting information of the interviewees’ surroundings and also his own opinion on the question. “Follow-up questions” are a good tool to get deeper information on a specific question. If we, for example, get information within an answer of the interviewee which he/she doesn’t explain further we can ask “follow-up questions” to make him/her explain some of the information we found interesting and want to know more about. “Interpreting questions” try to summarize and interpret the answers of the interviewees. By doing this, we make sure that we understood the answer correctly and the interviewee also has the chance to see if we got the information he/she wanted to deliver.

2.2 Grounded theory

Grounded theory is a useful research approach which allows the researcher to generate theory from data [SRF16]. The original method was found and described by Glaser and Strauss [Wag68] and it is so that it inductively generates theory from the data we receive. The strategy behind the grounded theory method is that we start with an individual case and try to develop more abstract categories. With this categories, we try to explain and understand our data and furthermore try to identify relationships between the data we analyze [Cha96]. Most of the time studies, which are conducted with grounded theory, have to deal with an unstructured text like interviews transcripts.

Basically grounded theory can be described with the following key components which we list as Stol et al. [SRF16]:

- **Limit exposure to literature**
Prevent researcher from testing existing theories or thinking in the way of established concepts.
- **Treat everything as data**
Take every form of data into consideration. In our case also emotions of the interviewee for example.
- **Immediate and continuous data analysis**
In our case, begin to analyze right after the first interview and simultaneously collect data.
- **Theoretical Sampling**
Identify further data sources to fill gaps in the emerging theory.
- **Theoretical sensitivity**
Establish relationships between concepts. Creativity plays a high role in this process.
- **Coding**
Construct analytical codes and try to create categories from data without the influence of an already existing coding scheme or hypotheses.
- **Memoing**
Write memos to hold on categories and relationships between categories, which arise during the study.
- **Constant comparison**
Compare data, memos, etc. from the beginning of the study.
- **Theoretical sorting**
Find a suitable fit for all categories of the codes by continuously comparing memos with emerging theory.
- **Cohesive theory**
Try to develop a cohesive theory by moving beyond superficial categories.
- **Theoretical saturation**
Stop collecting and analyzing data when theoretical saturation is reached. Theoretical saturation is described as the point where new data does not lead to new insights.

There are different versions of the original method and one of them is the *Constructivist Grounded Theory* by Charmaz. The *Constructivist Grounded Theory* differentiates itself from the *Original Grounded Theory* in some points, which we will describe in this section because we use this version in our later described study.

Firstly, *Original Grounded Theory* begins with no explicit research question but with an area of interest, *Constructivist Grounded Theory* begins with an initial research question which may change throughout the study [Cha96].

Secondly, the coding procedure is slightly different in *Constructivist Grounded Theory*. While there are also three steps of coding: *Initial Coding*, *Focused Coding* and *Theoretical Coding*, they differ themselves from the *Original Grounded Theory*.

In *Initial Coding* we examine data line-by-line since it keeps us close to our data, it forces us to think about the material in new ways and helps to build our analysis [Cha96]. This

Initial Coding is similar to the *Open Coding* of the *Original Grounded Theory*.

In *Focused Coding* we try to categorize the codings we have found in *Initial Coding* which is a bit different than the *Selective Coding* of the *Original Grounded Theory*. We look at the most frequent codings and try to summarize them in a category. Categorizing helps with the description of the codes, as well as specifying the conditions in which the codes occur and to find relationships between them [Cha96].

In *Selective Coding* of the *Original Grounded Theory* we delimit coding to only those variables that relate to one or more core variables.

In *Theoretical Coding* we specify the relationships between the categories we have found in *Focused Coding* with the help of *memoing* we did throughout the study which is also very similar to the *Theoretical Coding* of the *Original Grounded Theory*.

Lastly, the *Constructivist Grounded Theory*, like its name already suggests, is influenced by social constructionism. Thus, experiences and relationships with participants have an influence on how the spectator analyzes the data and therefore the spectator is not neutral whereas the *Original Grounded Theory* is influenced by objectivism which means that it exists a single, correct description of reality and the researcher discovers *Grounded Theory* from data [Wag68].

2.3 Related work

2.3.1 Scientific literature

In order to study how to retain IT-professionals in their companies, Ertürk and Vurgun [EV15] performed a study with 20 randomly selected companies, which were selected out of the “Turkey’s Top 500 Industrial Enterprises” list which is published every year [EV15]. Their sample consisted of private sector IT professionals of all levels excluding managerial positions, meaning system administrators, web developers, programmers, system analysts, project/team leaders, and hardware specialists. The study supervisors used a web-based questionnaire which was a one-part online survey, to collect data from the participants. In the end, 172 questionnaires remained which formed the sample of the study. When it comes to the specification of the participants, the average age was 28 years old while the ages ranged from 21 to 42 years old and 82.2% were male and 53.1% were married. The average time the participants already work for their company was 6.5 years with the shortest at 1 and longest at 19 years. All items were measured with the five-point Likert-type scale were “1” corresponds to “strongly disagree” and “5” to “strongly agree” while only one item was measured with the LMX-7 scale. The authors came to the result that perceived organizational support and organizational trust are two very important factors which can influence the relationship the employees have with the company in a positive way. If the company delivers these two factors to its employees, they feel empowered and stronger because they know they have the support and trust of the company. It also leads to employees feeling more capable of influencing the company in a positive way and making them feel that the job they are doing is essential for the companies development. Trust has also a big influence in the social exchange components which are also important for employee retention. This means that trust influences the social exchange components on the relationship between psychological empowerment and turnover intentions [DF01]. To be

more precise, trust in organization influences the perceived organizational support whereas trust in supervisor influences the social exchange components. All in all the authors come to the conclusion that in a high-trust working environment it also comes to the managers who should also support and stand behind these factors to reduce the intention of software developers to quit their job.

As it comes to limitations of the study the authors say that the study only took place in turkey, limiting the data to one specific country. Thus, it cannot be said that the results can be generalized for all countries and the results for other countries may differentiate themselves in a drastic way. The fact that the study involved static questionnaires might also have influenced the answers or information the participants gave to the authors. Surveys limit the information area the study supervisors can get to the content of the questions, meaning there is no chance to ask further questions to maybe get relations between factors or more detailed information.

Another effective method to answer a research question is by performing a literature review. Ghapanchi and Aurum [GA11] sought for an answer for the research question: “*What drives IT personnel’s intentions to leave their workplace?*” and in order to achieve it, they followed the systematic review guidelines which are suggested by Kitchenham [Kit03]. After the first stage, 4897 studies were identified with the 31 keywords they searched for and thus, after performing all stages the complete guideline, in the end, 72 papers left. To analyze the data, in total 70 factors were extracted which influence IT turnover. To give the factors more sense, the authors categorized them and ended up with five main categories: *Individual factors*, *Organisation factors*, *Job-Related factors*, *Psychological factors* and *Environmental factors*. *Individual factors* describe, as its name suggests, individual attributes and the most frequently cited factors in this category are organizational tenures, age, education, and gender. *Organisational factors* describe the individuals’ perception of their organization and the most frequently cited factor in this category is salary. *Job related factors* describe those concerning the IT personnels’ jobs and the most frequent factors are role conflict, role ambiguity, and autonomy. In the category *Psychological factors* the most frequently cited factor is job satisfaction and in the last category *Environmental factors* the most cited factor is job alternative. The authors also explored the number of papers which are related to employee retention and came to the result that 83% of the papers come from North American, 15% from Asian and just 1% from European and African universities. Also, IT turnover rates in the US seem to be much higher than in Europe which might be caused by high competition rate in the US [GA11].

With the help of the results, the authors had some recommendations for IT managers which could help them in retaining IT professionals and also in identifying IT professionals who are more likely to stay in their company for a long period of time. Many of the main factors for turnover which are listed as follows can be influenced by the skills and experience of the manager:

1. **Role ambiguity and role conflict** are common problems which occur in IT roles because the boundaries between IT professionals and users are unclear and the constant and fast progression in technology can cause uncertainty among IT managers.
2. **Perceived workload** can be overwhelming for IT professionals.
3. **Lack of autonomy** can cause exhaustion of IT professionals.
4. **Boundary spanning activities** can increase the employees' job satisfaction because employees' probably desire interaction with other departments which might influence career development.
5. **Task variety** leading to a variety of things that can be done and requirement of different skills and talent.
6. **Fairness of reward** depending on the level IT professionals do their job.

