

Erasmus University Rotterdam  
Master in Public Administration – Management of Governance Networks  
Academic Year 2017/2018

## **Master Thesis**

# **Ways to fight teacher turnover**

An analysis of the determinants of teacher job satisfaction in a cross-country analysis using TALIS 2013

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Date of completion: 06.11.2018

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Word count: 24.423

## **Preface/Acknowledgement**

This thesis marks the final milestone of my time as a student. Within the last year as a master student at Erasmus University of Rotterdam, I got to know many great and inspiring people and friends. Hereby, I would like to thank everyone that made my time in Rotterdam such a unique experience.

With this thesis, I was able to conduct in a study in what I conceive as one of the most important areas of our society: education. Especially in our constantly changing world, education has to be one of our first priorities for a better future!

During the thesis, I was able to connect my personal interest in the development of the educational system with scientific research. Thereby, I really appreciated the opportunity to work closely together with educational experts from all around the world. It was great to see and speak to so many dedicated people, and exchange ideas and information.

First of all, I would like to thank my supervisor Bert George for supporting me during this writing process. With his expertise and personal dedication to education, he was an inspiration throughout the whole writing process. He helped me to structure this paper, to critically reassess my research, and contributed numerous valuable ideas. Furthermore, he was a great support during the data analysis and made it possible to conduct these high-quality interviews.

I would also like to thank Marco Kools for connecting me to the experts from the OECD, the Ministry of Education, and the TALIS project team in The Netherlands. Furthermore, I am very thankful for the interview partners for offering their time and expertise. Without them, this thesis would miss many interesting and important ideas. In addition, I would like to thank Bram Steijn for critically reflecting on my research and offering a new perspective on this work.

Finally, I would like to thank my family and friends for supporting me during this year who made this a very special year, and enabled me to develop both personally and professionally.

Mirko Schoedel

## Executive Summary

- *This thesis is exploring the antecedents of teacher job satisfaction as a measure to fight teacher turnover in a cross-country study across the 34 OECD countries.*
- *Thereby, the TALIS 2013 dataset is analysed using Structural Equation Modelling, and qualitative interviews are conducted with educational experts and policy advisors from the OECD.*
- *The thesis provides a literature review and a definition of the concepts of teacher job satisfaction, teacher professional development, teacher self-efficacy in classroom management, and principal instructional leadership.*
- *Empirically, the thesis shows significant and positive relationships between all variables (principal instructional leadership, professional development of teachers, teacher self-efficacy in classroom management, and teacher job satisfaction) but the relationship between principal instructional leadership and teacher job satisfaction. In addition, the study shows that principal instructional leadership has an indirect influence on teacher job satisfaction by influencing professional development, and teacher self-efficacy.*
- *The interview partners emphasized the importance of the principal, professional development of teachers, and their self-efficacy for the creation of teacher job satisfaction, but also for a successful school. Hereby, the concept of the 'school as a learning organization' and the needs of both teachers, principals and the school itself should be in the focus of policy-making. Furthermore, policy-making should function more as a facilitator by guiding schools and focusing on the support of individualized and needs-oriented programmes.*
- *Finally, research should aim to unify the fragmented state of research and develop a more holistic understanding of the school. In addition, the TALIS dataset should be used more effectively, and links to other datasets (such as PISA) or variables such as culture (using the van Hofstede indicators) should be explored.*

## Table of Content

|                                                                                                  |           |
|--------------------------------------------------------------------------------------------------|-----------|
| <b>1. Introduction .....</b>                                                                     | <b>1</b>  |
| 1.1 <i>Research goal and research questions.....</i>                                             | 3         |
| 1.2. <i>Research Relevance .....</i>                                                             | 5         |
| 1.2.1 Academic Relevance.....                                                                    | 5         |
| 1.2.2 Societal Relevance.....                                                                    | 6         |
| 1.3 <i>Structure of the paper.....</i>                                                           | 8         |
| <b>2. Literature Review .....</b>                                                                | <b>10</b> |
| 2.1 <i>Definition of Job Satisfaction.....</i>                                                   | 11        |
| 2.2. <i>Link between job satisfaction and motivation theory .....</i>                            | 11        |
| 2.2.1 Maslow's hierarchy of needs .....                                                          | 12        |
| 2.2.2 Herzberg's motivator-hygiene theory.....                                                   | 13        |
| 2.2.3 Hackman & Oldham's Job Characteristics Model .....                                         | 15        |
| 2.2.4 Dispositional Approach & Five-Factor model of personality and job satisfaction .....       | 16        |
| 2.3. <i>Job satisfaction in Public Administration .....</i>                                      | 17        |
| 2.4. <i>Antecedents of teacher job satisfaction.....</i>                                         | 18        |
| 2.5 <i>Self-efficacy .....</i>                                                                   | 20        |
| 2.6 <i>Professional Development .....</i>                                                        | 23        |
| 2.7 <i>Leadership .....</i>                                                                      | 29        |
| 2.8 <i>Hypotheses .....</i>                                                                      | 31        |
| 2.9 <i>Conceptual model.....</i>                                                                 | 36        |
| <b>3. Methodology.....</b>                                                                       | <b>37</b> |
| 3.1 <i>Research Design .....</i>                                                                 | 37        |
| 3.2 <i>Data Collection .....</i>                                                                 | 38        |
| 3.2.1 Quantitative Data: The Teaching and Learning International Survey (TALIS).....             | 38        |
| 3.2.2 Quality indicators of the questionnaire.....                                               | 41        |
| 3.3 <i>Operationalization and Measurement of the variables.....</i>                              | 41        |
| 3.3.1 Job satisfaction of teachers .....                                                         | 41        |
| 3.3.2 Self-efficacy of teachers in classroom management.....                                     | 42        |
| 3.3.3 Professional Development of teachers .....                                                 | 42        |
| 3.3.4 Instructional leadership by the principal.....                                             | 43        |
| 3.4 <i>Descriptive statistics .....</i>                                                          | 44        |
| 3.5 <i>Qualitative Data Collection .....</i>                                                     | 45        |
| 3.6 <i>Limitations of methods / controlling for measurement errors.....</i>                      | 46        |
| <b>4. Results.....</b>                                                                           | <b>49</b> |
| 4.1. <i>Quantitative results .....</i>                                                           | 49        |
| 4.1.1 Measurement model.....                                                                     | 49        |
| 4.1.2 Structural model .....                                                                     | 50        |
| 4.2 <i>Qualitative results: Interviews with OECD policy advisors .....</i>                       | 51        |
| 4.2.1 The relationship between principal leadership and teachers' professional development ..... | 52        |
| 4.2.2 The relationship between PD and both self-efficacy and job satisfaction .....              | 55        |
| 4.2.3 Relationship between principal instructional leadership and self-efficacy of teachers..... | 59        |
| 4.2.4 Relationship between instructional leadership and job satisfaction .....                   | 60        |
| 4.2.5 Relationship self-efficacy and job satisfaction.....                                       | 62        |
| <b>5. Discussion .....</b>                                                                       | <b>65</b> |
| 5.1 <i>Research implications .....</i>                                                           | 65        |
| 5.2 <i>Policy implications .....</i>                                                             | 66        |
| 5.3 <i>Future challenges .....</i>                                                               | 67        |
| <b>6. Conclusion.....</b>                                                                        | <b>69</b> |
| <b>Appendix.....</b>                                                                             | <b>71</b> |
| <b>References .....</b>                                                                          | <b>72</b> |

## List of Figures

|                                                                                 |    |
|---------------------------------------------------------------------------------|----|
| Figure 1: Maslow's hierarchy of needs (1943) .....                              | 12 |
| Figure 2: Job Characteristics Model of Hackman & Oldham (1979) .....            | 15 |
| Figure 3: Conceptual Model .....                                                | 36 |
| Figure 4: Research Design - Sequential Explanatory Design .....                 | 37 |
| Figure 5: Possible TALIS 2013 themes .....                                      | 39 |
| Figure 6: TALIS design .....                                                    | 39 |
| Figure 7: A classification of the core parts of TALIS 2013 questionnaires ..... | 40 |
| Figure 8: Results Raykov's factor reliability coefficient .....                 | 49 |
| Figure 9: Results Convergent and Discriminant Validity Assessment.....          | 50 |
| Figure 10: Structural Model .....                                               | 51 |

## List of Tables

|                                                                                          |    |
|------------------------------------------------------------------------------------------|----|
| Table 1: Summary literature review - job satisfaction .....                              | 17 |
| Table 2: Sources of self-efficacy (Usher & Pajares, 2008) .....                          | 21 |
| Table 3: Effects of self-efficacy .....                                                  | 22 |
| Table 4: Theoretical development of human resource development .....                     | 25 |
| Table 5: Positive outcomes of teachers' professional development .....                   | 27 |
| Table 6: Barriers and challenges of teachers' professional development .....             | 28 |
| Table 7: Role of principals in teachers' professional development (Bredeson, 2000) ..... | 29 |
| Table 8: Items - job satisfaction .....                                                  | 42 |
| Table 9: Items - self-efficacy in classroom management.....                              | 42 |
| Table 10: Items - professional development .....                                         | 43 |
| Table 11: Items - instructional leadership of principals .....                           | 43 |
| Table 12: Descriptive Statistics .....                                                   | 44 |
| Table 13: The importance of leadership for professional development .....                | 52 |
| Table 14: Summary instructional leadership - professional development .....              | 55 |
| Table 15: Practical example of teachers' professional development.....                   | 57 |
| Table 16: Summary professional development - self-efficacy - job satisfaction .....      | 58 |
| Table 17: Summary instructional leadership - job satisfaction .....                      | 62 |
| Table 18: Summary self-efficacy - job satisfaction.....                                  | 64 |

# 1. Introduction

When looking at the media coverage of teachers in recent years, it becomes clear that in many countries teachers are leaving their classroom in order to protest and voice their dissatisfaction. In 2018, teachers in several states in the United States (US) such as Oklahoma, West Virginia, Kentucky, Arizona, Colorado and others, went on the streets to protest against low pay, working conditions, the lack of support from the government, and a missing school culture (Milgrom-Elcott, 2018). In her article, Milgrom-Elcott (2018) explained the protests in the US as follows: “People decide where to work based on many different factors, no small part of them whether they think they’ll be happy and fulfilled. For two decades, our rightful focus on student performance translated wrongly into believing that instructional time was king, and that putting students first meant putting adults second.” (Milgrom-Elcott, 2018). She further pointed out that children’s success and personal development is dependent on great teachers which require a great working place in order to perform on a high level. As a consequence, school cultures that support collaboration among teachers and a professional learning environment are “prerequisites for great student learning.” (ibid.).

Simultaneously, teacher protests occurred in several countries in Europe. In the Netherlands, teacher strikes caused the “largest work stoppage by Dutch primary teachers since the 1980s” (Meijer, 2017) as teachers demanded better wages and working conditions. In this regard, one teacher explained “Higher pay would be good, of course, but more assistance in the classroom is perhaps even more important” (Meijer, 2017). However, these teacher protests are just illustrating an even more severe problem that exists in the educational sector. In fact, teacher dissatisfaction does not only lead to teachers protesting, but on the long run to teachers leaving the profession. In their study, Carver-Thomas and Darling-Hammond show that the United States (US) face a national attrition rate of about eight percent annually among teachers. Similarly, Den Brok et al. (2017) examine that, especially in the first years, countries like Australia, The Netherlands, and the United Kingdom are confronted with high turnover rates among teachers. Carver-Thomas and Darling-Hammond (2017) explain that this has severe consequences both for the school itself, but also for the public administration. They find that teacher turnover is “disrupting school stability, collegial relationships, collaboration, and the accumulation of institutional knowledge.” (p.1). Moreover, it also implies huge financial costs “with estimates reaching \$20,000 or more for each teacher who leaves an urban district” (ibid.).

In their study, they again show quantitatively that teacher job dissatisfaction is the most dominant reason for teachers to turnover.

In addition, it is necessary to understand that teacher job satisfaction does not only determine whether a teacher stays in a school, or even in the profession, but that it also has an influence on the performance of both teachers and students. In fact, several studies identified job satisfaction as one of the most important antecedents of job performance of teachers and were even supported by several other fields of research such as 'Business', 'Management', and 'Psychology' (Brayfield & Crockett, 1955; Herzberg et al., 1957; Judge et al., 2001; Fisher, 2003). They showed that satisfied teachers have a stronger belief in their capabilities and try more innovative methods of teaching. In this regard, it is important to understand the role of teachers in a school. Although John Hattie's book "Visible learning", in which he covered more than 800 meta-studies and more than 80 million students, is often criticised for his research, he clearly shows that the teachers are highly responsible for the success of the educational system (Hattie, 2009). In this regard, several other studies have shown that there is a positive relationship between high quality of teachers and enhanced performance of students (Sanders & Rivers, 1996; Jordan et al., 1997; Darling-Hammond, 2000; Wayne & Youngs, 2003). In general, scholars widely agree on the importance of teachers in the educational system, and in this regard, also the importance of a high level of job satisfaction among teachers for retaining them in the profession and performing on a high level. However, there is only little consensual knowledge on a cross-country level about the antecedents of teacher job satisfaction (Cantarelli, 2016).

Thereby, the organisation of the educational system involves multiple actors such as schools, politics and the public administration. In this construct, Altrichter and Heinrich (2007) explain that the public administration owns large responsibility for making the political educational decisions work on a micro-level (f.e. schools) and coordinating the actual processes. However, public administration itself is a complex system and is characterised by three waves, namely Traditional Public Administration, New Public Management (NPM) and New Public Governance (NPG) (Osborne, 2006). In recent literature, scholars explained that all three movements still coexist in modern public organizations (Audenaert et al., 2018). Due to the coexistence of different and partly contrasting premises of the movements, the public administrations' civil servants face different demands in their daily work. While the Weberian bureaucracy expects employees to follow standard operation procedures and strict rules (Hughes, 2012), NPM strongly focuses on efficiency, accountability and performance (Hood,

1991), and NPG takes a pluralist approach and emphasises trust, inter-organizational governance and long-term relations (Osborne, 2006). These different foci also apply for the work of teachers. While on the one hand they are expected to follow strict rules and procedures, they also have to register performance data and are facing school rankings. In order to develop effective educational policies for teachers, it is highly important to acknowledge and understand these expectations that influence the daily work of teachers.