They also came to the conclusion that male IT workers are more likely to leave their organization than female IT workers. Due to lower job satisfaction, younger employees, as well as higher educated IT professionals, are more likely to leave a company than their counterparts. Furthermore, married IT professionals and also those with lower organization tenure are more likely to stay with the organization.

2.3.2 Online surveys

While many studies are conducted to explore the motivation of employees to stay with their current company or the motivation to quit their job, nowadays most of these contain an online survey. A very important advantage of online surveys is that the number of participants can be very high without influencing the evaluation in a negative way. Also, researchers who design and conduct such an online survey save time because an online survey does not need to be guided by the researcher in contrast to an interview [Wri06]. The resulting answers provide a broad overview but there is no chance to ask further questions for clarification or to drill deeper.

HackerRank Developer Skills Report

HackerRank¹ is a technology hiring platform with over 5 million developers which helps companies hire developers and innovate. This platform surveyed their own community in 2018 [Rav18] to get an overview of some developer skills and the main goals, which they wanted in a job ². 39,441 participants took part in the study and the sample consisted of students and professional developers. We first take the results for all countries into consideration. If we look at the *Talent attraction* section of the study the most important factor, when asked what developer candidates want most when job searching is *Good*

¹https://www.hackerrank.com/about-us/?h_r=home&h_l=header

²<https://research.hackerrank.com/developer-skills/2018/>

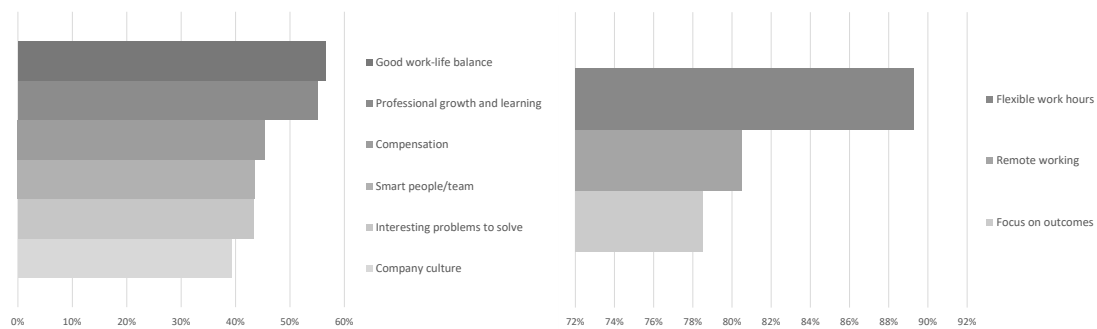


Figure 2.1: Left: “What do developer candidates want most when job searching?” [Rav18]
Right: “How can employers improve *work/life balance*?” [Rav18]

work-life balance, followed by *Professional growth and learning*. *Good work/life balance* seems to be less important to people who work in smaller companies or are between 18 and 24 years old. It is most important to developers who are 25 years and older. They also have discovered that developers want *work/life balance* but also have a high desire to learn new things. While the number of new tools to learn can be overwhelming sometimes, developers can compensate it with curiosity and genuine interest in technologies. If we look at the results for the specific country Germany, the top factor is still *Good work-life balance* but right after are the factors *Smart people/team* and *Interesting problems to solve*.

The study dug a little deeper into *Good work-life balance* since it could mean a lot of things to different people. Flexible work hours is the main factor which can support *Good work-life balance*. Developers also want to work for managers that focus on output and telecommuting options for developers can also help to support *Good work-life balance*. It is noticeable that for developers who are 25 and older remote working is a strong desire and this group is also the strongest proponents of shutting down email after hours.

According to the results of the student participants, *Growth & Learning* is the most important factor when looking for a job. Also noticeable is that *Compensation* is way less important for students than for professionals.

Stack Overflow Developer Survey

Stack Overflow³ is an online community for developers where they can learn, share their knowledge and build their careers. This platform conducted a survey [Exc18] in January of 2018 with the intention to learn more about the favorite technologies of developers up to their job preferences⁴. Over 100.000 developers participated in the study which took 30 minutes to absolve.

According to the results, 17.1% of the participants were students whereas the remaining were professionals. If we look at the *Work* section of the study the first result we see is the employment status of the developers. While 74% of developers are employed full-time,

³<https://stackoverflow.com/company>

⁴<https://insights.stackoverflow.com/survey/2018/>

4.3% are not employed and are not looking for a job. It is noticeable that Germany has a high proportion of developers who work part-time and professional developers have higher rates than developers in general when it comes to full-time employment.

When asked what developers hope to be doing in five years, about a third of the participants say that they want to work in a different or more specialized technical role. About 25% of the participants want to work as a founder or co-founder of their own company, which is most common among developers who are younger than 25 years old. Around 20% want to do the same work in five years.

When it comes to job satisfaction, 70% are slightly, moderately or extremely satisfied, whereas the remaining 30% are neutral or dissatisfied. Job satisfaction is also highest for developers between 35 and 44 years old. While 24.3% of the participants are not interested in new job opportunities, 15.9% are actively looking for a new job and 59.8% are not actively looking but are open to new opportunities. Another interesting statistic is how long ago developers did change their last jobs. According to the results, about half of the participants have taken a new job within the past two years, meaning that frequent job changes are common for software developers and when assessing potential jobs, their top priority is compensation, followed by specific technologies they will work within the new job.

Glassdoor Survey

Glassdoor⁵ is a website for job and recruiting [Gla14]. This site conducted a survey⁶ in February 2014 with the intention to give insight on how to recruit software engineers [Gla14]. Over 1.400 software engineers who were all identified as being employed in a full-time job participated in the survey.

According to the results in the category “Job Search Plans” for the next three months, there are differences depending on the time software engineers already work for their current company. Only 15% of engineers who work for their current company for less than a year said that they plan to look for a new job in the next three months whereas this number is doubled for engineers with a work experience in their current company of 1-7 years. The highest number with 38% belongs to engineers with a work experience in their current company of 8-10 years.

The study supervisors additionally explored the “Top Reasons Software Engineers Would Leave Their Jobs”. By far the two top reasons were *Salary & Comp* and *Career Growth & Opportunities* with both over 75% while the two reasons with the lowest number were *Frequency of required travel* and *Amount of work* with a percentage of 20 or lower.

Another result was that 52% of software engineers are likely to accept less money to work at a company with great culture and 51% are likely to accept less money to work at a company with an attractive product or service. When it comes to how long software engineers stay with the same employer, 13% stay for an average of 1-2, 25% for an average of 2-3 and 23% for more than 5 years in the same company.

⁵<https://www.glassdoor.com/about-us/>

⁶<https://www.glassdoor.com/employers/blog/how-to-recruit-software-engineers-1-in-4-expect-to-look-for-a-new-job-in-next-3-months-glassdoor-survey/>

3 Methodology

3.1 Research design

To answer the research question, what the main factors for software engineers to stay at their current company are, we decided to conduct *Standardized Open-ended Interviews* because it is most in line with our intentions and the evaluation is not as complex as it is of *Informal Conversational Interviews* (see Section 2.1.1). While close-ended questions limit the information we can get to the information we ask for, open-ended questions can deliver additional information [JF12].

We contacted potential participants from different software companies via email (see Figure 3.1). We told the participants that the interview will last between 30 and 60 minutes and that we will record the interview with an audio recorder. In one case the participant did not agree with recording the interview with an audio recorder so that we decided to take notes while interviewing this participant. The interviews were conducted at the participants' company and during the interview, we were in a meeting room where nobody could disturb us which was important because the data will be kept anonymous. We created an interview guide which is in the appendix to make sure we give every participant the same information. After that, the consent form, which is also in the appendix, was handed to the participant and we gave him a verbal introduction with the reason why we are doing this study. The appendix is in German since it is the native language of the participants. Besides the introduction, the guide also included questions to serve as a basis and before starting and recording the interview we gave the participants the chance to ask questions.

After the participant signed the consent form and gave us the signal that he was ready, we started the audio recorder and began with some introductory questions [DN13]. During the interview, the participants had to answer our questions which were on our guide but also some which were not. The participants also had the option to report when they don't understand a question and want us to repeat or try to phrase it differently. When the interview was finished, the participant had the chance of asking questions and report how he/she felt during the interview.

3.2 Participants

We recruited participants who either worked as a software developer for a long time and even are oriented differently now or employees who only started to work as a software developer. We even recruited a participant who only worked with software developers. We

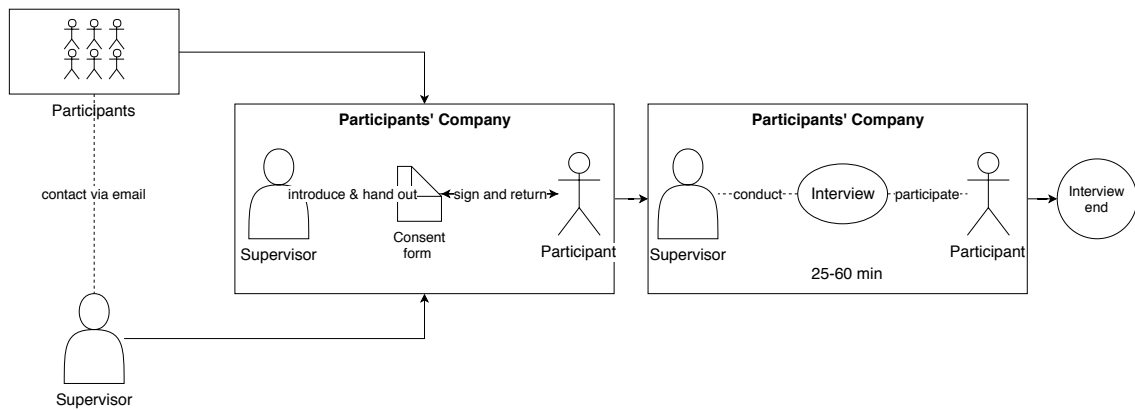


Figure 3.1: The interviewing procedure.

should also be able to reach the company or a branch of the company and because of that, the location had to be around the district of Stuttgart. We had an opportunity to contact the participants through existing relationships.

In the end, our sample consisted of 6 participants. In order to make clear to which participant we are referring to in this thesis, we want to differentiate them by giving them numbers:

- *Participant 1* and *Participant 2* were male software developers with a work experience of maximal 2 years.
- *Participant 3*, *Participant 4* and *Participant 5* were also software developers, 2 male and 1 female, but with a work experience of minimum 9 years and resulting of that work experience they were superior than software developers in their company, meaning they either were project managers, branch managers or acted as interfaces between 2 departments.
- *Participant 6* was an exception because he, also male, was not a software developer but a managing director.

While from the point of view of age *Participant 1* and *Participant 2* were the youngest, *Participant 6* was the oldest participant in our study. The age of *Participant 3*, *Participant 4* and *Participant 5* were right between the age of *Participant 1*, *Participant 2* and *Participant 6*.

3.3 Data gathering

A big challenge for us was the procedure for data gathering. There are many ways to gather the data of an interview but every method has its own advantages and disadvantages. After discussing which way is the best to gather the data in our specific case, we came to the conclusion that either the interview will be conducted by two interviewers while one takes notes during the interview, or the interview will be conducted by one interviewer who

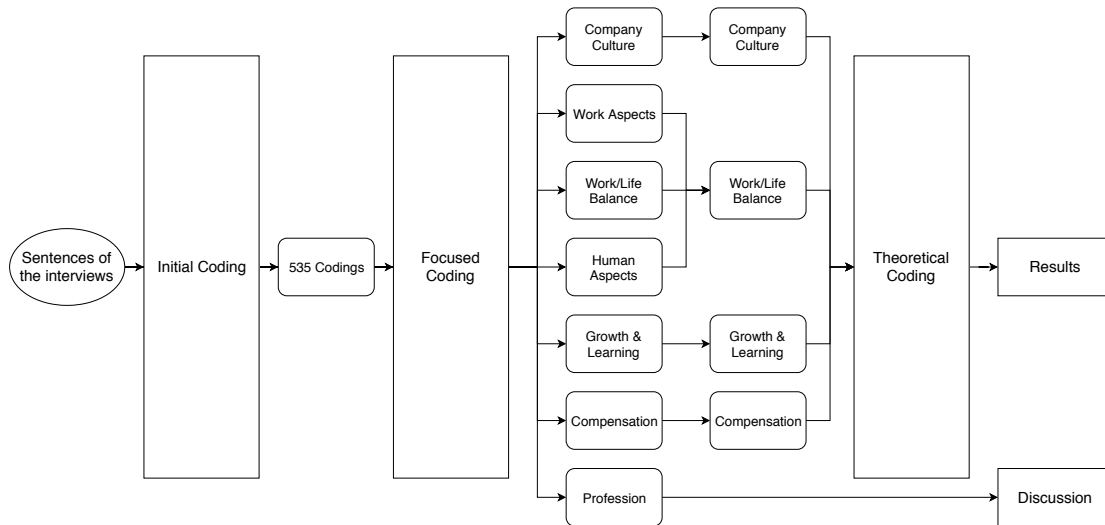


Figure 3.2: The coding process.

records the interview with an audio recorder. Both possibilities could lead to interviewees not being completely honest and the likelihood of the influence a third person in a room can have on the interviewee is in our opinion higher than an audio recorder can have. This is why although knowing the fact that the participants may feel uncomfortable when we tell them that the interview if they agree, will be recorded with an audio recorder, we still think it is the best way to gather the data of the interviews. By recording the interview, we keep the possibility of data loss as low as possible and we try to neutralize the disadvantage of participants not being completely honest by making clear that the data will be anonymized and the participant always has the option to quit the interview. We gave the participants the opportunity to see the thesis before it eventually get published and gave them the opportunity to change or delete things later which can also affect the honesty of the participant.

Since *Participant 5* did not agree to record the interview with an audio recorder, we decided to only take notes for this specific interview.

3.4 Analysis

Before analyzing the data we had to transcribe the sound recordings of the interviews. Firstly, after transcribing, we split every interview into single sentences and performed *Initial Coding* following Charmaz[Cha96]. The *Initial Coding* led to 535 codings which we also split into positive and negative ones. Secondly, we proceeded with *Focused Coding* which means that we reviewed the 535 codings and tried to code them in a more general way and find categories. At first, we ended up with seven categories (see Figure 3.2) and decided to furthermore sum the seven categories up to four categories. The reason why we did that was, on the one hand, the categories *Human aspects* and *Profession* included less than 10 codings and on the other hand we found *Work Aspects* was too similar to *Work/Life balance*. Therefore, we put *Human aspects* and *Work Aspects* into *Work/Life balance* and splitted *Work/Life balance* into three subcategories which we will describe

in the next chapter. We also decided to put *Profession* into Chapter 5 since this factor fits better in there and is not directly a reason why developers stay in their company. As the last step we performed *Theoretical coding* to create and specify relations between categories or factors. We ended up with four main categories: *Company culture* with 139 codings, *Work/Life Balance* with 319 codings, *Growth & Learning* with 46 codings, and *Compensation* with 31 codings and created relations between the categories by performing the last step of coding which is the *Theoretical Coding*. We will provide and discuss these relations in the next chapter as well as in Chapter 5.

4 Results

The aim of the study was to get the main factors of software engineers to stay at a company. In order to achieve this, we conducted a study based on the grounded theory [SRF16]. The interviews had an average length of about 45 minutes, while the longest took about 60 and the shortest about 25 minutes. We reviewed the interviews by listening to the recordings and writing them down sentence for sentence. After that, we coded the sentences, resulting in 535 codings and categorized them by splitting in positive and negative depending on which way the participants meant their statement. Lastly, we categorized the codes in four categories: *Company Culture*, *Work/Life Balance*, *Growth & Learning* and *Compensation*. The ratio of the codings are given in Figure 4.2.

The categories which resulted in our analysis can be interpreted as the answer to our research question.

4.1 Company culture

This category describes the culture of the company by itself, meaning the presentation and image of the company but also how the company deals with their employees from the point of view of the employees.

“How has your attitude towards the company you currently work for changed over time?”

“Here I just had the feeling right from the start that everything that moves me, everything I want to have, I can talk about it, a solution is also being sought for it. Of course, the solution is not always there from one day to the next, but at least people listen and see how it can be solved or discuss why it is the case now and not otherwise.” -Participant 4 (see Section 3.2)

The quote above comes from a participant who has about 10 years of experience in a software engineering job and who is in a management role. It describes the feeling the participant had when he was new in the company and the importance of clear and free communication. The impression that the superiors are listening to the participant and his problems give him the feeling of trust and security.