### 1.1 Research goal and research questions

This thesis aims to identify the determinants of teacher job satisfaction that influence teacher turnover. Thereby, we conduct a statistical analysis of the OECD's Teaching and Learning International Survey (TALIS) database followed by interviews with OECD experts. The TALIS dataset is an international survey of teachers and school principals from every OECD country in order "to increase the international information available to OECD countries and partner countries and economies on teachers, teaching, and the impact that teacher can have on student learning" (Rutkowski et al., 2013, p. 7). TALIS aims to provide "robust international indicators and policy-relevant analysis on teachers and teaching in order to help countries review and develop policies in their efforts to promote conditions for effective teaching and learning" (Rutkowski et al., 2013, p. 7). Thereby, the TALIS database contains survey data from more than 100.000 teachers from lower secondary education across 34 countries (Rutkowski et al., 2013) and the survey is conducted every five years. Although the database used is the most recently published one, there have been five years between its publication and this paper. Within this time, there have been some changes that have to be taken into account. Nevertheless, the dataset offers a unique richness of high qualitative data and thereby great insights and opportunities for an assessment of the antecedents of teacher job satisfaction. By using an international dataset, we tackle the afore mentioned research gap of cross-country studies on teacher job satisfaction. Furthermore, we can check whether previous findings about national relationships hold up in a cross-country comparison. Given the natural limitations of this study, we won't be able to analyse the results on a national level and interpret national differences. However, the results of this study can be a first step for future studies to focus on analysing country differences. In addition, this study might be an inspiration for other scholars to explore the opportunities of the TALIS dataset and use it for their own studies.

In order to gain insights into the antecedents of teachers' job satisfaction, this paper applies a mixed-methods approach following the guidelines of Creswell (2003). According to Creswell (2003), a mixed-methods approach can be defined as "one in which the researcher tends to base knowledge claims on pragmatic grounds (e.g., consequence-oriented, problem-centered, and pluralistic). It employs strategies of inquiry that involve collecting data either simultaneously or sequentially to best understand research problems. The data collection also involves gathering both numeric information (e.g., on instruments) as well as text information (e.g., on interviews) so that the final database represents both quantitative and qualitative information." (p. 19-20). Researchers tend to use this approach in order to broaden the understanding of the readers by using both qualitative and quantitative research and "to better understand, explain, or build on the results from the other approach" (Creswell, 2003, p. 205). However, it has to be kept in mind that a mixed-methods approach challenges the researchers to conduct a very time-intensive data collection and analysis and expects him or her "to be familiar with both quantitative and qualitative forms of research." (ibid.).

The qualitative interviews follow two goals. First, they are used in order to double-check the results that were gained in the analysis of the quantitative data. Thereby, we mainly ask the interviewees about their opinion on the results, and ask them to give an explanation why they think that there is a significant relationship between the variables. Second, we want to use the expertise of the interview partners in their fields and their experiences in educational policy-making. Therefore, the interviewees are asked to give their opinion on the policy implications of these results and what they would expect policies to look like.

The main research question is concerned with the determinants of job satisfaction among teachers. Thereby, we focus on the three antecedents of teacher job satisfaction that – according to theory – have the strongest influence on teacher turnover: school leadership, teacher professional development and teacher self-efficacy.

*Which are the antecedents of teacher job satisfaction and what is their relationship?*

In order to answer this main research question adequately, the first sub-chapter will give an overview on the antecedents of teacher turnover and teacher job satisfaction:

*Which theoretical insights does the literature offer on the antecedents of teacher job satisfaction? (chapter 2)*

After presenting these theoretical insights on the antecedents of job satisfaction, we will examine which conceptual model can be used to analyse the formulated hypotheses:

*Which conceptual model can be used to examine the relationship between the determinants (school leadership, teacher professional development, teacher self-efficacy) and teacher job satisfaction? (chapter 3)*

Finally, the conceptual model will be tested against the empirical findings. Thereby, it is possible to identify the antecedents of teachers' job satisfaction by presenting the similarities between qualitative and quantitative results. Furthermore, the differences in the results will be critically reflected. Therefore, the last sub-question asks:

*Which are the empirical findings on the influence of the determinants (teacher professional development, their self-efficacy, school leadership) on teacher job satisfaction? (Chapter 5)*

## 1.2. Research Relevance

Because job satisfaction has received high interest in the literature for several decades already, one might argue that there is no more research needed on this topic. However, the research field of Public Administration still lags behind neighbouring scientific fields (Cantarelli et al., 2016). Therefore, I will explain why researching the antecedents of job satisfaction of teachers is important not only for academia but also for society as a whole.

### 1.2.1 Academic Relevance

This thesis aims to bring new insights on the antecedents of job satisfaction of teachers. In general, it offers three improvements to the existing literature. Firstly, it offers cross-country evidence on job satisfaction of teachers (both qualitative and quantitative). Secondly, it offers

new insights on the antecedents of job satisfaction in the context of education. Thirdly, it offers insights about the differences between teachers' perspectives on their job satisfaction and perspectives of policy advisors from the OECD on teachers' job satisfaction.

The concept of job satisfaction is not new. Even the antecedents of job satisfaction have received high interest in the past. For already more than 60 years, several authors conducted research on job satisfaction and its origins and its effects (Brayfield & Crockett, 1955; Herzberg et al., 1957; Judge et al., 2001; Fisher, 2003). When searching for literature on job satisfaction, most studies are conducted in the fields of 'Business', 'Management', and 'Psychology'. However, the body of knowledge in the field of 'Public Administration' and 'Education' is growing. Different studies approach teacher job satisfaction by using single case studies or analysing single factors influencing job satisfaction. Thereby, they mostly rely on qualitative research approaches (Bogler, 2001; Caprara et al., 2006; Klassen & Chiu, 2010; Skaalvik & Skaalvik, 2011; Veldman et al., 2013; Zembylas & Papanastasiou, 2006). In contrast to the existing body of literature, this paper offers a new approach by analysing and comparing quantitative and qualitative cross-country data on job satisfaction of teacher. Thereby, it can also be a stimulus to conduct more research using the same or at least a similar design. Moreover, the study emphasises the opportunities of the TALIS dataset which has not been used a lot in research yet. At the same time, it functions as an evaluation of the TALIS 2013 questionnaires and gives the opportunity to improve TALIS questionnaires in the future – beginning with TALIS 2023. Furthermore, insights from this study also allow for more in-depth research, analysing best-case examples or conducting country comparisons. Based on this study, research could also link these insights with other variables and datasets like the PISA study which measures student outcomes.

### 1.2.2 Societal Relevance

This thesis contributes to the understanding of job satisfaction in the educational sector in general and about the antecedents of teachers' job satisfaction in specific. Bill Gates (2009) once said: "If you want your child to get the best education possible, it is actually more important to get him assigned to a great teacher than to a great school.". When connecting this statement with the understanding of Andreas Schleicher from the OECD that education will determine a country's economy and therefore also its success, we can see that teacher play an important role in the development of a society.

Several studies have proven that job satisfaction has a strong influence on job performance. In the private sector, this has been realized by companies for already quite some time.

Therefore, companies focus on improving the working conditions for its employees, emphasizing the working environment and acknowledging the call for work-life balance. Although the positive relationship between job satisfaction and job performance of teachers is also proven, little is known about the antecedents of this job satisfaction. Especially in the current technological and digital era it is highly important to understand what satisfies teachers in order to deliver high performance. In practice, several concepts such as ‘Blended learning’, ‘Massive Open Online Courses’ (MOOCs) and ‘tablet classrooms’ are discussed and already applied. However, if the personal interaction between teachers and students leads to a higher job satisfaction, this might be undermined by these technological developments. In addition, if teachers highly value the community with other employees and exchange about innovative ideas, these changes might decrease teachers’ job satisfaction and thereby decrease their performance. By analysing the antecedents for teachers’ job satisfaction, the public sector will be able to improve their job satisfaction and thereby enhance educational performance of both teachers and students in practice. Also it will be able to implement new innovative concepts based on the and alongside the interests of the teachers.

In addition, insights from this study might have a large influence on the recruitment and development programmes of both teachers and principals. Assuming that instructional leadership plays an important role for the self-efficacy and job satisfaction of teachers, this might be further linked with certain characteristics that the principal has to own in order to manage a school successfully. Simultaneously, a non-effect of principal’s instructional leadership might cause dissatisfaction for the principals themselves. The same would hold for the recruitment of teachers. Assuming that professional development is highly important for being satisfied as a teacher, you would need to recruit teachers who are open to those kind of developments. Furthermore, the design and practice of professional development might change according to the results of this study. While it could be necessary that teachers’ professional development programmes have to be re-designed if they are positively related with other variables, a non or negative relationship would either cause another kind of re-design or the abandonment of professional development programmes. Another implication of this study could be a change in the relationship between principals and teachers. The study could show that professional development programmes change the instructional leadership of a principal. It could also mean that principals need to be much more teacher-oriented than nowadays. If instructional leadership decreases the self-efficacy of teachers, this could also lead to the role of a principal as an administrator as it is the case for example in Greece.

Finally, the study will impact how changes in the educational landscape will be planned and implemented. The study might also cause a debate about which measures for creating teachers' job satisfaction are still necessary and how they could be adapted to each other. Several examples in the near past all across the world have shown the dissatisfaction of teachers with several of their working conditions including salary, work environment as well as physical and mental overload. As a consequence of their perceived bad salary and working conditions, teachers in the Netherlands ran a one-day strike and caused 90 percent of the national elementary schools to close. "Our salaries have barely grown in the past 10 years, while the work only got harder," 37-year-old teacher Bart Audenaerd said. "Something must be done now, to make our jobs more attractive and to prevent a major shortage of teachers in the years to come" (A News, 2017).

In conclusion, the study advances the knowledge on teacher job satisfaction with a unique approach of combining a large cross-country quantitative dataset with the expertise of educational experts and policy advisors. Thereby, it shows an opportunity on how to use the TALIS dataset effectively, and adds further insights into practical implications and future challenges in the educational sector. In addition, the study has high relevance for the recruitment and treatment of both teachers and principals. Based on this study, educational professional development programs can be optimized, and the role of teachers, principals and policies can be revisited.

Although this study was inspired by the current educational problem of teacher turnover, we will not examine teacher turnover directly. Instead, we will focus on its antecedents, namely job satisfaction. Furthermore, we will examine the antecedents of teacher job satisfaction that are expected to have the largest influence on teacher turnover. Finally, we will analyse the relationship between these antecedents and teacher job satisfaction.

### 1.3 Structure of the paper

The paper is structured as follows. In the next chapter, the theoretical foundations of the paper are elaborated. Thereby, theoretical insights on teacher job satisfaction will be presented and the literature will be reviewed regarding the most important antecedents of teacher job satisfaction. Thereby, we will take into consideration the problem of teacher turnover for the selection of the variables. In this regard, not only will we identify the antecedents of teacher job satisfaction, but we will also present theoretical insights on these variables and their

relationship towards job satisfaction. Thereby, the findings will be strongly based on the research fields of 'Public Administration', 'Management', and 'Psychology'. At the end of the second chapter, the main hypotheses, and the conceptual model will be presented. In the third chapter, the methodology of a mixed-methods approach will be examined. In this regard, we will explain both the quantitative and qualitative data collection and analysis. Next, the quantitative and qualitative data will be analysed and the results will be interpreted. Thereby, the interviews with educational policy advisors from the OECD will give insights into the practical implications of the quantitative results. Finally, a conclusion will answer the research question by summarizing the most important findings of the analysis, as well as discussing its implications for future research and limitations of the study.

## 2. Literature Review

This chapter offers a review on the academic literature on the concept of job satisfaction and examine its antecedents. Thereby, we will make a strong theoretical link to the influence of job satisfaction and teacher turnover, in order to identify the most important antecedents.

As shown in the previous chapter, the concept of job satisfaction is highly important not only for further research but also for practitioners and leaders who have to manage job satisfaction in a competitive landscape. Several scholars have shown that job satisfaction becomes more and more important for younger generations who rather apply for jobs which offer f.e. a good working environment and a good work-life balance (Skaalvik & Skaalvik, 2007; Bakker et al., 2011). These are just some of the factors that are said to correlate with job satisfaction.

An overview on the academic literature on the topic of job satisfaction shows the enormous importance that scholar assign to it. Rainey (2009) concludes “[t]housands of studies and dozens of different questionnaire measure have made job satisfaction one of the most intensely studied variables in organizational research, if not the most studied” (p. 274). In fact, the Social Sciences Citation Index (SSCI) listed over twenty-three thousand articles between 1975 and 2018 and over sixteen thousand articles in the last fifteen years on the topic of job satisfaction. A more detailed look shows that most literature in this field originates from the fields of ‘Management’, ‘Applied Psychology’, and ‘Business’. Interestingly, the interest on job satisfaction is a relatively new phenomenon in the field of Public Administration. In fact, only 604 of the articles since 1975 are related to this field and while twenty-one meta-analyses on job satisfaction (containing both “meta-analysis” and “job satisfaction” in the title) have been conducted in whole academia, only two are regarded to Public Administration science.

In this first part of the chapter, we want to give an overview about the theoretical insights on job satisfaction. This will be helpful to understand the complexity of the concept and presents valuable information for the development of policy implications in the last step of this study.