We coded 109 statements of the participants as positive and 30 as negative codings with a total of 139 codings (see Figure 4.2). The importance of handling employees was included 51 times in the codings split into 49 positive and 2 negatives. Consequential it is important for employees to have a good relationship to superiors which results in trust and safety when talking about problems the employees have. The feeling the employees get from

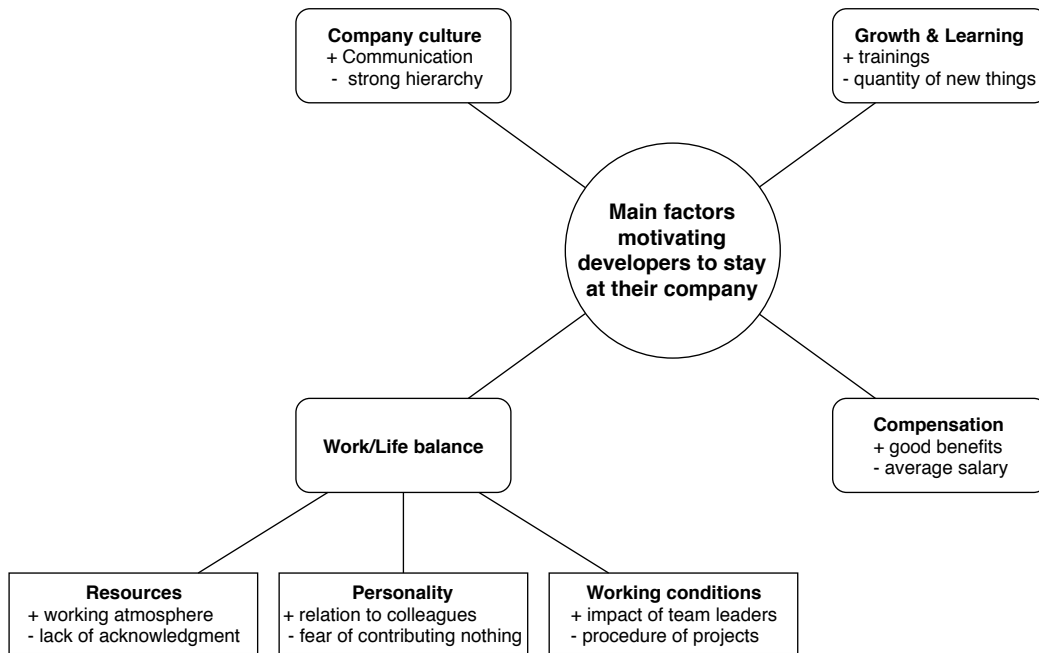


Figure 4.1: The four main categories motivating developers to stay in their company with most important positive and most important negative factor.

the superiors is depending on the character of the superiors and on how they handle problems and discussions with employees. According to the participants, this relationship has also a lot to do with the communication between the employees and superiors. While open and direct communication delivers trust and appreciation, a more distanced way of communicating has the tendency of affecting the employees in a negative way resulting in keeping problems for themselves and if problems do not get resolved they potentially stack up and lead to quitting the job. One participant said that it is important to conduct anonymous surveys within the company to get an overall view of the mood of the employees whereas another participant said that the survey only acts as a way of calming down the employees.

The image the company represents and the structure of the company were coded 88 times split in 60 positive and 28 negative codes. While the size of the company does not matter to any participant, a flat hierarchy within the company seems to have a high importance. Every participant mentioned a flat hierarchy as a factor for a perfect company. According to the participants a flat hierarchy causes faster communication and a faster procedure of problem-solving. It also affects the relation of employees to superiors in a positive way and thereby gives the employees the possibility to communicate directly with their superior or boss to ask for help and get problems solved faster because of the experience and knowledge the superior most of the time has.

Both the company mission and the image of the company is important for employees. The background of the work should be at least neutral, meaning something, like working or

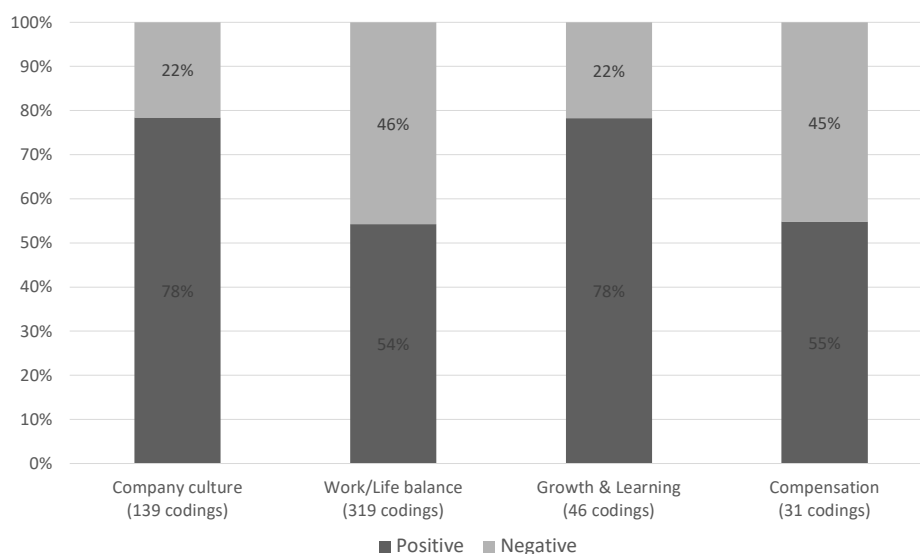


Figure 4.2: The ratio of codings for different categories.

cooperating with the defence industry for example, is not a well-seen mission. A result from the interviews was also that the goal of the company should lean towards employees happiness and not profit.

4.2 Work/Life balance

The meaning of the term *Work/life balance* depends on the context and the viewpoint of the speaker. In our case, after evaluating the data from the interviews, the definition which fits most is the Work/Life culture [Loc03]. It is defined as the extent to which an organization's culture acknowledges and respects the family responsibilities and obligations of its employees and encourages managers and employees to work together to meet their personal and work needs [Loc03]. Since the term can be interpreted differently we decided to split this category into three subcategories: resources, personality and, working conditions. With *resources*, we mean the companies' and the companies superiors' social interaction with the employees. This includes services the employees can benefit from and also the effects the working atmosphere which the employers create have on employees well-being. Personality includes the characters of the employees and their effect on a individuals performance. Although this subcategory might not directly be connected to the term *Work/Life balance*, the participants think it influences the connection between work and life.

Working conditions include the relationship between colleagues and also the work in itself and the problems employees get when working in a project for example. In this category, we had a total of 319 codings (see Figure 4.2).

4.2.1 Resources

“Suppose had the choice to change something about your employer that bothers you or where you think your motivation would increase through a change. What would you change?”

“That’s something, you can never be good enough and I see us failing occasionally, especially in this generosity, in the way we reward others”. -Participant 3 (see Section 3.2)

The quote above comes from a participant who also has about 10 years of experience in a software engineering job and who is in a management role. It is a criticism on the lack of acknowledgment and how superiors deal with employees and their performance.

The aspect of how superiors of a company deal and socially interact with employees seems also to be important to the participants. We coded 65 statements of the participants in a positive and 34 in a negative way. Thus, 65.6% of the codes represent the satisfaction of participants with the company’s behavior which results from the events all companies organize to improve the working atmosphere. Also influencing the participants’ sight on the company is the point that it takes care of the family and gives the employees the freedom to take care of their private life. According to the opinion of the participants, this freedom influences the sense of well-being which leads to better performance at work and building trust to the superiors. For the participants, it is also important that they have the option to agree or disagree with certain activities like a business trip and that it does not impair the relationship between employee and superiors.

However, the other 34.4% of the codes represent the opinion of the participants who had a negative experience with their company regarding appreciation of their work and promises the company gave which were broke later. One participant said that it is positive for him that the company organizes events but he had an experience with an event where employees had to prepare presentations and had time for six months but in the end, the presentation was cut down and just a little bit of it was shown at the event. This lead to unintelligibility of the employees and they also were angry because they worked six months for the presentation and in the end, it was a waste of time.

4.2.2 Personality

“If you had the opportunity to switch to another employer who is better at the things that matter most to you. How would you react?”

“But as it is right now it will take some time and it would have to change a lot, so in my work situation with this new employer I would change to because I am just happy here and because I have this loyalty thing because I am happy.” -Participant 1 (see Section 3.2)

The quote from above comes from a participant who has around one year of experience in a software engineering job. It describes how happiness at work influences the decision-making when confronted with a job offer and how the participants' relationship to the company is consolidated by having a good mood at work.

We coded 54 statements of the participants in a positive and 22 in a negative way. Resulting from the coding, 71.1% of the codes were mentioned positively in this category. One of the more frequently mentioned points was the fact that happiness depends on own skill and the relationship to colleagues and team members. It is important for employees to not just find new colleagues but also colleagues which can turn into friends and thus create a connection between work and life. Also, five of the six participants became aware of the job through connections or friends. This means that being included in a big social environment is essential when job searching and creating a big environment can depend on the individuals' character. According to the participants, a small amount of problems does not lead to quitting a job immediately, it depends on the sum of the problems. It comes up to one's individual priorities to balance positive and negative aspects of the job whether to quit or to stay.

The remaining 28.9% of the codes were mentioned negatively. The main point the participants mentioned were being afraid to contribute nothing and questioning one's own added value. One participant said that his biggest fear regarding his job was the fear of career entry and how procedures take place when starting a new job. Another point is that if somebody has private problems he/she tend to lose his/her lust to work which also depends on the character of a person.

4.2.3 Working conditions

“How would you describe the perfect company?”

“At least halfway the software engineering stuff fulfilling. This is of course always a bit difficult compared to studying, where you learn it has to be the same, in the company it is a bit different, but at least the intention should be there, the attempt should be there to do it that way.” -Participant 1 (see Section 3.2)

The quote from above comes from the same participant as from the quote before who has around one year of experience in a software engineering job. It is a criticism on how the procedure of doing work and solving problems in a company differs from the procedure which was taught at the university.

In this category, we coded 54 statements of the participants in a positive and 90 in a negative way. Therefore 37.5% of the statements are related to aspects participants feel of being positive. Concluding from the answers of the participants, the main point in this category is the way of how work is done and the impact of team leaders. The participants prefer working in teams and it is important for them how the team is balanced works together with different individuals. Thus, joint pursuit of a goal and not working on one's own is essential when working on a project and also the approach of a project have an impact on how the employees feel about work.

In contrast to the positive statements, we interpreted that 62.5% of the statements have a negative meaning. The main point is the procedure of projects and how it differs itself in

comparison to the way and manner the participants learned it during the time where they were studying. Another important point is that the partners the companies most of the time work with have unrealistic requirements regarding the product and that the managers of the company the participants work in do not take into consideration how stressful the project and the requirements are. The amount of freedom during the process of developing a product is also very limited and employees have very strict guidelines in the style of how the software is developed.

4.3 Growth and learning

“How would you describe how you noticed that or whether the current company is right for you?”

“I can easily use my computer science knowledge in all corners and learn various technologies over and over again and see new things.” -Participant 4 (see Section 3.2)

The quote above comes from a participant who has about 10 years of experience in a software engineering job and who is in a management role and it describes the importance of using all the knowledge someone has and the continuous learning of new things.

This category includes 36 positive and 10 negative codings. Thus, around 78.3% of the codings which belong to this category were positive statements. Five of the six participants said that training and events where employees can develop themselves are a fixed component at their company. One of the two software developers who had a maximum experience of two years as software developers said that the possibility to take part in training and develop himself is more important than the wage. He also made clear that when he graduated he still wanted to learn new things but not by just learning for exams for example but by working at a company and by gaining practical experience. The other four participants made clear that although they have at least nine years of experience there is still the desire to learn more and keep up with the time and technology.

The 21.7% of the negative codings mainly included the struggle of learning new things and of the quantity of the new things at the beginning of the job. The younger software developer who was mentioned on the positive side said that although he searched for a job where he has the opportunity of developing himself, he started at a company where just a few pieces of training take place and thus his desire of developing himself does not get satisfied.

4.4 Compensation

“Do you find the company you are currently working for perfect?”

“What I forgot a little bit earlier about the perfect company, it is of course very pleasant when the additional services or benefits are good. That’s by no means the main thing for me, but of course it’s something completely different with a small company than it is with a larger company where I see it every day, what benefits they have, where you just don’t have here.” -Participant 1 (see Section 3.2)

The quote from above comes from a participant who has around one year of experience in a software engineering job. It undermines the importance of having useful benefits and how these bonuses by now belong to the standards of a company and also the differences of benefits which small and big companies can offer.

We assigned 17 positive and 14 negative codings to his category. Thus, around 54.8% of the codings which belong to this category were positive statements. We have six codings on the positive side which were statements on the benefits the company offers. All of the participants mentioned the importance of having the benefits and the impact of benefits on the employees’ experience. Besides codings which belong to benefits, we have 11 positive codings which deal with the salary the employees get. While five of the codings describe the importance of an attractive salary model and the possibility to get the chance to move up, the other six codings deal with the approach of speaking with superiors to get a higher salary especially when the employees have the chance to change to an employer who offers a better salary. It was noticeable that the younger two participants did not consider the salary as important as the more experienced participants did.

On the other hand, the remaining 45.2% of the codings were negative statements. 10 of the 14 negative codings belong to the benefits. We have seven codings which describe the superfluosness of some benefits and the high expenditure to profit from some. One coding describes the importance of benefits and that they should not be missing when it comes to describing a perfect company. One of the two younger software developers mentioned the lack of appreciation for the benefits the employees have the chance to profit from and also how employees tend to take some benefits for granted. Another participant mentioned that benefits depend on the size of a company. The remaining four codings which belong to the negative side deal with the salary. All of these four codings were statements of the younger two software developers and while they say that the salary could be better and that they could quit the job and start another with a better salary, they said that before quitting the job they would try to get a better salary at the company they work at the moment.

5 Discussion

In the previous chapter, we reported the results of our study. We know that research regarding the motivations of developers to stay with their current company already exists (see Chapter 2) but the number of researches in Europe and specifically Germany is not nearly as high as in the United States of America.

First, we want to discuss similarities and differences with other work which is related to ours. We will do so by comparing our four categories from our results (see Chapter 4) with the results of related work (see Section 2.3). Later, we want to explain the limitations of our work, as well as of our study.

5.1 Findings

Importance of communication

Since “communication” appears in all four main categories (see Chapter 4) and has an impact in especially the relationship between employees and superiors, the importance of it is undeniable. Influencing “communication” in a positive way, is a flat hierarchy, as well as the trust and security superiors, can deliver to the employees. According to the interviewees’ statements, we can assume that trust between employees and superiors is very important since employees as soon as they have something in their mind that keeps them busy, have the option to tell their superiors. This affects not just employees but also the superiors and managers who have knowledge and experience regarding the employees and it can help to solve future problems or even avoid having problems.

Company mission should be clear and at least neutral

We can see similarities between our work and already existing research when we look at the ethical aspects of the company mission. The problem is that if a software company develops software with an unethical purpose or works with a company which has an unethical mission, the developer who works in such a software company has a guilty conscience. This means that although having a job with all the factors being perfect which are most important for the developer, if the background of the code the developer writes has a negative effect on the world, most of them would quit their job or at least would say “No” if asked to write code for an “unethical purpose” [Exc18]. The ethical point of the work the developers perform is not a point the developers named at the beginning when they were asked to describe the perfect company, but it is a point that is serious when developers search for a job. It is not a point that companies can change to make the developers stay in their company but according to the participants it is good to be at least clear what the

mission of the company is and therefore let the employees decide on their own whether the background of the work they are going to do is at least neutral or not. Since over 50% of software developers are likely to accept less money to work at a company with great culture [Gla14] we can assume that if a developer has job offers of two different companies whereas one company is known for having unethical missions, the probability that the developer chooses this offer decreases. The main possibility for companies which have an unethical company mission to increase the chances of hiring new employees is an above-average salary because that is the highest priority for software developers when it comes to assessing potential jobs [Exc18].