Thereby, the academic literature on the dependent variable (job satisfaction) and insights into its antecedents will be presented. Based on the recognition that other fields such as psychology seem to be distinctly ahead of Public Administration in terms of theory development, definition, measurement, correlates and the testing process (Cantarelli et al., 2016; Kinicki et al., 2002; Wanous et al., 1997), this section will primarily be based on findings from literature of the fields named above (‘Management’, ‘Applied Psychology’, and ‘Business’). In the second part

of this chapter, the antecedents (self-efficacy, professional development and principal leadership) and their relation to job satisfaction will be further reviewed.

## 2.1 Definition of Job Satisfaction

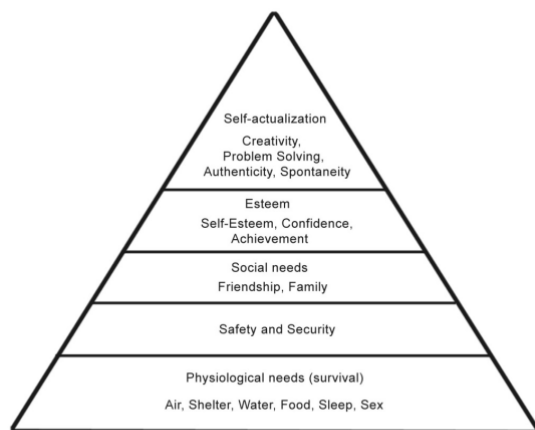
Although the concept of job satisfaction receives high interest in several fields, there are still several suggestions of researchers for the definition of job satisfaction. Especially the public sector lacks “a clear agreement on [these] basic questions” (Cantarelli et al., 2016, p. 117). In the early years of this academic research, job satisfaction was described as “the feelings a worker has about his job” (Smith, Kendall, & Hulin, 1969, p. 100). Public administration literature recently offered more multifaceted definitions that also acknowledge the diversity of one’s job. In this regard, Rainey (2009) described job satisfaction as “how an individual feels about his or her job and various aspects of it usually in the sense of how favorable—how positive or negative—those feelings are” (p. 298). The most used definition of job satisfaction is the one introduced by Locke (1976) describing job satisfaction as “a pleasurable or positive emotional state, resulting from the appraisal of one’s job or job experiences.” (p. 1304). Although there are multiple definitions of job satisfaction, almost all of them agree on job dissatisfaction being the opposite of job satisfaction (Cantarelli et al., 2016). A slightly different understanding of the relation between job satisfaction and dissatisfaction is presented in Herzberg’s dual-factor theory.

## 2.2. Link between job satisfaction and motivation theory

As shown before, job satisfaction is a concept that has been studied intensively and created the attention of several fields of academia – with public administration as one of the most recent research fields. However, a review of the concept of job satisfaction shows that is a strongly psychological factor. Behind the curtain of organizational psychology, several subfields of psychology such as work and organizational psychology and management psychology have developed theoretical concepts around the antecedents, processes and consequences/outcomes of job satisfaction. Scholars have detected that the creation of knowledge on job satisfaction has led to some disruptive changes in the way how jobs are designed, managers interpret leadership and how employees are treated in private companies and public organizations (Cantarelli et al., 2016). Ground breaking for these changes is the recognition that job

satisfaction is strongly related to human motivation which can also be seen in the strong overlap of theories on human motivation and those explaining job satisfaction. Given this relation and the important finding that motivational psychology delivered on the knowledge about job satisfaction, the most important theories from this field will be presented in the following. A review of job satisfaction research shows clearly a division between theories focusing on situational variables influencing job satisfaction and theories that mainly concentrated on dispositional factors of the people as determining the level of job satisfaction. Scholars agree on four most important job satisfaction theories. These are Maslow's theory of the 'hierarchy of needs', Herzberg's 'motivator-hygiene theory' and Hackman and Oldham's 'Job Characteristics Model' and the 'Dispositional approach'.

### 2.2.1 Maslow's hierarchy of needs



*Figure 1: Maslow's hierarchy of needs (1943)*

Maslow's hierarchy of needs theory can be considered as one of the first (if not the first) important theory towards job satisfaction. His aim was to explain the general motivation of human beings and thereby explain their behaviour in every situation. Maslow's main understanding indicated that human motivation aims to resolve a state of deficiency or unsatisfied need. Thereby, Maslow developed a hierarchy of needs that consisted of five different levels of needs that humans aim to satisfy. These needs are physiological needs such as hunger and thirst. After their fulfilment, human beings would care about their safety in which mainly refers to protecting himself/herself from physical and emotional harm and terror. On the next level, human beings aim to satisfy their social needs such as belonging to a group/community and experiencing love. When people have fulfilled their 'love needs', they reach a level which Maslow describes as 'esteem needs'. In this regard, he differentiates between internal esteem factors such as self-respect, autonomy and achievement, and external esteem

factors which he defines as “recognition, attention, importance or appreciation.” (Maslow, 1943, p. 382). According to Maslow, the satisfaction of these needs of self-esteem lead to “feelings of self-confidence, worth, strength, capability and adequacy of being useful and necessary in the world” (ibid.). At the same time, unfulfilled self-esteem needs “produces feelings of inferiority, of weakness and of helplessness” (ibid.). Once these feelings are satisfied, human beings aim to fulfil the last stage of human needs, namely the ‘need for self-actualization’. This desire of self-fulfillment is described by Maslow and “the desire to become more and more what one is, to become everything that one is capable of becoming” (ibid.).

In addition, he explains to keep in mind two aspects. Firstly, although these needs are separated in the pyramid, they cannot be seen as completely isolable from each other. Secondly, the specific forms of these needs “vary greatly from person to person. In one individual, it may take the form of the desire to be an ideal mother, in another it may be expressed athletically and in still another it may be expressed in painting pictures or in inventions” (p. 383). If we transfer Maslow’s theory to employee’s motivation, same important findings can be made about the creation of employers’ job satisfaction. Basic physiological needs can be satisfied to a stable and sufficient financial compensation and health. Khan et al. (2011) explain that without fulfilling these physiological needs, it is impossible to motivate employees and create (job) satisfaction. Although there has been major criticism on Maslow’s theory, it still provides an elementary understanding of human motivation and allows for interesting and important insights about employees’ job satisfaction.

### 2.2.2 Herzberg’s motivator-hygiene theory

Another highly important theory in the context of job satisfaction is the motivator-hygiene theory that was presented by Frederick Herzberg in 1959. His theory is based on 200 interviews that he conducted with accountants and engineers in the 1950s. The aim of his study was to find out what motivates and satisfies people respectively employees. Thus, the interviewees were first asked to recall a situation in which they felt satisfied and highly motivated. Next, they tried to determine reasons for this feeling of satisfaction by asking additional questions about the subjects’ feelings, personal relationships and their well-being. Afterwards, the same interviewees were asked to recall a situation in which they felt exceptionally negative and then again asked about circumstances and feelings of these people.

Based on these interviews, Herzberg explained that “humans have two different sets of needs which are satisfied or dissatisfied by different elements of the work situation (Wright, 1989). According to Herzberg’s theory, the first set (‘growth needs’ or satisfiers) is “related to the nature of the work itself and the rewards that flow directly from the performance of that work” (House & Wigdor., 1967, p. 370). Herzberg called these work-related factors intrinsic motivators which are “achievement, recognition, work itself, responsibility, and advancement” (ibid.). While these characteristics could only lead satisfaction, their non-existence would not lead to dissatisfaction. In fact, dissatisfaction would be triggered by the so-called ‘hygiene factors’. These hygiene factors concern the humans’ basic needs of survival. They are not directly related to the job itself but are characterized as “the individual’s relationship to the context or environment in which he does his work” (House & Wigdor, 1967, p. 370). Among these dissatisfiers are administration, low quality of supervision, job security and payment/salary. Herzberg explains that satisfying these needs by external motivation could not motivate employees or cause satisfaction but only function as prevention of dissatisfaction (Herzberg et al., 1959; Herzberg, 1971).

Herzberg’s faced strong criticism and some of his assumptions are even neglected in modern management literature such as the assumption that one factor would cause job satisfaction respectively job dissatisfaction for every person. In fact, literature has shown that one factor can lead to satisfaction for one individual and to job dissatisfaction for another (Tietjen & Myers, 1998). In addition, Herzberg’s theory is criticized for explaining that only job content and or job enrichment could increase work motivation and job satisfaction (Wright, 1989; Furnham et al., 2002). However, Furnham et al. (2002) explain that Herzberg’s theory and its application are still important within organizational theory. This is supported by the fact, that some of his findings are still important for the understanding of job satisfaction and are still the basis for modern studies (DeShields Jr. et al., 2005; Lundberg et al., 2009; Udechukwu, 2009). However, it is important to acknowledge that most of these studies have adapted the elements to their own circumstances and did not use the ‘original’ satisfiers and dissatisfiers.

### 2.2.3 Hackman & Oldham's Job Characteristics Model



FIG. 1. The job characteristics model of work motivation.

s) that he *personally* (experienced responsibility) has performed a task that he *cares about* (experienced meaningfulness). If the positive affect is reinforcing to the individual, and serves as a reward for him to continue to try to perform well in the future. If he does not perform well, he does not experience an increasing state of affairs, and he may elect to try harder in the future to regain the internal rewards that good performance brings. This is a self-perpetuating cycle of positive work motivation powered by internal rewards, that is predicted to continue until one or more of the psychological states is no longer present, or until the individual values the internal rewards that derive from good performance. It should be noted that self-generated motivation should be

Figure 2: Job Characteristics Model of Hackman & Oldham (1979)

The Job Characteristics Model of Hackman and Oldham can be understood as an advancement of Herzberg's dual-factor theory. While Herzberg was primarily interested in the question which motives are effective and what their consequences are, Hackman and Oldham examine the question which characteristics of a job are important for creating job satisfaction and which psychological processes contribute to job satisfaction. Central to their model are the psychological states employees experience: (a) experienced meaningfulness of the work, (b) experienced responsibility for the outcomes of the work, and (c) knowledge of the actual results of the work activities. According to Hackman and Oldham, these psychological states can be reached via five job characteristics. Skill variety, task identity and task significance contribute towards experienced meaningfulness. Skill variety refers to the necessity of a job to require a "variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the person." (p. 257). Task identity refers to the fact that a job "requires completion of a "whole" and identifiable piece of work" (ibid.). Finally, the job has to have a "substantial impact on the lives or work of other people, whether in the immediate organization or in the external environment" (ibid.). Furthermore, the theorists argue that employees expect to experience responsibility. This can be reached via a high level of autonomy whereby the employee can see that his "own efforts, initiative, and decisions rather than ... the adequacy of instruction from the boss or ... a manual of job procedures" (p. 258) have an impact. Finally, Hackman and Oldham argue that feedback is highly necessary in order to create knowledge and transparency on the results of one's performance. They explain that optimally all psychological states are on a high level but even without it, employees can experience high

internal work motivation, high quality work performance, high work/job satisfaction and low absenteeism and turnover. However, Hackman and Oldham explain that it is inevitable that employees' need for personal/individual self-expression/realization is satisfied in order to experience job satisfaction.

#### 2.2.4 Dispositional Approach

The dispositional approach to job satisfaction has a “spotty history in job satisfaction research” (Judge et al., 2002, p. 530). Fischer and Hanna (1931) noted that a large part of employees' dissatisfaction is the result from emotional maladjustment. Hoppock (1935) found a strong correlation between the emotional adjustment of workers and their level of job satisfaction. In 1997, Spector summarized earlier dispositional approaches as “[a]lthough many traits have been shown to correlate significantly with job satisfaction, most research with personality has done little more than demonstrate relations without offering much theoretical explanation” (p. 51). Brief and Roberson (1989) have shown that most research until the 1990 was focusing on situational variables having an impact on job satisfaction whereas dispositional factors influencing job satisfaction have received far less attention. From 1990 on, researchers attempted to address the link between individual characteristics and job satisfaction more intensely (Staw et al., 1986; Watson & Slack, 1993).

One of the findings from this period was the significant influence of work motivation and both positive and negative affectivity on job satisfaction (Staw et al., 1986; Agho et al., 1993). Furthermore, scholars supported this idea by presenting evidence that the genetic disposition plays a large role for the experience of job satisfaction (Arvey et al., 1989). The Minnesota Job Satisfaction Questionnaire (MSQ) did even indicate that “about 30% of variance of job satisfaction were attributable to genetic components” (Connolly & Viswesvaran, 2000, p. 266). Moyle (1995) explained that individuals with a high negative affectivity “perceive their environment generally in negative terms and thus these individuals perceive work as negative, resulting in low job satisfaction” (Connolly & Viswesvaran, 2000, p. 266). On the contrary, people with a high positive affectivity evaluate more positive cues from work which results into a higher level of job satisfaction (Levin & Stokes, 1999). One of the most prominent frameworks about the effects on dispositions on job satisfaction is the Big Five Framework. In the 1990s, this framework received strong consensus among scholars as explaining humans' dispositions as influential on their job satisfaction (McCrae & John, 1992, Judge et al., 2002).

Summary:

The motivational literature is divided into theories explaining job satisfaction as a consequence of dispositional factors, and those perceiving it as a consequence of situational factors. Both lines of argumentation delivered significant results and are still highly relevant for modern research and practice. The theories have shown two important lessons. First, it is important to consider teachers as individuals who react individually to certain policies and have a unique composition of experiencing job satisfaction. Second, the work environment and job characteristics have an important influence on the creation of job satisfaction and need to receive careful strategic planning. This will be highly important as foundation for the conduction of the interviews and the development of policies tackling teacher job satisfaction, and teacher turnover.

*Table 1: Summary literature review - job satisfaction*

Given the fact that our research question is located in the public sector, we will shortly examine the question which theoretical insights the literature of Public Administration offers on job satisfaction in the following.