Freedom and familiar environment

Looking at Figure 4.2 we can clearly see that *Work/Life balance* has by far the highest number of codings. Since this factor is mentioned so often, we can assume that it is also the most important one and thus, influences the developer the most to stay in the company. During the interviews, we had the feeling that every participant wanted to make clear that the environment and social interaction in the company is a factor which influences the overall feeling and views the employees have of the company. The results of Section 4.2.1 indicate that the working atmosphere is an essential reason for developers to stay with their current company. The working atmosphere includes the relationship to superiors which means that superiors have a big influence on the employees' attitude. Participants said that if the superiors take care of every individual employee and also take care of their family and give them the feeling that they are more of a "friend" than a "boss" it helps them to gain trust. The importance of perceived organizational support and trust was also discussed by Ertürk and Vurgun [EV15] which we described in Section 2.3.1 and we can assume that our results are similar to theirs and we can say that in a high-trust environment the superiors' support reduces the intention of developers to quit their job. It is safe to say that just by looking at the coding numbers, among our participant's *Work/Life balance* is the most important factor and thus, we can see similarities to the results of Figure 2.1.

The main point related to *Work/Life balance* which was mentioned in our interviews was the number of freedom employees has to take care of their family and their private problems. We can assume that flexible work hours which also is the main factor according to Figure 2.1 have the biggest influence on ones' feeling of freedom. The freedom that employees receive through flexible work hours creates a direct connection between work and life. Therefore, a lack of freedom caused by for example no flexible work hours affects the way an individual plans his private life and this can lead to dissatisfaction.

Characteristics of a software developer

Capretz found that software developers and psychological types are clearly related [Cap03]. Since software developers represent a special group of people, the individual characteristics should also be taken into consideration by superiors when dealing with employees. For example, software developers tend to be introverted [Cap03] and thus, it needs surrounding people, in this case, superiors, to take initiative and to try to build a good relationship. In the "Personality" part of Section 4.2 we described how the characteristics and psychological

pressure influences an employees' behavior. Participants said that in the beginning when they started in a new job they had fear of not contributing anything and they questioned ones' own added value. This is probably a more common factor since fear of starting in a new job is not a software developer specific aspect. Also, they said that a good relationship among colleagues is an important factor to stay at a company and also to connect work and life through colleagues which evolve to friends. In a working environment it is unavoidable to have contact to other colleagues and if the relationship is good enough, it has an effect on the joy an employee has at work and he is happy to see his colleagues. Moreover, this happiness at work can lead to better performance [GWA14].

Differences between younger and older developers

During the interviews, we noticed differences in statements regarding the importance of specific factors. The two participants with a job experience of maximal two years pointed out that when they were looking for a new job, the most important factor for them was the possibility to learn new things and have the possibility to attend training sessions. While the participants also said that *Growth and learning* are important to them, they did not point out that factor as much as the younger participants did. We can assume that the importance of *Growth and learning* varies depending on the age of the participants which would also be similar to the results of [Rav18].

Salary: not a factor to leave but a factor to think about leaving

If we look at the number of codings of *Compensation* in Figure 4.2 which is the lowest of all categories with 31 codings (11 codings related to salary), we can assume that salary does not play a significant role when it comes to motivation for software developers to stay at a specific company. What was conspicuous is that when we asked the participants the question: "If you had the opportunity to switch to another employer who is better at the things that matter most to you. How would you react?", most of them automatically reacted to this question mentioning the salary and that they would try to speak to their superiors regarding salary increase, although not mentioning the salary when describing the perfect company. At the latest, if the employee decides to start a family, the claims for higher salary become more important.

We can assume that salary is not a factor which leads to employees' decision to stay at the company further on but it is an important factor with regard to quitting a job because of opportunities for a job with higher salary. It is maybe not one of the most important factors, but it furthermore enhances the intention to quit if there is also dissatisfaction regarding another important factor for the employee.

Impact of digitization on the profession

At first, we wanted to present *Profession* as an additional factor to the four main factors (see Section 3.4) but we decided to move it to this chapter since it is not directly a factor which influences the motivation of developers to stay at a company. We think it is more a trend or evolution for years that take place and changes the demand for software developers

in the world. Hence, according to our interviewees, they would not have problems in finding new jobs as some of them continuously receive job offers and also have experienced headhunting through social networks which primarily exist to manage professional contacts. We assume that they wanted to make clear that the decision to stay in their current company has nothing to do with the current labour market but the information that other companies have interest in them gives them security when speaking with superiors about compensation or other bonuses.

5.2 Limitations

Honesty of participants

Throughout our study, most of the time we had the feeling that the participants were honest and did not hesitate to tell their own thoughts but during some interviews, we had the impression that the interviewee sees the company he/she works for as perfect and did not criticize it in any way. On the one hand, this can be due to the fact that the participants really see the company they currently work for as perfect. On the other hand, it may indicate that the participants had concerns regarding anonymity and did not fully trust us. We furthermore had the feeling that the younger participants had fewer concerns in comparison to the more experienced participants.

As we described in Chapter 3, we think that we introduced our study in a good way and have taken care of giving the participants the security and freedom to tell their thoughts on the questions and the company they work for without having a fear that any names or information get public.

There is no perfect data gathering option

We think that our decision to gather data with an audio recorder might have influenced the interview in a negative way. While not having the feeling that the participant feels uncomfortable during the interview, the fact that one participant declined to have the interview recorded gives us concerns whether the audio recorder influenced the answers the participants gave to our questions.

In our opinion, we gathered the data with the best possible option and therefore we think conducting interviews without influencing the interviewee in any way is hard to achieve. As we discussed in Chapter 3, we think that an additional person for taking notes while the interview takes places would influence the interviewee even more since there would be another person in the room who just constantly takes notes without participating actively. Having the interviewer taking notes by himself would affect the “flow” of the interview and could result in data loss since the notes, as good as they are taken, are not as precise as a sound recording of the interview.

6 Conclusion

In this work, we wanted to explore the motivations of developers to stay with their current company. Therefore, we first looked at related work to discover what prior researchers already explored and what they suggest for future work. With the explanations of interview types, question-wording and *Grounded Theory* we have set good basics to conduct our study.

In the next chapter, we described the design of our study and the precise procedure of how we conducted it.

We came to the results which were mostly similar to the results of the related work. Additionally we found out that although salary was not pointed out that much in our study, is an important factor.

Following the results, we discussed our findings. For companies, the desire of hiring developers for a long period of time, best until retirement age will always be one of the most important aspects. Most of our results were already discovered with prior research and thus the numbers of developers who quit are still too high for the likes of the companies. Companies have to invest a high amount of money and time into new employees to get them to the point where they can deliver results and help them to grow.

As stated in the previous chapter, the relationship between employees and their superiors has a big influence on the image the employee has for the company. Good relationships within the company, good working atmosphere, and open and direct communication are the key aspects when it comes to the perfect company which was described by our participants.

Future work

We think it would be interesting to conduct our study in a larger extent with over 20 participants and with the sample being not a mix of developers and managers, but just software developers with a variety of job experiences.

We also suggest conducting interviews in several companies and with multiple employees of every specific company. This way we can compare the statements of developers who work for the same company to explore if their feelings and images of the company coincide with each other.

A Interview guide with introduction to study

Introduction

Hallo/Guten Tag/etc., mein Name ist Reha Sakizli. Ich studiere Informatik an der Universität Stuttgart und arbeite gerade an meiner Bachelorarbeit, die den Titel: Exploring the motivations of developers to stay with their current company hat. Wie der Titel schon hindeutet geht es in dieser Arbeit um die Gründe, ob und warum Softwareentwickler bei ihrem momentanen Arbeitgeber bleiben bzw. warum sie den momentanen/früheren Arbeitgeber verlassen würden/haben. Um diese herauszufinden, führe ich im Rahmen meiner Bachelorarbeit Interviews mit Softwareentwicklern durch, um einen tieferen Einblick in die Lage der Softwareentwickler zu bekommen und die Argumente für bzw. Argumente gegen eine Arbeitsstelle zu verstehen und auszuwerten.