### 2.3. Job satisfaction in Public Administration

As indicated previously, job satisfaction is a relatively new concept to public administration and only provides a scientific history of about 45 years of research (Cantarelli et al., 2016). Accordingly, it still “leaves our field without a clear agreement on basic questions” (Cantarelli et al., 2016, p. 117) and lags behind other research fields “in terms of the definition, measurement, and correlates of the constructs” (p. 119). However, in recent years, the field has made remarkable progress and studies on ‘public service motivation’ and comparisons between public and private employees’ job satisfaction receive great interest. In an extensive review of research on correlates of job satisfaction in the public sector, Cantarelli et al. (2016) analysed 99 studies and detected 36 variables that have a significant correlation to job satisfaction. In his study, Rainey (2009) groups the correlates of job satisfaction in five section: (1) individual characteristics (education, gender, and hierarchical status), (2) job design (autonomy, feedback, skill variety, task identity, and task significance), (3) job characteristics (leadership, participation etc.), (4) external factors (job security, payment), and (5) employees’ behaviour (absenteeism, turnover intentions). Rainey (2009) adds that although some correlates have been identified, there is still a multitude of mixed and contradicting findings concerning these

variables which requires more research. One aspect that has been clearly identified, is the positive influence of human resource management practices on employees' job satisfaction within public organizations. In his study, Steijn (2004) explains that "it is worthwhile for public organizations to invest in HRM practices, as this will directly and indirectly translate into higher job satisfaction" (p. 301). Moreover, Vermeeren, Kuipers and Steijn (2014) also show that "job satisfaction acts as a mediating variable in the relationship between HRM and organizational performance" (p. 174).

In conclusion, there is an extensive body of literature from diverse fields of research concerning job satisfaction. Most of the knowledge has been published in the field of Psychology and Management and led to the development of some important theories, models and frameworks. However, the field of public administrations slowly starts to understand the importance of job satisfaction (also triggered by the three waves of public administration – see chapter 1) and leads to an increase in research and studies on this concept.

#### 2.4. Antecedents of teacher job satisfaction

Given the significant relationship between job satisfaction and job performance, scholars have developed a strong interest in determining the antecedents of job satisfaction (Vroom, 1964). The models, frameworks and theories that were presented previously, show that multiple variables - both situational and dispositional - influence employees' job satisfaction. In this section, we will give a short overview on the scientific research of antecedents of teacher job satisfaction. At the end, we will present and justify the selection of the three antecedents of teacher job satisfaction that are most important in the context of teacher turnover, namely 'professional development', 'leadership', 'self-efficacy'.

In general, scholars criticize that there is no clear agreement about the antecedents of teacher job satisfaction (Skaalvik & Skaalvik, 2011; Zembylas & Papanastasiou, 2006). This has several reasons. First, there is no clear measurement of the construct of teacher job satisfaction itself. While some scholars use a multi-faceted view on job satisfaction (Wanous et al., 1997), others concentrate on job satisfaction as an overall concept (Moe et al., 2010; Sargent & Hannum, 2005). Second, scholars often focus only on one antecedent, and/or on one country (Zembylas & Papanastasiou, 2006). In a first attempt to classify the sources of teacher job satisfaction and dissatisfaction, Dinham & Scott (1998) suggested three domains, namely (1)

intrinsic rewards of teaching, (2) factors extrinsic to the school, and (3) school-based factors. Thereby, intrinsic rewards of teaching refer to “primary motives to becoming a teacher” (Skaalvik & Skaalvik, 2011) which is the practice of teaching itself, including the constant exchange with students and the contribution to students’ learning and development experience. By factors extrinsic to the school, they refer to the picture of teachers in the media, the external influence of politics, external assessment of schools, and others (Skaalvik & Skaalvik, 2011). Finally, school-based factors refer to school leadership, relations with stakeholders such as parents and colleagues, student behaviour, and school values (Skaalvik & Skaalvik, 2011). Based on this classification, Skaalvik and Skaalvik (2011) examined the relationship between school-based factors, teacher job satisfaction and teacher turnover in which they showed that job satisfaction and teacher turnover are indeed strongly related. Furthermore, they show that some of the other variables are also significantly related to job satisfaction. However, they support the understanding that research on the concept of teacher job satisfaction is pretty fragmented yet. In this regard, the authors conclude that their research is not covering all variables, not even all school-based factors, but explain that there are several more variables that influence and or mediate teacher job satisfaction.

An in-depth interview-based study of Carver-Thomas and Darling-Hammond (2017) showed a clear picture on teacher job satisfaction in the context of teacher turnover. By conducting interviews with ... teachers in the United States, they identified three antecedents to be the key variables for teacher satisfaction and being crucial for their turnover over: compensation, teacher preparation and support, and school leadership. In their study, Carver-Thomas and Darling-Hammond (2017) explain that compensation does not only entail salary but also service scholarship and loan forgiveness programs which is even more important in countries in which entry level teachers have a high student debt to pay-off such as in the United States. Seeing that it is more profitable to work in other professions and thereby reduce their debts more easily, uninteresting compensation packages could both keep teachers from entering the profession but also cause them to change it for a more profitable job. Therefore, Carver-Thomas and Darling-Hammond explain that satisfaction with compensation packages is necessary to keep teachers from turning over and a necessary political measure “so all schools can compete in the labor market for well-prepared teachers.” (p. 32). However, the authors indicate that compensation is more of a problem in the United States than in other countries and that it might actually be “more important for recruiting than retaining teachers” (ibid.). However, although scholars agree that “compensation systems are important” (ibid.), they also show that there is still a lack

of in-depth understanding about the complexity of compensation systems and requires a lot more research to develop substantial policies (Gupta & Shaw, 2014). In this regard, Gupta and Shaw (2014) explain that “compensation and incentive systems are among the most under-researched areas in HR.” (p. 2). However, several scholars agree that both school leadership and professional development are key determinants of teacher job satisfaction (Carver-Thomas & Darling-Hammond, 2017; Ma & McMillan, 1999; OECD, 2009). Given their important influence on teacher turnover, we will focus on these two variables as antecedents of teacher job satisfaction and examine their relationship.

Following research on the relationship between both school leadership and professional development, and teacher job satisfaction, one variable has been identified as key mediator: teacher efficacy (Klassen & Chiu, 2010; Nielsen et al., 2009). However, teacher efficacy is not only researched as a mediator in these relationships, but several scholars identified teacher self-efficacy as key determinant of teacher job satisfaction itself (Caprara et al., 2003; Caprara et al., 2006; Malinen & Savoilanen, 2016). In their study, Caprara et al. (2003) explain that “[t]he belief that one is able to master specific tasks enables people to perceive difficulties as challenges, prevents preoccupations and ruminations from interfering with carrying out plans... and make the best use of one’s capacities and the available resources” (p. 821). Furthermore, they conclude that “the more one believes in one’s self-efficacy in a context, the greater will be one’s satisfaction in that context to the extent that a variety of internal and external rewards get associated to effective performance” (p. 821).

Based on these theoretical insights, our research will focus on school leadership, teacher professional development, and teacher self-efficacy as key antecedents of teacher job satisfaction in the context of teacher turnover and will examine the relationships between these variables. In order to provide a better understanding about these antecedents, we will present a theoretical overview for each of the antecedents in the following.

## 2.5 Self-efficacy

A review of the literature shows a strong development of studies on self-efficacy beginning in the 1970s and based on Albert Bandura’s fundamental work “Towards a unifying theory of behavioural change” (1977). In this work, Bandura strongly focused on self-efficacy which he defined as “beliefs in the capability to carry out desired courses of action in the service of valued

goals” (Klassen & Tze, 2014, p. 61). Consequently, it is important to understand that self-efficacy does not refer to the capabilities one actually has but to the belief and faith a person has in its skills. The degree of self-efficacy also determines one’s view and assessment of the situations he or she faces in his or her lives.

In his work, Bandura (1977) determines four main sources leading to self-efficacy, being (1) mastery experiences, (2) vicarious experiences, (3) social persuasion, and (4) physical and emotional states.

| Sources of self-efficacy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>1. mastery experiences:</b> accomplishing a task in the past successfully raises the level of self-efficacy of being able to master this task in the future again</p> <p><b>2. vicarious experiences:</b> accomplishing a task better compared to colleagues, increases one’s level of self-efficacy</p> <p><b>3. verbal and social persuasion:</b> positive expectation of the social environment into one’s ability to master a task, raise his or her level of self-efficacy</p> <p><b>4. physical and emotional well-being:</b> increasing a one’s physical and emotional well-being and reducing negative emotional states strengthens self-efficacy</p> |

*Table 2: Sources of self-efficacy (Usher & Pajares, 2008)*

Based on the initial idea that a higher level of self-efficacy of employees leads to a better performance at work, Stajkovic and Luthans (1998) conducted a study in which they showed the effects of employees’ self-efficacy. Their results indicated a strong correlation between self-efficacy and work-related performance of .38. In addition, scholars like Stajkovic and Luthans (1998) and Bandura (1997) were able to identify four effects of self-efficacy on employees regarding an employees’ type of goal-setting, their endurance for achieving their goals, endeavour after failure and resilience.

|                                | <b>High level of self-efficacy</b>                                   | <b>Low level of self-efficacy</b>        |
|--------------------------------|----------------------------------------------------------------------|------------------------------------------|
| <b>Goal-setting</b>            | Set challenging but realistic goals                                  | Set too simple or too challenging goals  |
| <b>Stamina</b>                 | Show high level of stamina in achieving their goals                  | Resign easily from their goals           |
| <b>Endeavour after failure</b> | Raise their efforts to achieve the goal after failing                | Reduce their efforts to a minimum        |
| <b>Resilience</b>              | Show robustness and resilience when experiencing negative situations | Give up when making negative experiences |

*Table 3: Effects of self-efficacy*

In their meta-analysis, Stajkovic and Luthans (1998) add that the relationship between self-efficacy and performance is moderated by both task complexity and locus of performance. However, since the concept of performance is not in the focus of our study and given the format of this work, these moderators won't be studied in the analysis. Nevertheless, they have to be mentioned in order to be taken into account in/for future research.

#### Teachers' Self-efficacy (in classroom management)

The concept of self-efficacy has been used in a variety of research fields such as health care, in which a higher self-efficacy of patients has shown a positive relationship with their health (Strecher et al., 1986), and sports in which higher self-efficacy of athletes is related to better performances (Moritz et al., 2000).

Next to these fields, the concept of self-efficacy has become an increasingly important in the fields of academia and educational science, analysing especially teachers' self-efficacy. Accordingly, in their meta-analysis, Klassen et al. (2011) have documented a continuous increase in teacher efficacy research over the last 40 years. Thereby, they have shown that originally the concept of teacher self-efficacy has been perceived as a single construct. However, this perception changed into recognizing teacher self-efficacy as a multi-dimensional construct in later years (Tschannen-Moran & Woolfolk-Hoy, 2001; Skaalvik & Skaalvik, 2007). While Skaalvik and Skaalvik (2007) differentiated into a large number of components such as cooperation with colleagues and parents, motivation of students, adapting education to the students' needs etc., Tschannen-Moran and Woolfolk-Hoy (2001) only identified three components of teacher self-efficacy, namely (1) instructional efficacy, (2) engagement efficacy, and (3) classroom management efficacy. In this regard, Malinen and Savolainen (2016) identify

efficacy in behaviour management as the “unifying feature of these different measurement scales” (ibid.). In the same study, they define teacher self-efficacy in behaviour management as “teachers’ individual beliefs in their capabilities to prevent and manage disruptive student behaviour in their school and classroom” (Malinen & Savolainen, 2016, p. 146). According to Brophy (1988), being able to manage the classroom is highly important for effective teaching. Aloe et al. (2014) explain that the goal of classroom management is “to maintain of a learning environment that allows for positive interaction, access to learning, and enhanced student achievement. Consequently, it does not only determine the working atmosphere of the students but automatically also the working environment of the teacher. The study of Marzano et al. (2003) shows that teachers who have low levels of classroom management self-efficacy (CMSE) have a negative influence of the task-behaviour and performance of students, and affect the classroom climate negatively. However, if teacher possess a high level of CMSE, they “are strong leaders in managing behaviour, instruction and student concern... [and] also have a well-monitored system of rules and procedures to deter inappropriate or off-task behaviour” (Aloe et al., 2014, p. 105).

In general, research on the effects of high self-efficacy of teachers shows some very important outcomes. Teachers with strong self-efficacy beliefs demonstrate greater levels of planning and organization (Allinder, 1994), more openness to new ideas and greater willingness to try out new teaching methods in order to meet the student needs (Guskey, 1988). In addition, research also shows that teachers with more self-efficacy are more enthusiastic about teaching (Allinder, 1994), and are less likely to resign from their job and have lower levels of absenteeism (Klassen & Chiu, 2011). Furthermore, research shows that greater self-efficacy as a teacher does not only lead to better performances among teachers, but also has a positive influence on student outcomes and their level of self-efficacy (Ashton & Webb, 1986; Soodak & Podell, 1993).

## 2.6 Professional Development

As shown in the previous section, professional development clearly has a positive relationship with both self-efficacy and job satisfaction, and can be seen as one of its drivers. In order to give a broader picture about the concept of professional development, we will take a closer look into the literature of training and development, with a particular focus on professional development of teachers. Thereby, we will first take a look at the theoretical trajectory of

training research. Afterwards, we will focus on the research that has been conducted especially on professional development of teachers.

The concept of professional development is used in research under a variety of synonyms such as human resource development, employee development, employee training, etc. However, Noe and Peacock (2002) explain that training and development refer to different concepts. While training refers to activities in which one can acquire new skills, knowledge, and attitudes for immediate use, development refers to the acquisition of competencies that don't have to be applied immediately (Kraiger, 2003). Given the frequently wrong usage of the terms in the literature (Salas & Cannon-Bowers, 2001), we won't differentiate between these concepts.