Das Interview dauert in der Regel ca. eine Stunde und Ihre Daten und Aussagen, die von der Audiospur transkribiert werden, werden natürlich anonym behandelt und es werden keinerlei Namen veröffentlicht. Sie müssen jedoch dieses Formular (Einwilligung zur Benutzung der Ergebnisse) unterschreiben, wodurch Sie mir die Erlaubnis geben, die Antworten/Ergebnisse dieses Interviews in meiner Arbeit zu verwenden und zu veröffentlichen. Möglicherweise können im Nachhinein meine Betreuer Marvin Wyrich und Dr. Daniel Graziotin vom Institute of Software Technology an der Universität Stuttgart die Arbeit analysieren und ihre Aussagen lesen bzw. anhören. Außerdem stimmen Sie damit zu, dass das Interview mit einem Aufnahmegerät aufgenommen wird. Die Tonspur wird niemals veröffentlicht, die Aufnahme dient lediglich dazu, dass ich es bei der Auswertung leichter habe und noch genau weiß, wie Ihre Antworten waren. Ich führe das Interview unabhängig von Ihrem Arbeitgeber bzw. Ihrem Unternehmen durch und habe keinerlei geschäftliche Verbindung. Ihr Arbeitgeber wird auch keinerlei Information über dieses Interview erhalten.

Wenn es Ihnen durch das Interview unangenehm wird, können Sie es abbrechen und wenn Sie irgendeine Frage nicht richtig verstanden haben oder bei einer Frage irgendwelche Unklarheiten bestehen, sagen Sie es mir bitte und ich versuche die Frage eventuell anders zu stellen oder zu erklären was damit gemeint ist. Ich möchte ihnen im Vorhinein schon mal herzlichst danken, dass sie an diesem Interview teilnehmen und mich dadurch bei meiner Arbeit unterstützen.

Falls Sie keine Fragen mehr haben und bereit sind anzufangen, können wir gerne loslegen.

Interview guide

- Was genau machen Sie am Unternehmen?
- Wie sieht Ihr gewöhnlicher Arbeitstag aus?
- Wie lange üben Sie Ihren momentanen Beruf schon aus?
- Wie sind Sie auf das Unternehmen, in dem Sie momentan arbeiten, aufmerksam geworden?
- Wie lange arbeiten Sie schon für das momentane Unternehmen?
- Wie würden Sie das perfekte Unternehmen beschreiben?
 - Ist das Unternehmen, in dem Sie momentan arbeiten, perfekt?
 - Warum/Warum nicht?
- Wie würden Sie es beschreiben wie Sie gemerkt haben, dass oder ob das jetzige Unternehmen, in dem Sie arbeiten, der richtige für Sie ist?
 - Was war Ihnen dabei wichtig?
- Wie hat sich Ihre Einstellung gegenüber dem Unternehmen, in dem Sie momentan arbeiten, über die Zeit hinweg geändert?
 - Gab es Ereignisse, die Einfluss auf Ihre Einstellung hatten?
 - Würden Sie sagen, es hat sich eher ins Positive/Negative als ins Negative/Positive entwickelt?
- Angenommen Sie hätten die Wahl etwas an ihrem Arbeitgeber zu ändern, das Sie stört oder wodurch Ihre Motivation für die Arbeit steigen würde. Was würden Sie ändern?
 - Warum würden Sie genau das ändern?
 - Nehmen wir an, Sie müssten im Gegenzug auf etwas verzichten oder etwas würde sich bei den Arbeitsbedingungen ändern, dass Ihnen möglicherweise nicht so gut gefallen könnte. Was wäre dies?
- Wenn Sie die Möglichkeit dazu hätten zu einem anderen Arbeitgeber zu wechseln, der in den Dingen besser ist, die für Sie am wichtigsten sind. Wie würden Sie reagieren?
 - Würde es Ihnen eher schwer- oder leichtfallen? Was wäre für Sie der ausschlaggebende Punkt, um zu bleiben?
- Wie würde sich Ihre Sicht zu ihrer momentanen Arbeitssituation ändern, wenn bestimmte Ereignisse in ihrem Leben auftreten, die eine merkbare Veränderung Ihrer Lebensweise bewirken?
- Was unternimmt das Unternehmen, in dem Sie momentan arbeiten, um Arbeitnehmer dazu zu motivieren in dem Unternehmen zu bleiben?
- Was könnten Arbeitgeber ihrer Meinung nach unternehmen, um die Arbeitnehmer dafür zu motivieren langfristig in Ihrem Unternehmen zu bleiben ?

B Consent form

Beschreibung

Im Rahmen meiner Bachelorarbeit führe ich eine Studie durch, in der ich durch Interviews versuche die Gründe herauszufinden, warum Softwareentwickler bei ihrem momentanen Unternehmen bleiben bzw. warum sie das momentane Unternehmen verlassen würden. Die Interviews sollen mir dabei helfen, einen tieferen Einblick in die Lage der Softwareentwickler zu bekommen und Argumente für bzw. Argumente gegen eine Arbeitsstelle zu verstehen und auszuwerten.

Zeitaufwand

Das Interview wird einmalig 60 Minuten dauern. Bei eventuellen Rückfragen kontaktiere ich Sie anschließend, um diese zu klären. Sie werden vor der Abgabe der Bachelorarbeit noch die Möglichkeit dazu haben, das Interview einzusehen, um Aussagen zu ändern bzw. zu löschen.

Datenerhebung

Sie stimmen mit der Einverständniserklärung zu, dass das Interview mit einem Tonaufnahmegerät aufgenommen wird. Die Tonspur wird niemals veröffentlicht, die Aufnahme dient lediglich dazu, dass ich es bei der Auswertung leichter habe und noch genau weiß, wie Ihre Antworten waren. Ihre Daten und Aussagen, die von der Audiospur transkribiert werden, werden anonym behandelt und es werden keinerlei Namen veröffentlicht oder erwähnt. Möglicherweise können im Nachhinein meine Betreuer Marvin Wyrich und Dr. Daniel Graziotin vom Institute of Software Technology der Universität Stuttgart die Arbeit analysieren und das Interview nachlesen bzw. anhören. Ich führe das Interview unabhängig von Ihrem Arbeitgeber bzw. Ihrem Unternehmen durch und habe keinerlei geschäftliche Verbindung. Ihr Arbeitgeber wird keinerlei Information über dieses Interview bekommen.

Rechte des Teilnehmers

Die Teilnahme an der Studie ist freiwillig. Sie haben jederzeit das Recht, das Interview abzubrechen.

Risiken und Vorteile

Durch die Teilnahme an der Studie setzen Sie sich keinem Risiko aus. Sie könnten jedoch mentale Müdigkeit durch das Interview erfahren. Die Vorteile, die wir aus dieser Studie erhalten, helfen Unternehmen möglicherweise ihre Arbeitgeber zufriedener zu stellen und längerfristiger zu behalten.

Studienleiter

Bei eventuellen Rückfragen, Bedenken oder Beschwerden, können Sie mich gerne kontaktieren.

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Ich habe die Einverständniserklärung gelesen und verstanden. Ich erkläre hiermit meine freiwillige Teilnahme an dieser Studie.