In modern organizations, employee training is said to be one of the key determinants in order to stay competitive. Several studies show that employee training is significantly and positively related with organizational effectiveness and organizational performance (Arthur et al., 2003; Jacobs & Washington, 2003) and “a skilled workforce represents a competitive advantage” (Salas et al., 2012, p. 74). Based on this understanding, organizations in the United States spend about 126 billion dollars on training individuals annually in the 21<sup>st</sup> century (Aguinis & Kraeger, 2009). Therefore, research on training and development is highly important, especially focussing on training effectiveness and the link between theoretical insights and practical implementation. However, today's usefulness of research for practice has not always been the case. In fact, there has been a strong development in training research in the 60 years (compare Table 4). In the last thirty years, scholars conducted several meta-studies on training (a.o. manager training, team training and employee training) which show consistent positive outcomes of systematically designed and evidence-based trainings (Burke & Day, 1986; Collins & Holton, 2004; Keith & Frese, 2008; Morris & Robie, 2001; Powell & Yalcin, 2010; Salas, Nichols & Driskell, 2007). One important theoretical advancement is the understanding of training as a system which consists of the so-called pre-training, training, and post-training (Salas & Cannon-Bowers, 2001). Thereby, it is emphasized that that effective training has to take into account 1) the preconditions of training such as the environment, training motivation, and individual characteristics (e.g. self-efficacy), 2) training methods and instructional strategies, and 3) transfer of training and training evaluation. This concept is strongly supported by the study of Salas et al. (2012) who conclude that previous research shows both that training works, and that the design, delivery and implementation of training matters for organizational

performance but also individual performance, job satisfaction and self-efficacy (Aguinis & Kraeger, 2009).

| Historical development of human resource development literature |                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1950s – 1960s:                                                  | Focus on general learning principles in order to enhance training effectiveness (financed by the military)                                                                                                                                                                                 |
| Mid 1960s – Mid 1980s                                           | Decline of training research + criticism of research by Campbell (1971) as non-empirical, non-theoretical and poorly written.                                                                                                                                                              |
| 1990s – 2000s                                                   | “Decade of progress”: regained interest in training with a focus on requirements and conditions of effective training based on empirical studies                                                                                                                                           |
| Today                                                           | Understanding of training as a system (pre-training, training, and post-training); focus different forms of training (team training, manager training, employee training); rising link between theory and practice, and practical outcomes of training (f.e. studies on training transfer) |

*Table 4: Theoretical development of human resource development*

### Professional Development of teachers

Alongside the increasing interest in training and development for organizations, scholars also began to conduct studies on the role and outcomes of professional development of teachers.

Similar to the literature on employee development, there are also different understandings about professional development of teachers. On the one hand, scholars understand professional development of teachers as “teachers learning, learning how to learn, and transforming their knowledge into practice for the benefit of their students’ growth” (Avalos, 2011, p. 10). On the other hand, scholars are concerned with the organizational aspect of professional development of teachers which refers to the setup of development programmes and define it as “activities that aim to advance teachers’ skills and knowledge with the ultimate aim of improving their teaching practice” (OECD, 2014a, p. 85). While the former rather refers to pedagogical and didactical questions, we will focus on the latter which can be understood rather as a political and organizational approach towards professional development. Following the literature, we will only refer to professional development (PD) as professional development of teachers. In his study, Knight (2002) shows that it is not sufficient to only provide initial teacher training but highly necessary to continue PD activities in order to advance teachers’ knowledge and support them how to apply the knowledge they gained in practice. Taking into account the upcoming idea of life-long learning and constant changes in educational curricula, Knight

(2002) even calls professional development “never-ending” (p. 230). This is supported by the OECD’s explanation for the need of professional development of teachers: “Professional development at all points in a teacher’s career is necessary to keep the teacher up to date with the changing research, tools, practices and student needs that teachers face with every passing year” (p. 113). Furthermore, they are expected “to constantly reflect on and evaluate their work and to innovate and adapt accordingly.” (OECD, 2014a, p. 97). In addition, several studies provide evidence that professional development that takes place regularly is very likely to change teaching practices and teacher attitudes (Garet et al., 2001; Kennedy, 2011; Miles, 2009; Wei et al., 2009).

The importance of professional development activities is shown in several studies examining the effects of professional development activities. First, scholars have shown that professional development of teachers has a positive relationship with teacher performance and teaching effectiveness (Boyd et al., 2009; Darling-Hammond et al., 2005; Goldhaber & Brewer, 2000; Hill et al., 2013). In the literature, both teacher performance and teaching effectiveness are measured in terms of student outcomes. In this regard, professional development can improve the quality of teaching in several aspects such as instructional skills but also content and subject knowledge (Avalos, 2011; Postholm, 2012). Second, professional development does not only improve teaching effectiveness and thereby student outcomes through an improved level of teaching. It also enhances teachers’ self-efficacy, namely the belief in their professional competences. Several scholars have shown the positive relationship between ongoing professional development and the belief of teachers to be professionally competent, a.o. in instructional strategies (Little, 1982; Ma & McMillan, 1999). As stated above, a common element of self-efficacy in teaching is classroom management. In their studies, Huberman (1993) and Rosenholtz (1989) show that professional development is a key contributor for improved classroom management. Moreover, this enhanced self-efficacy through professional development, again is positively related with teachers’ job satisfaction (Ma & McMillan, 1999). Third, scholars have shown that professional development is closely linked to both higher teacher attrition and lower teacher retention. Finally, scholars found a positive relationship between professional development and group cohesion and team spirit.

| Positive outcomes of professional development of teacher                   |
|----------------------------------------------------------------------------|
| 1. Improved teacher effectiveness and teacher performance                  |
| 2. Enhanced self-efficacy of teachers (belief in professional competences) |
| 3. Increased teacher attrition                                             |
| 4. Enhanced group cohesion                                                 |

*Table 5: Positive outcomes of teachers' professional development*

But although the literature shows a variety of positive effects of professional development activities, there are several barriers to a successful implementation of professional development. One of the biggest challenges examined in the literature is to find time for PD activities. In their study, Buczynski and Hansen (2010) experienced several barriers towards professional development activities and implementing PD (compare Table 6).

First, teachers often face a lack of time for participating in professional development activities. While in some countries like Finland, there is a mandatory participation in PD programmes every year, in other countries there is no rule for teachers to develop professionally (Sahlberg, 2011). Second, teachers face a constant need to teach a mandated curriculum. While leaving class in order to participate in PD activities often leads to being behind schedule, the strict curriculum in some countries does not allow teachers to try new and innovative methods of teaching (Buczynski & Hansen, 2010). Third, there is a lack of resources for professional development of teachers. In several countries and schools, there is no or only a small budget for professional development activities of teachers. As a consequence, some teachers have to pay themselves if they want to participate in PD programmes (Buczynski & Hansen, 2010). Accordingly, the professional competence of a teacher can be linked to the financial resources of that individual. In addition, scholars also experienced a lack of technological resources to apply the newly gained knowledge to teaching practices. A lack of resources has also been determined by in terms of a lack of high-quality PD trainers. In their review, Darling-Hammond (2006) explain that incentives for faster and cheaper teacher education led to the establishment of new but weak programs that “underprepare teachers” (p. 302).

In addition, professional development is often wrongly understood as an event. However, Harwell (2003) argues that teacher PD should be rather understood as a process, in which teachers should be mentored. Yoon et al. (2007) show that “single-shot, one-day workshops” (p. 1) do not translate into higher student achievement.

| Barriers and challenges to successful professional development                           |
|------------------------------------------------------------------------------------------|
| 1. Lack of time to participate in professional development activities                    |
| 2. Need to teach a mandated curriculum                                                   |
| 3. Lack of resources (financially, technologically, and high-quality training)           |
| 4. Misunderstanding of professional development as a single event (instead of a process) |

*Table 6: Barriers and challenges of teachers' professional development*

Our review of the literature on professional development of teachers shows several important implications. First, professional development of teacher can have positive effects if they are designed and implemented effectively. Not only can they lead to better student outcomes, but they are also positively related to self-efficacy beliefs of teachers and their job satisfaction. Second, professional development should not be understood as a single event but an ongoing process. Third, there are several barriers and challenges for an effective implementation of professional development programmes.

In all of these issues, the role of the school principal is crucial for the success of professional development of teachers. In their study on the relationship between the school principal and teacher professional development, Bredeson (2000) calls them “important contributors” who “exercise significant influence on teacher development” (p. 398). In his study, Bredeson (2000) explains four areas in which school principal have the opportunity to influence professional development of teacher respectively teacher learning in schools. First, as an instructional leader and learner, a principal is supposed to take actions in order to develop and promote student learning (Bredeson, 2000). Second, as creator of a learning environment, the principal has to function as a communicator, supporter, and manager in order to create a context in which learning can be successful. He has to communicate with different stakeholders and align their interests, care about financial, technological, physical and emotional support, and manage the school by hiring teachers, coordinating PD activities, etc. (Bredeson, 2000). Third, a principal is an actor who is directly involved in the design, delivery and content of professional development activities. Finally, he functions as an evaluator of professional development outcomes. By visiting classes, he can evaluate the quality of teaching, identify teachers’ needs for PD activities, and thereby again adapt professional development programmes to the needs of his/her teachers (Bredeson, 2000).

| Role of a school principal in professional development                        |
|-------------------------------------------------------------------------------|
| 1. Instructional leader and learner (promotion of growth in student learning) |
| 2. Creator of a learning environment                                          |
| 3. Design, delivery, and content of PD activities                             |
| 4. Evaluation of professional development outcomes                            |

*Table 7: Role of principals in teachers' professional development (Bredeson, 2000)*

In the next chapter, we will analyse the role of the principal more in-depth. Thereby, we will first analyse the role of a leader in an organization in general including his/her responsibility for employees. Next, we will examine the role of a school principal for his/her employees, with a specific focus on the role as an instructional leader.

## 2.7 Leadership

In most studies on leadership, it is perceived as a key element for creating success. However, the style of leadership and the definition of success has changed through the years. In the early years, leadership was primarily seen as being executed by a single dominant leader. During this time - between 1930 and 1950 - the leadership debate was dominated by the so-called trait paradigm and the Great-Man theory. People believed that leaders are being born, not made (Lord et al., 2017). Based on this notion, scholars aimed to identify those characteristics that would “universally differentiate leaders from nonleaders” (House & Aditya, 1997). Some of the most prominent studies from this time are Craig and Charters’ (1925) study in which the ‘identified’ qualities of a leader, and Bogardus’ (1934) presentation of the 100 greatest world leaders.

During the first wave of interest in research (1950s until 1970s), scholars began to develop behavioral style approaches. Similar to the previous years, research was still mostly based on observations of individuals and scholars still did not focus on developing theoretical concepts (Lord et al., 2017). Based on the inability to explain successful leadership because of personal characteristics, scholars aimed to identify certain behaviours of leaders. In general, two dimensions of leadership behaviour have been identified: (1) person-oriented behaviour and (2) task-oriented behaviour. In this regard, person-oriented behaviour refers to the leaders valuing their employees, their personal needs and goals. Task-oriented behaviour refers to leaders who rather focus strongly on handling and finishing tasks than on personal needs.

However, the second wave of leadership research was based on the criticism that scholars voiced for only focusing on behavioural approaches and not taking into account situational factors. Accordingly, the second wave in the 1970s and 1980s was characterized by situational theories. In contrast to the previous focus on the leader, scholars developed models and theories how leaders have to react in certain situations. However, scholars did not agree on a single model which led to a variety of different models such as the Life cycle theory of Hersey and Blanchard (1969), the decision model of Vroom and Yetton (1973) and several others.

During the 1990s, scholars began to work more theory-based and also started to conduct meta-analyses in order to create higher levels of credibility. In addition, Lord et al. (2017) examined that meta-studies diminished some of the results from situational theories and redirected scholars interest “to finding consistent trend which could generalize across studies and give estimates of effects that were aggregated across studies without necessarily ignoring the context in which leadership is exercised.” (p. 440). The third wave of leadership research started at the end of the 1990s and is still ongoing. Nowadays, scholars develop multiple theories such as transformational leadership, charismatic leadership, Leader-Member Exchange (LMX), team leadership (Lord et al., 2017). These new leadership theories differ from the previous theories in the sense that they do not only focus on the success of the company, “but also the well-being of all stakeholders, including employees, customers, investors, partners, society, and the environment” (Barrett, 2011, p. 2). The “most researched leadership concept to date” (Braun et al., 2013) is transformational leadership. The core question of transformational leadership is how the behaviour of employees can transformed so that they are motivated, take on responsibility, develop team spirit, have a high willingness to learn and are engaged in the company (Pelz, 2016). Here, the leader has a core function which is to inspire employees, create an atmosphere of trust and increase their self-employment. Several studies show that transformational leadership enhances a.o. employees’ well-being and their job satisfaction (Braun et al., 2013), and also that this relationship is mediated by self-efficacy (Liu et al., 2010; Sivanathan et al., 2004). We will now take a closer look into the role of a leader respectively principal in a school and later examine the concept of instructional leadership.

#### Principal instructional leadership

Also in the educational context, the concept of leadership is strongly researched. In their study, Leithwood et al. (2008) explain that leadership in a school “acts as a catalyst for beneficial effects” (p. 28). As in other fields of research, there are a variety of models around school

leadership. While some of them concentrate on relatively new ideas like distributed leadership (Spillane & Diamond, 2007), most research is still conducted on school leadership as being practiced by a school principal (Neumerski, 2013).

School leadership research has seen a remarkable development over the last fifty years. In the early years, research mainly adopted knowledge from other fields like organizational management and psychology on leadership. In the 1950s and 1960s, school leadership has primarily understood as school administration or school management. In the 1970s then, the so-called effective school movement (ESM) emerged in the USA. The ESM concentrated on developing more effective schools and explained that among others the role of the school principal as an instructional leader would be crucial for effective schools (Neumerski, 2013). However, although scholars did agree on its importance, they failed to define “what an instructional leader was, what he or she would do to make the school effective ..., how he or she would do this work, and whether the work would vary by context.” (Neumerski, 2013, p. 317). Today, principal instructional leadership is still highly important for countries all around the world and Hallinger et al. (2018) explain that “it is becoming difficult to find society where principals are not being encouraged to exercise ‘instructional leadership’” (p. 804). In addition, several studies have shown the positive relationship between instructional leadership by principals and improved student outcomes and school quality (Hallinger, 2011; Hallinger & Heck, 1998). In this context the OECD explains that “[p]rincipals who take a strong role in instructional leadership emphasise high-quality instruction and develop policies that support student achievement, such as supporting the development of learning communities, giving instructional feedback to teachers, modelling effective instruction and supporting the use of assessment data in the classroom” (Rutkowski et al, 2013, p. 28). Robinson et al. (2007) explains that through instructional leadership, principals are more involved in “the core business of teaching and learning” (p. 21) and therefore it is “more likely [that] they ... make a difference to students” (ibid.). Next to the influence on student outcomes, instructional leadership of principals also addresses the relationship between principals and teachers. For example, principals with strong instructional leadership, focus more strongly on using professional development in order to meet teachers’ needs and weaknesses (OECD, 2009).

## 2.8 Hypotheses

Based on the findings from the literature, in this chapter the hypotheses will be developed and put together in the conceptual model. Then, the four variables, teacher job satisfaction, teacher

professional development, teacher self-efficacy in classroom management, and principal instructional leadership will be operationalized.

*H1: There is a positive relationship between instructional leadership by the principal and professional development of teachers.*

By performing instructional leadership, principals are a key determinant for successful professional development of teachers (Bredeson, 2000). A principal as an instructional leader is per definition interested in improved the quality in the school. At the same time, professional development activities are opportunities to improve the quality in school in several disciplines such as enhanced knowledge, classroom management, etc. As a consequence, he or she perceives professional development activities as means to reach his goal. In his role as a principal, an instructional leader is in constant communication and interaction with students, teachers, and other stakeholders. Therefore, he is able to identify the needs for professional development of teachers which again is a necessary prerequisite of successful professional development (Bredeson, 2000). As a consequence of being attentive and caring about the teachers' needs, he is also able to "help maintain a positive attitude about learning and how changes in teaching practices have a potential to improve student learning and school quality" (Bredeson, 2000, p. 393).

*H2: There is a positive relationship between professional development and job satisfaction of teachers*

As shown in the literature review, training of employees was primarily introduced in order to increase their performance. In her literature review, Avalos (2011) shows that the effectiveness of professional development activities of teachers is also often measured in relation to performance – either student or teacher performance. Thereby, professional development lead to changes in teachers' cognition, beliefs and practice and thereby improve teachers' subject knowledge, their expectations in student achievement, and thus the way how teachers perform in class (Timperley & Phillips, 2003). The other studies that were reported by Avalos (2011) referred to the relationship between improved teaching practice and student achievement (Vescio et al., 2008). Thereby, PD programmes of teachers are seen as a measure to improve student outcomes (Avalos, 2011). However, there are few studies that also consider additional outcomes of professional development programmes. For example, Lovett et al. (2008) and Nielsen et al. (2008) that show a positive relationship between professional development

activities and teacher job satisfaction. In their studies they show that teacher satisfaction is enhanced when PD programmes “contributed to the improvement of curricular understanding and increased self-efficacy” (Avalos, 2011, p. 13). This is again supported by Klassen and Chiu (2010) who explain that “using professional development opportunities to boost skills and teachers’ self-efficacy may lower job stress and enhance satisfaction from teaching” (p. 749). Furthermore, research shows that the opportunities for learning, and professional and personal development are already influencing job satisfaction positively (Rowden, 2002). A large body of literature explains that satisfaction with workplace training does have a significantly positive influence on the creation of overall job satisfaction, as well as a commitment to the organization (Bartlett, 2001; Lowry et al., 2002; Schmidt, 2007).

However, the literature also shows that there are several conditions for professional development activities in order to have a positive influence on teachers’ job satisfaction. They should be individualized to a certain degree or not least not conceptualized as “one-size-fits-all professional development” (Klassen & Chiu, 2010, p.749). This is also detected by Avalos (2011) who shows that these activities should be oriented on the teachers’ needs and expectations in order to have positive outcomes.

### *H3: There is a positive relationship between professional development of teachers and self-efficacy of teachers*

In the literature, several studies explain that there is also a positive relationship between self-efficacy and professional development (Kao & Tsai, 2009; Mendez et al., 2017). The positive relationship between professional development and self-efficacy of teachers can also be explained by the famous concept of Bandura about the sources of self-efficacy. As shown in chapter 2.5, self-efficacy arises from mastery experiences, in other words a successful accomplishment of a task in the past raises the level of self-efficacy of being able to master this task in the future again. Professional development activities can help to accomplish these tasks outside the actual class, and then transfer these experiences to the actual classroom. In addition, professional development activities offer employees, respectively teachers, tools they can use during lessons in order to improve their style of teaching or their classroom management.

Consequently, teachers will both experience higher self-efficacy because of the actual improvement of their teaching quality, and because they are aware of tools they can use when facing new situations. Given the characteristics of teachers with high self-efficacy beliefs (f.e. the openness to try new teaching methods) and the opportunities of professional development

activities (f.e. to learn new methods of teaching), the positive relationship between these variables seems quite obvious. This is also shown in the studies of Prieto and Altmaier (1994), Posnanski (2002), and Watson (2006) who found that “teachers who possess pre-service teacher preparation are more likely to develop capability in classroom management, teaching and student engagement” (Bellibas & Liu, 2017, p. 65). In addition, they refer to Posnanski (2002) who stated in his study that “the professional development program was effective in altering the teachers’ self-efficacy beliefs and may have had a corresponding impact on the teaching behaviors of the participants” (p. 209).

*H4: There is positive relationship between instructional leadership by the principal and self-efficacy of teachers*

The practice of instructional leadership of principals implies them emphasizing high-quality instruction and offering programmes for teachers to develop professionally. Thereby, they contribute indirectly to student performance. In their study, Ross and Gray (2006) identify teacher self-efficacy as “one of the most powerful ways through which school leaders can indirectly contribute to student learning outcomes” (Bellibas & Liu, 2017, p. 53). In this regard, several studies have examined transformational leadership as a determinant of teacher self-efficacy (Hipp & Bredeson, 1995; Ross & Gray, 2006).

In addition, there are also some studies showing evidence for the relationship between instructional leadership of principals and self-efficacy of teachers (Calik et al., 2012; Duyar et al., 2013). In their studies, both Calik et al. (2012) and Duyar et al. (2013) conducted a two-level hierarchical linear modelling method on the TALIS 2008 survey and found a significant and positive relationship between instructional leadership of principals and self-efficacy of teachers. In this regard, some researchers explain that the quality of teaching practices can be improved by the attendance of principals in classrooms and “by engaging in activities such as direct supervision of instruction” (Bellibas & Liu, 2017, p. 50). However, Bellibas and Liu (2017) criticize that in the body of literature, “the relationship between instructional leadership and the different components of teacher self-efficacy has remained unexamined” (p. 50). Therefore, they conducted a study on the differentiated teacher efficacy model of the TALIS 2013 questionnaire, in which they found a significant positive relationship between principal instructional leadership and teacher self-efficacy, a.o. in classroom management.

*H5: There is positive relationship between instructional leadership by the principal and job satisfaction of teachers*

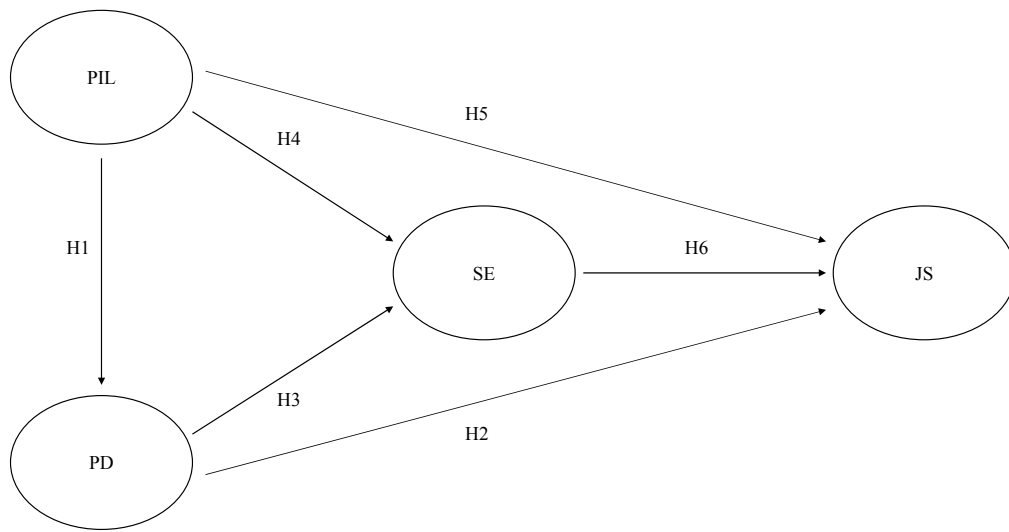
The relationship between leadership and job satisfaction has already been formulated in early theories like the famous dual factor theory by Herzberg (1966) in which he explained that among others leadership styles affect job satisfaction of employees. This relationship is supported by several other studies. As indicated in chapter 2.7, there are several styles of leadership. Also in the educational field, several principal leadership styles have been positively related with job satisfaction of teachers such as transformational leadership or distributed leadership. In addition, the meta-analysis of Cogaltay et al. (2016) on the relationship between educational leadership and job satisfaction of teachers has shown a positive relationship between principal instructional leadership and teacher job satisfaction of .60. Although these results have to be treated with caution because they only because on studies in one specific cultural area, they indicate that there is indeed a positive relationship between the instructional leadership of a principal and the job satisfaction of teachers.

*H6: There is positive relationship between self-efficacy of teachers and job satisfaction of teachers*

Like the relationship between self-efficacy and professional development, the relationship between self-efficacy and job satisfaction is deeply rooted in the early work of Bandura (1977) who described that physical and emotional well-being strengthen people's self-efficacy. The literature shows several studies in which self-efficacy, and also self-efficacy in behaviour management have a strong relationship with teachers' job satisfaction (Caprara et al., 2003; Klassen & Chiu, 2010; Malinen & Savolainen, 2016). In their longitudinal study, Malinen and Savolainen (2016) found a significantly positive relationship of 0.28 between self-efficacy in managing behaviour and job satisfaction for Finnish lower secondary school teachers. While some studies perceive job satisfaction as the independent variable in this relationship (Bandura, 1977), other scholars examine self-efficacy as independent variable (Caprara et al., 2003; Caprara et al., 2006). While the analysis of the quantitative data is only able to show a relationship between these two variables, the qualitative data might offer additional insights into the causality of the relationship.

These hypotheses are integrated in the conceptual model which is presented in the following.

## 2.9 Conceptual model



PIL=Principal instructional leadership;PD=Professional Development of teachers;SE=Teachers' Self-efficacy in Classroom management;JS=Teacher job satisfaction

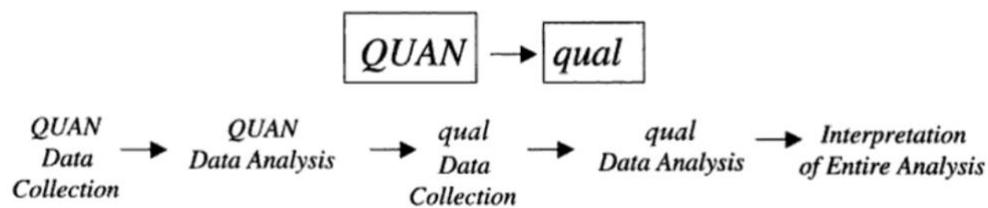
*Figure 3: Conceptual Model*

### 3. Methodology

#### 3.1 Research Design

While most studies regarding job satisfaction conduct either a quantitative approach or a qualitative approach, this paper goes one step further in conducting a mixed-mixed approach. Both quantitative and qualitative research designs have exceptional strength but also some important weaknesses. As Creswell (2003) explains, “mixed methods is another step forward, utilizing the strengths of both qualitative and quantitative research.” (p. 203). Taking into account the complexity of fields like education, “the use of either quantitative or qualitative approaches by themselves is inadequate to address this complexity.” (ibid.). Therefore, the mixed methods approach is used in diverse fields of research like health care (Hillestad et al., 2005; Creswell et al., 2011) and education (Ivankova, 2007; Woltering et al., 2009). Furthermore, the increasing acknowledgement in academic research design shows that mixed-methods approaches are becoming more and more important (Johnson & Onwuegbuzie, 2004; Johnson et al., 2007; Tashakkori & Creswell, 2007). While conducting the mixed-methods approach, this paper follows a ‘sequential explanatory strategy’ as described in Creswell et al. (2003).