Bibliography

- [Cap03] L.F. Capretz. “Personality types in software engineering”. In: *International Journal of Human-Computer Studies* 58 (2003), pp. 207–214. ISSN: 10715819. DOI: 10.1016/S1071-5819(02)00137-4. URL: <http://linkinghub.elsevier.com/retrieve/pii/S1071581902001374> (cit. on p. 32).
- [Cha96] K. Charmaz. “The Search for Meanings Grounded Theory”. In: *Rethinking Methods in Psychology* (1996), pp. 27–49. ISSN: 1092-0811. DOI: 10.1016/B978-0-08-044894-7.01581-5. arXiv: arXiv:1011.1669v3 (cit. on pp. 12–14, 21).
- [DF01] K. T. Dirks, D. L. Ferrin. “The Role of Trust in Organizational Settings”. In: *Organization Science* 12.4 (2001), pp. 450–467. ISSN: 1047-7039. DOI: 10.1287/orsc.12.4.450.10640. arXiv: arXiv:1011.1669v3. URL: <http://pubsonline.informs.orghttps://doi.org/10.1287/orsc.12.4.450.10640http://www.informs.org%20http://pubsonline.informs.org/doi/abs/10.1287/orsc.12.4.450.10640> (cit. on p. 14).
- [DN13] Doody O, Noonan M. *Preparing and conducting interviews to collect data. - The University of Sheffield (Alma)*. 2013. URL: https://ulir.ul.ie/bitstream/handle/10344/5588/Doody%7B%5C_%7D2013%7B%5C_%7Dpreparing.pdf?sequence=1%20http://find.shef.ac.uk/primo%7B%5C_%7Dlibrary/libweb/action/display.do?tabs=detailsTab%7B%5C%7Dct=display%7B%5C%7Dfn=search%7B%5C%7Ddoc=RS%7B%5C_%7D613515578282013nginterviewstocollectdata%7B%5C%7Dindx=1%7B%5C%7DrecIds=RS%7B%5C_%7D61351557 (visited on 10/24/2018) (cit. on p. 19).
- [EV15] A. Ertürk, L. Vurgun. “Retention of IT professionals: Examining the influence of empowerment, social exchange, and trust”. In: *Journal of Business Research* 68.1 (2015), pp. 34–46. ISSN: 01482963. DOI: 10.1016/j.jbusres.2014.05.010. URL: https://ac.els-cdn.com/S0148296314001945/1-s2.0-S0148296314001945-main.pdf?%7B%5C_%7DtId=97083c23-4134-4074-85ec-cbab493d04d0%7B%5C%7DacDnat=1531402780%7B%5C_%7Deea4d375d3a3821b12aaf7a1242f89d (cit. on pp. 14, 32).
- [Exc18] S. Exchange. *Stack Overflow 2015 Developer Survey*. 2018. DOI: 10.1002/art.30421. URL: <https://insights.stackoverflow.com/survey/2018/%7B%5C%7Dwork%20http://stackoverflow.com/research/developer-survey-2015> (visited on 11/20/2018) (cit. on pp. 9, 17, 31, 32).
- [GA11] A. H. Ghapanchi, A. Aurum. *Antecedents to IT personnel’s intentions to leave: A systematic literature review*. 2011. DOI: 10.1016/j.jss.2010.09.022. URL: https://ac.els-cdn.com/S0164121210002645/1-s2.0-S0164121210002645-main.pdf?%7B%5C_%7DtId=e34e411c-bb13-4889-bcac-168855c8f8d1%7B%5C%7DacDnat=1531390745%7B%5C_%7D9a5877565d833962f8e03d00f1376191 (cit. on p. 15).

Bibliography

- [Gla14] Glassdoor. *How To Recruit Software Engineers*. 2014. URL: <https://www.glassdoor.com/employers/blog/how-to-recruit-software-engineers-1-in-4-expect-to-look-for-a-new-job-in-next-3-months-glassdoor-survey/> (visited on 12/05/2018) (cit. on pp. 18, 32).
- [GSJS13] P. Ghosh, R. Satyawadi, J.P. Joshi, M. Shadman. “Who stays with you? Factors predicting employees’ intention to stay”. In: *International Journal of Organizational Analysis* 21.3 (2013), pp. 288–312. ISSN: 1934-8835. DOI: 10.1108/IJOA-Sep-2011-0511. URL: <https://www.emeraldinsight.com/doi/pdfplus/10.1108/IJOA-Sep-2011-0511%20http://www.emeraldinsight.com/10.1108/IJOA-Sep-2011-0511> (cit. on p. 9).
- [GWA14] D. Graziotin, X. Wang, P. Abrahamsson. “Happy software developers solve problems better: psychological measurements in empirical software engineering”. In: *PeerJ* 2 (2014), e289. ISSN: 2167-8359. DOI: 10.7717/peerj.289. arXiv: 1505.00922. URL: <https://peerj.com/articles/289.pdf%20https://peerj.com/articles/289> (cit. on p. 33).
- [Har17] Harvard Department of Sociology. “Strategies for qualitative interviews”. In: *Harvard University* part II (2017), pp. 1–4. URL: https://sociology.fas.harvard.edu/files/sociology/files/interview%7B%5C_%7Dstrategies.pdf%20http://sociology.fas.harvard.edu/files/sociology/files/interview%7B%5C_%7Dstrategies.pdf (cit. on p. 12).
- [JF12] S. A. Jacob, S. P. Furgerson. *Qualitative Report The Writing Interview Protocols and Conducting Interviews: Tips for Students New to the Field of Qualitative Research*. Tech. rep. 2012. DOI: Retrieved from <http://www.nova.edu/ssss/QR/QR17/jacob.pdf>. arXiv: 2073543361. URL: <http://www.nova.edu/ssss/QR/QR17/jacob.pdf> (cit. on p. 19).
- [Kit03] B. Kitchenham. “Procedures for performing systematic reviews”. In: *British Journal of Management* 14 (2003), pp. 207–222. ISSN: 13537776. DOI: 10.1111/1467-8551.00375. arXiv: 339:b2535. URL: [http://csnotes.upm.edu.my/kelasmaya/pgkm20910.nsf/0/715071a8011d4c2f482577a700386d3a/%7B%5C%\\$%7DFILE/10.1.1.122.3308\[1\].pdf%20http://csnotes.upm.edu.my/kelasmaya/pgkm20910.nsf/0/715071a8011d4c2f482577a700386d3a/%7B%5C%\\$%7DFILE/10.1.1.122.3308\[1\].pdf%7B%5C%\\$%7D5Cnhttp://tests-zingarelli](http://csnotes.upm.edu.my/kelasmaya/pgkm20910.nsf/0/715071a8011d4c2f482577a700386d3a/%7B%5C%$%7DFILE/10.1.1.122.3308[1].pdf%20http://csnotes.upm.edu.my/kelasmaya/pgkm20910.nsf/0/715071a8011d4c2f482577a700386d3a/%7B%5C%$%7DFILE/10.1.1.122.3308[1].pdf%7B%5C%$%7D5Cnhttp://tests-zingarelli). (cit. on p. 15).
- [Loc03] N. R. Lockwood. “Work/Life Balance: Challenges and Solutions for Human Resource Management”. In: *Challenges and Solutions for Human Resource Management* (2003), pp. 1–10. URL: <http://www.wordspy.com/words/work-lifebalance.asp> (cit. on p. 25).
- [Rav18] V. Ravisankar. *2018 Developer Skills Report by HackerRank*. 2018. URL: <https://research.hackerrank.com/developer-skills/2018/> (cit. on pp. 16, 17, 33).
- [SRF16] K.-j. Stol, P. Ralph, B. Fitzgerald. “Grounded Theory in Software Engineering Research : A Critical Review and Guidelines”. In: *Proceedings of the 38th International Conference on Software Engineering - ICSE '16* (2016). ISSN: 02705257. DOI: <http://dx.doi.org/10.1145/2884781.2884833> (cit. on pp. 12, 23).

- [Tur10] D. W. Turner. “Qualitative interview design: A practical guide for novice investigators”. In: *The Qualitative Report* 15.3 (2010), pp. 754–760. ISSN: 10520147. DOI: <http://www.nova.edu/ssss/QR/QR15-3/qid.pdf>. arXiv: 2073543361. URL: <http://nsuworks.nova.edu/tqr%20http://nsuworks.nova.edu/tqr/vol15/iss3/19%20http://www.nova.edu> (cit. on p. 11).
- [VS02] D. Valenzuela, P. Shrivastava. “Interview as a method for qualitative research”. In: *Presentation* (2002), pp. 1–20. ISSN: 10520147. DOI: 0018726708094863. URL: <http://www.public.asu.edu/~7B~%7Dkroel/www500/Interview%20Fri.pdf%20http://xa.yimg.com/kq/groups/24019306/564129146/name/Interview+as+a+Method+for+QR.pdf> (cit. on pp. 11, 12).
- [Wag68] S. A. Wagner H, Glaser B. “Discovery of Grounded Theory - Strategies for Qualitative Research - Glasser, Bg and Strauss, Al”. In: *Psychosomatics* 9.3 (1968), p. 188 (cit. on pp. 12, 14).
- [Wri06] K. B. Wright. “Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services”. In: *Journal of Computer-Mediated Communication* 10.3 (June 2006), pp. 00–00. ISSN: 10836101. DOI: 10.1111/j.1083-6101.2005.tb00259.x. arXiv: 1083-6101. URL: <https://academic.oup.com/jcmc/article/4614509%20http://doi.wiley.com/10.1111/j.1083-6101.2005.tb00259.x> (cit. on p. 16).

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Declaration

I hereby declare that the work presented in this thesis is entirely my own and that I did not use any other sources and references than the listed ones. I have marked all direct or indirect statements from other sources contained therein as quotations. Neither this work nor significant parts of it were part of another examination procedure. I have not published this work in whole or in part before. The electronic copy is consistent with all submitted copies.

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