#### Sequential Explanatory Design (8.4a)



(Creswell et al., 2003, p. 225)

Figure 4: Research Design - Sequential Explanatory Design

I decided for a sequential explanatory design due to the extraordinary opportunity that the quantitative dataset offers, namely a remarkable scope, cross-country data and a high level of validity and reliability of both the selection of the indicators and gathering of the data. The sequential explanatory design is “characterized by the collection and analysis of quantitative data in a first phase of research followed by the collection and analysis of qualitative data in a second phase that builds on the results of the initial quantitative results. Weight typically is given to the quantitative data, and the mixing of the data occurs when the initial quantitative

results informs the secondary qualitative data collection. A sequential explanatory design is typically used to explain and interpret quantitative results by collecting and analysing follow-up qualitative data.” (Creswell et al., 2003, p. 225) While the strengths of this design are its “straightforward nature” (ibid.), and the simplicity to report and implement it, it is very time consuming and requires knowledge in both qualitative and quantitative research (methods). Thereby, in the first phase quantitative data are collected and analysed. In this paper, the quantitative data is the most recent Teaching and Learning International Survey (TALIS) from the Organisation of European Economic Co-operation (OECD) that was published in 2013.

### 3.2 Data Collection

#### 3.2.1 Quantitative Data: The Teaching and Learning International Survey (TALIS)

The TALIS dataset is an international survey of teachers and school principals from every OECD country in order “to increase the international information available to OECD countries and partner countries and economies on teachers, teaching, and the impact that teacher can have on student learning” (Rutkowski et al., 2013, p. 7). Rutkowski et al. (2013) formulated the objective of TALIS as “to provide, in a timely and cost-effective manner, robust international indicators and policy-relevant analysis on teachers and teaching in order to help countries review and develop policies in their efforts to promote conditions for effective teaching and learning” (ibid.). Furthermore, they explained that “TALIS is meant to gather information on specific aspects of the teaching and learning environment that research suggests and country representatives believe contribute to positive student learning. Of course, “effective” teaching and learning may include many other factors that cannot be examined through TALIS or any self-reported instrument.” (p. 16). Rutkowski et al. (2013) defined effective teaching and learning environments as environments to “contribute to positive student learning.” (p. 16). In their data collection, they followed several guiding principles such as ‘policy relevance’, ‘added value’, ‘indicator orientation’, ‘validity, reliability, comparability and rigor’, ‘interpretability’, and ‘efficiency and cost-effectiveness’ (p. 7). The OECD explained that the “selection of TALIS indicators is generally guided by policy demands.” (p. 9) which means that the OECD member countries had an influence in the creation of the surveys based on their perception of the most urgent needs in their country. The content of the survey followed a ‘priority rating exercise’ in which the countries themselves could rate the themes and assign indicators they perceive to be most important (see Figure 5).

| No. | Theme                                                                | Rating points |
|-----|----------------------------------------------------------------------|---------------|
| 14  | School leadership                                                    | 393           |
| 16  | Teachers' instructional practices and beliefs                        | 374           |
| 6   | Profile of teachers' in-service education and training               | 318           |
| 15  | School climate and ethos                                             | 312           |
| 2   | Initial teacher education                                            | 307           |
| 8   | Satisfaction and effectiveness of in-service education and training  | 295           |
| 11  | Recognition, reward and evaluation of teachers                       | 294           |
| 18  | Teachers' professional practices                                     | 287           |
| 5   | Motivations and early career experience of teachers                  | 264           |
| 1   | Attracting good students into teaching                               | 259           |
| 19  | Twenty-first century skills: ICT in teaching                         | 249           |
| 10  | Job satisfaction and teacher human resource measures                 | 237           |
| 17  | Education and qualifications of teachers                             | 229           |
| 7   | Frequency of in-service education and training                       | 216           |
| 20  | Innovation and creativity                                            | 209           |
| 13  | Division of teachers' working time                                   | 209           |
| 9   | Teacher attrition and turnover rates                                 | 164           |
| 3   | Adequacy of teacher supply and teacher shortages                     | 151           |
| 12  | Support and guidance for the most experienced teachers               | 142           |
| 4   | Effectiveness of recruitment and selection procedures and incentives | 86            |

(Rutkowski et al., 2013, p. 12)

Figure 5: Possible TALIS 2013 themes

The data collection took place within a three-month period in 2012-2013 and targeted 20 teachers from lower secondary education (ISCED 2) and the school principal of 200 schools for each of the 34 OECD member countries (compare Figure 6).

|                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• <b>International target population (Core):</b> lower secondary education (ISCED 2) teachers and the principals of their schools</li> </ul>                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• <b>International options:</b> primary (ISCED level 1) and/or upper secondary (ISCED level 3) education teachers and the principals of their schools; school-level link to PISA 2012 (aiming at teachers who will be teaching 15-year olds in 2013 in schools that took part in PISA 2012)</li> </ul> |
| <ul style="list-style-type: none"> <li>• <b>Sample size</b><sup>5</sup>: 200 schools per country, 20 teachers in each school</li> </ul>                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>• <b>Sampling:</b> probability samples of schools and of teachers within schools</li> </ul>                                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• <b>Target response rates:</b> 75% of the sampled schools (school considered responding if 50% of sampled teachers respond), aiming for a 75% response from all sampled teachers in the country</li> </ul>                                                                                            |
| <ul style="list-style-type: none"> <li>• <b>Questionnaires:</b> separate, adaptable questionnaires for teachers and principals, each requiring around 45 minutes to complete</li> </ul>                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>• <b>Modes of data collection:</b> self-administered paper and pencil or on-line completion</li> </ul>                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• <b>Phases:</b> a pilot study (focus group pretesting), a field trial and the main data collection</li> </ul>                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• <b>Main data collection windows:</b> three months period towards the end of the 2012-2013 school year</li> </ul>                                                                                                                                                                                     |

(Rutkowski et al., 2013, p. 38-39)

Figure 6: TALIS design

Rutkowski et al. (2013) explained the conceptual framework for TALIS 2013 as being “based on a model for contextualizing teaching and learning conditions originally developed by the International Association for the Evaluation of Educational Achievement (IEA) (Purves, 1987). The basic structure of the model measures the schooling context in terms of inputs, processes, and outcomes.” (p. 16; compare Figure 7).

|                      | <b>Teacher Questionnaire</b>                        | <b>Principal Questionnaire</b>                            |
|----------------------|-----------------------------------------------------|-----------------------------------------------------------|
| <i>Antecedents</i>   | Teacher background characteristics                  | Principal background characteristics                      |
| <i>School input</i>  | Student characteristics as perceived by the teacher | School background characteristics                         |
|                      | Teacher continuous professional development         | Continuous professional development for the principal     |
| <i>Processes</i>     | School leadership and management                    | School leadership and management                          |
|                      | Teacher feedback                                    | Teacher formal appraisal                                  |
|                      | Teachers’ instructional beliefs                     | Teachers’ instructional beliefs and pedagogical practices |
|                      | Teachers’ pedagogical practices                     |                                                           |
| <i>School output</i> | School climate and school management                | School climate                                            |
|                      | Teacher efficacy (aggregated to school level)       |                                                           |
|                      | Teacher satisfaction (aggregated to school level)   | Principal satisfaction                                    |

(Rutkowski et al., 2013, p. 41)

Figure 7: A classification of the core parts of TALIS 2013 questionnaires

Finally, and in order to avoid any misunderstanding, it might be interesting to consider what the TALIS dataset does not approach to analyse. Firstly, given the fact that TALIS is not a longitudinal study but a cross-sectional study, it does neither provide insights into changing conditions over time nor about the accumulation of teaching skills and knowledge over time. Secondly, TALIS does not provide insights about the quality of teachers and its relation to the performance of students (it is not connected with student outcomes). Thirdly, TALIS is a self-report survey and therefore does not exclude variations between the responses and the practices of teachers and principals. Finally, the target population is limited to teachers from ISCED level 2. Therefore, it is “not appropriate to draw inferences about the whole population of teachers within a country” (Rutkowski et al., 2013, p. 14).

Even though the OECD explained to acknowledge “teachers’ personal attributes” (p. 22), it does not focus on personal characteristics. Questions for “gender, age, employment status, work experience, initial education and teaching program” (ibid.) do not take into account the teacher’s personality such as the neuroticism, extraversion etc. However, research has shown that these are crucial in creating job satisfaction (compare chapter “dispositional approach”).

### 3.2.2 Quality indicators of the questionnaire

The conceptualization and conduction of the TALIS 2013 questionnaire followed high standards of reliability and validity. In order to create a high level of reliability, the OECD assured the reliability of the entry data by the requirement of national centres of each member country to “have at least 100 completed principal questionnaires and 5% of the total number of completed teacher questionnaires (or at least a minimum of 100 teacher questionnaires) entered twice by different staff members as early as possible during the data-capture period” (OECD, 2014b, p. 114). Their validity was checked by applying the IEA Data Management Expert (DME). In addition, the questionnaire scale indices were constructed and validated using confirmatory factor analysis (CFA): “The complex scales were first evaluated with exploratory factor analysis; confirmatory factor analysis (CFA) was used to construct the scales, and CFA with multiple comparison groups was used to validate the constructed scales.” (OECD, 2014b, p. 146). Furthermore, the OECD included a scale measuring social desirability and used Cronbach’s alpha as a reliability coefficient in order to measure the scale reliability. In order to ensure cross-national invariance and validity, “the translation process was closely monitored, and psychometric methods were used to examine the cross-cultural equivalence of the measured variables and the measured constructs.” (OECD, 2014b, p. 150). Finally, the OECD examined configural, metric and scalar invariance by “using the ISCED Level 2 samples, for the 2013 TALIS complex scales” (OECD, 2014b, p. 155).

### 3.3 Operationalization and Measurement of the variables

In order to conduct this study appropriately, it is necessary to operationalize the different variables. Thereby, they will be defined and the items for each variable (retrieved from the TALIS 2013 questionnaire) will be presented.

#### 3.3.1 Job satisfaction of teachers

As stated in chapter 2.1, there are multiple definitions of job satisfaction. We will follow the definition by Locke (1976) that is most common in literature who defined job satisfaction as “a pleasurable or positive emotional state, resulting from the appraisal of one’s job or job experiences.” (p. 1304). We will apply this definition to the specific case of teacher job satisfaction. The relatively broad definition of job satisfaction allows to rely on both, satisfaction with the profession, and satisfaction with the current work environment. As a consequence of the unifying character of the definition, we won’t differentiate between

Satisfaction with the work environment or satisfaction with the profession. The items that will be used in order to assess teacher job satisfaction will be presented in the following table:

|                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Question:</b> We would like to know how you generally feel about your job. How strongly do you agree or disagree with the following statements? |
| The advantages of being a teacher clearly outweigh the disadvantages                                                                               |
| If I could decide again, I would still choose to work as a teacher                                                                                 |
| I enjoy working at this school                                                                                                                     |
| I would recommend my school as a good place to work                                                                                                |
| I am satisfied with my performance in this school                                                                                                  |
| All in all, I am satisfied with my job                                                                                                             |

*Table 8: Items - job satisfaction*

### 3.3.2 Self-efficacy of teachers in classroom management

In early literature, self-efficacy has been defined as “beliefs in the capability to carry out desired courses of action in the service of valued goals” (Klassen & Tze, 2014, p. 61). As shown in chapter 2.5, in modern literature the concept self-efficacy of teachers is understood as a multi-dimensional construct focusing among other on instructional strategies and student discipline. In this study, we will focus on the teacher self-efficacy in classroom management. Thereby, we will orientate on Malinen and Savolainen’s (2016) definition of teacher self-efficacy in behaviour management as “teachers’ individual beliefs in their capabilities to prevent and manage disruptive student behavior in their school and classroom” (p. 146). However, we will only focus on behaviour management in the classroom which defines our variables as a ‘teachers’ individual beliefs in their capabilities to prevent and manage disruptive student behaviour in the classroom’.

|                                                                             |
|-----------------------------------------------------------------------------|
| <b>Question:</b> In your teaching, to what extent can you do the following? |
| Control disruptive behaviour in the classroom                               |
| Make my expectations about student behaviour clear                          |
| Get students to follow classroom rules                                      |
| Calm a student who is disruptive or noisy                                   |

*Table 9: Items - self-efficacy in classroom management*

### 3.3.3 Professional Development of teachers

As shown in chapter 2.6, employee training and development received a lot of interest because of its perceived relationship with employee performance. As a consequence, there have been changes and intense debates about the conceptualization of these development programmes. In this regard, there are different understandings of professional development of teachers. Some scholars understand professional development of teachers as “teachers learning, learning how

to learn, and transforming their knowledge into practice for the benefit of their students' growth" (Avalos, 2011, p. 10). However, we are more interested in the organizational aspect of professional development of teachers which refers to the setup of development programmes. Therefore, we follow the definition of the OECD (2014a) who defined professional development of teachers as "activities that aim to advance teachers' skills and knowledge with the ultimate aim of improving their teaching practice" (p. 85).

|                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Question:</b> Considering the professional development activities you took part in during the last 12 months, to what extent have they included the following? |
| A group of colleagues from my school or subject group                                                                                                             |
| Opportunities for active learning methods (not listening to a lecturer)                                                                                           |
| Collaborative learning activities or research with other teachers                                                                                                 |
| An extent time-period (several occasions spread out over several weeks or months)                                                                                 |

*Table 10: Items - professional development*

#### 4.3.4 Instructional leadership by the principal

As shown in chapter 2.7, there has been a new conceptualization of principal instructional leadership in the literature in the last years. In the early years of the ESM an instructional leadership has been defined as "less an in-house bureaucrat or accountant than a principal teacher (the origin of the title, now long forgotten) and a mobilizer, departing from the tradition in American public education of separating management from practice and administration from teaching." (Neumerski, 2013, p. 318). Although in modern research, instructional principals or leaders are described by a lot of tasks and characteristics, there are only few definitions. In this regard, Zepeda (2014) explains that "instructional leadership is easy to see but difficult define" (p. 3). In our study, we will follow her definition of instructional leadership: "strong [instructional] leadership promotes excellence and equity in education and entails projecting, promoting, and holding steadfast to the vision; garnering and allocating resources; communicating progress; and supporting the people, programs, services, and activities implemented to achieve the school's vision." (Zepeda, 2014, p. 4)

|                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------|
| <b>Question:</b> Please indicate how frequently you engaged in the following in this school during the last 12 months? |
| I took actions to support co-operation among teachers to develop new teaching practices                                |
| I took actions to ensure that teachers take responsibility for improving their teaching                                |
| I took actions to ensure that teachers feel responsible for their students' learning                                   |
| I observed instruction in the classroom                                                                                |
| I provided parents or guardians with information on the school and student performance                                 |

*Table 11: Items - instructional leadership of principals*

### 3.4 Descriptive statistics

| Item                                                                                           | Mean  | SD   | Min   | Max | N    |
|------------------------------------------------------------------------------------------------|-------|------|-------|-----|------|
| <i>Principals' Instructional Leadership</i>                                                    |       |      |       |     |      |
| I took actions to support co-operation among teachers to develop new teaching                  | 2.545 | .818 | 1     | 4   | 6203 |
| I took actions to ensure that teachers take responsibility for improving their teaching skills | 2.800 | .728 | 1     | 4   | 6203 |
| I took actions to ensure that teachers feel responsible for their students' learning outs      | 2.852 | .715 | 1     | 4   | 6203 |
| I observed instruction in the classroom                                                        | 2.973 | .721 | 1     | 4   | 6203 |
| I provided parents or guardians with information on the school and student performance         | 2.864 | .768 | 1     | 4   | 6203 |
| <i>Teachers' Professional Development</i>                                                      |       |      |       |     |      |
| A group of colleagues from my school or subject group                                          | 2.335 | .415 | 1     | 4   | 6184 |
| Opportunities for active learning methods (not only listening to a lecturer)                   | 2.195 | .362 | 1     | 4   | 6182 |
| Collaborative learning activities or research with other teachers                              | 2.029 | .365 | 1     | 4   | 6185 |
| <i>Teachers' Self-efficacy</i>                                                                 |       |      |       |     |      |
| Get students to believe they can do well in school work                                        | 3.236 | .359 | 1.8   | 4   | 6202 |
| Help my students value learning                                                                | 3.180 | .391 | 1     | 4   | 6203 |
| Motivate students who show low interest in school work                                         | 2.977 | .384 | 1.5   | 4   | 6202 |
| Help students think critically                                                                 | 3.142 | .373 | 1.625 | 4   | 6201 |
| <i>Teachers' Job Satisfaction</i>                                                              |       |      |       |     |      |
| The advantages of being a teacher clearly outweigh the disadvantages                           | 2.893 | .357 | 1     | 4   | 6202 |
| If I could decide again, I would still choose to work as a teacher                             | 2.998 | .352 | 1     | 4   | 6202 |
| I enjoy working at this school                                                                 | 3.220 | .296 | 1     | 4   | 6202 |
| I would recommend m school as a good place to work                                             | 3.087 | .369 | 1     | 4   | 6202 |
| I am satisfied with my performance in this school                                              | 3.164 | .262 | 1.833 | 4   | 6202 |
| All in all, I am satisfied with my job                                                         | 3.158 | .250 | 2     | 4   | 6202 |

Table 12: Descriptive Statistics

### 3.5 Qualitative Data Collection

In this section, the second part of our mixed-methods approach will be explained, namely the usage of qualitative data. Thereby, we will explain how and what kind of data were collected, what the advantage of including this data is, and how they are used in this study.

Next to the quantitative results that have been extracted from the TALIS 2013 dataset, we will gather qualitative data via interviews with experts from the educational policy field. In fact, six out of eight interviewees work for the OECD as educational policy advisors. The other two interviewees are the national project leader of TALIS of The Netherlands, and a public official from the Dutch Ministry of Education. These interview partners were identified in close collaboration with an OECD official who is an educational expert himself. As part of the collaboration, he forwarded the goal of the study and the aim of the interviews to those colleagues that are experts in the field. Due to the tight schedules of the experts and the location of the participants outside my geographical area, the interviews were conducted as web-based interviews using Skype. According to Hanna (2012), Skype is not only a great alternative to traditional face-to-face interviews but allows for faster, more flexible, cheaper and partly even safer interaction.

In the following, I will give a short explanation why I decided to use semi-standardized interviews for my qualitative data collection. “No consideration of interviewing would be complete without some acknowledgment of the major interview structures” (Berg & Lune, 2012, p. 104). While there are some scholars solely differentiating between structured and unstructured respectively formal and informal interviews, most researchers have agreed on a threefold division of types of interviews namely standardized, semi-standardized, and unstandardized interviews (Berg & Lune, 2012). Every type of interview has certain advantages and disadvantages. Therefore, it is always helpful to consider the context and aim of the interviews. In this regard, semi-standardized interviews can be located in the middle between the extremes of these two types. They are conducted by asking “each interviewee in a systematic and consistent order, but the interviewers are allowed freedom to digress; that is, the interviewers are permitted (in fact, expected) to probe far beyond the answers to their prepared standardized questions” (Berg & Lune, 2012, p. 107). In contrast to standardized interviews, semi-standardized interviews take into account that individuals have a subjective view and their own interpretations of the world (Gubrium & Holstein, 2002). Accordingly, semi-standardized interviews allow the interviewer to adjust its language to the process of the interview (Berg &

Lune, 2012). Moreover, they allow the researcher to control and dig deeper into what and how something is discussed (Johnson, 2002). However, semi-standardized interviews are said to be more cost-effective than standardized interviews (Saks & Allsop, 2012). Silverman (2013) adds that the retrospect nature of semi-standardized and unstandardized distorts the level of truth because it is a description of the past and not of a present experience. This second disadvantage is not applicable to our interviews since the interviewees are not asked to recall events from the past.

Furthermore, before conducting the interviews, I did a small pre-interview with one OECD employee about the process of the interviews. Within this talk, we agreed on the benefit of anonymizing the interviews in order to receive better and more critical answers from the interview partners. This is especially important given the fact that I used primary quantitative data from the OECD, and collected qualitative data from employees from the same organisation.

As indicated at the beginning of the third chapter, the use of a mixed-methods approach is seen as highly advantageous in comparison to purely qualitative or quantitative studies. In fact, a mixed-methods design can be especially useful when unexpected results arise from a quantitative study (Morse, 1991). In this case, the “qualitative data collection ... can be used to examine these surprising results in more detail.” (Creswell, 2013, p. 211).

### 3.6 Limitations of methods / controlling for measurement errors

In this section, I will give an outlook on the limitations of the methods that were used during this paper. Common method variance (CMV) is defined as a “systematic error variance shared among variables measured with and introduced as a function of the same method and/or source” (Richardson et al., 2009, p. 763). Although we derived the quantitative data from two surveys (principal and teacher survey), we have to acknowledge that common source bias (CSB), which is used as an interrelated term of CMV, could be an issue in this study. As a consequence of CSB or CMV, correlations are criticised for being inflated (George & Pandey, 2017). This is due to the fact that we related independent and dependent variables from the same survey with each other, e.g. professional development → self-efficacy; professional development → job satisfaction; self-efficacy → job satisfaction (George & Pandey, 2017). However, given an appropriate report about validity and reliability of the sources, George and Pandey (2017)

explain that “if a distinct data source is both available as well as relevant, we would still advise authors to incorporate it into their analysis, perhaps to complement measures gathered from a single survey” (p. 262). Given this argumentation and since the TALIS 2013 dataset is unique in its quantity and quality of data, I expect that it is appropriate to use here. Nevertheless, the danger of inflated correlations should be kept in mind.

Another limitation is the omitted variables bias (OVB). Thereby, researchers tend to neglect control variables that could also have an influence on the dependent variable, and have a biased selected of the variables. (Lütkepohl, 1982; Clarke, 2005). Given the multitude of variables that are already included in this model and the formal limitations, I also decided not to include control variables. However, I would like to explain what the consequences are for this study. According to Bernerth and Aguinis (2016), the non-usage of control variables limits the generalizability of this study. In addition, Bernerth and Aguinis explained that “using control variables is also a way to “correct” for and improve upon weaknesses in the data collection process.” (p. 230). However, Bernerth and Aguinis (2016) also showed that a large number of researchers include control variables in their studies because of the wrong reasons such as an expected relationship with the original variables, the use of the same control variables in previous studies, and the expectation of reviewers and editors. In this regard, they strongly criticized the missing control variables justification in several studies. As a consequence, they “strongly urge researchers to stop the process.” (Bernerth & Aguinis, 2016, p.274). In addition, Bernerth and Aguinis (2016) explained that “there is nothing conservative or rigorous about including statistical controls” (p. 275). As a consequence, I would like to recommend the usage of control variables for further studies that have more space after carefully reading the study of Bernerth and Aguinis (2016).

In addition, social sciences often face the problem of ‘reversed causality’. This refers to the fact that a correlation itself does not allow to claim for a causal relationship. In fact, the independent variable could also be influenced (or even caused) by the dependent variable (Antonakis et al., 2010). When conducting a SEM, it is not possible to determine the direction of the relationship but only whether there is a relationship or not. However, the quantitative results are supplemented by additional qualitative data that further strengthens assumptions on the causal direction in the relationship between two variables. As suggested by Antonakis et al. (2010), we used the SEM MPlus version rather than other SEM software such as AMOS in order to achieve better measurement results.

Finally, the data and the methodology would offer great opportunities for analysing the relationships per country as well as to identify and interpret country differences. Thereby, it would be possible to check whether the model is correct in all countries or cultures. However, given the formalities and requirements of this study, it is not possible to also focus on these in-depth issues. Nevertheless, I would encourage scholars to explore these issues in country studies.

## 4. Results

### 4.1. Quantitative results

#### 4.1.1 Measurement model

The first step in Structural Equation modelling (SEM) is to ensure the validity of the theorized measurement model by conducting a Confirmatory Factor Analysis (CFA). In the context of this paper, the CFA was conducted using Stata and following the guidelines of Mehmetoglu and Jakobson (2016). First, I examined the factor loadings of each item on their theorized latent variable. All items were significantly loaded onto their latent variable and all factor loadings were on an acceptable level (i.e. above .4 and positive), with observing .5 as the lowest factor loading. Second, I reviewed both the reliability as well as convergent and discriminant validity of every identified factor (compare Mehmetoglu & Jakobson, 2016). According to Stata, all Raykov's factor reliability coefficients were above the expected minimum for acceptable reliability of .7. Despite professional development (.755), every factor was on a very high level of at least .844. Finally, convergent and discriminant validity of the latent factors have been monitored by calculating the squared correlations (SC) among latent variables and the average variance extracted (AVE) by latent variables. Mehmetoglu and Jakobson (2016) indicate that convergent validity is achieved when AVE values are greater or equal (to) 0.5. In addition, the AVE values have to exceed the SC values in order to indicate a consistent discriminant validity. Since all of these criteria are fulfilled, we can regard our measurement model as being valid and can proceed to the structural model.

Raykov's factor reliability coefficient

| Factor  | Coefficient |
|---------|-------------|
| LEAD    | 0.956       |
| EFF     | 0.938       |
| JOB SAT | 0.844       |
| PROFDEV | 0.755       |

Note: We seek coefficients  $\geq 0.7$

Figure 8: Results Raykov's factor reliability coefficient

| Convergent and Discriminant Validity Assessment                                                                                                          |       |       |                                                                              |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|------------------------------------------------------------------------------|---------|
| Squared correlations (SC) among latent variables                                                                                                         |       |       |                                                                              |         |
|                                                                                                                                                          | LEAD  | EFF   | JOBSAT                                                                       | PROFDEV |
| LEAD                                                                                                                                                     | 1.000 |       |                                                                              |         |
| EFF                                                                                                                                                      | 0.017 | 1.000 |                                                                              |         |
| JOBSAT                                                                                                                                                   | 0.009 | 0.152 | 1.000                                                                        |         |
| PROFDEV                                                                                                                                                  | 0.006 | 0.064 | 0.043                                                                        | 1.000   |
| Average variance extracted (AVE) by latent variables                                                                                                     |       |       |                                                                              |         |
| AVE_LEAD                                                                                                                                                 |       | 0.815 | No problem with discriminant validity<br>No problem with convergent validity |         |
| AVE_EFF                                                                                                                                                  |       | 0.790 | No problem with discriminant validity<br>No problem with convergent validity |         |
| AVE_JOBSAT                                                                                                                                               |       | 0.501 | No problem with discriminant validity<br>No problem with convergent validity |         |
| AVE_PROFDEV                                                                                                                                              |       | 0.520 | No problem with discriminant validity<br>No problem with convergent validity |         |
| Note: when AVE values >= SC values there is no problem with discriminant validity<br>when AVE values >= 0.5 there is no problem with convergent validity |       |       |                                                                              |         |

Figure 9: Results Convergent and Discriminant Validity Assessment

#### 4.1.2 Structural model

In the second step of SEM, the hypothesized relationships are tested by conducting a latent path analysis (LPA). LPA is among the most commonly used techniques in social sciences and aims to “examine a factor structure as well as testing hypothesized structural relationships. The factor structure is concerned with the relationships between indicators and latent variables, whereas the structural relationships concern links between latent variables” (Mehmetoglu & Jakobson, 2016, p. 311). Thereby, again I used Stata and followed the guidelines of Mehmetoglu and Jakobson (2016). Mehmetoglu and Jakobson suggest to examine four model fit indices, namely standardized root mean squared residual (SRMR), root mean squared error of approximation (RMSEA), comparative fit index (CFI), and Tucker-Lewis index (TLI). Wang and Wang (2012) suggest that the SRMR should be lower than 0.1 in order to prove an acceptable fit in CFA/SEM. Similarly, the RMSEA values should be lower than 0,1 in order to verify an adequate model fit (Bowen and Guo, 2011). In addition, the CFI and TLI are associated with an acceptable model fit when its values are equal or above 0.9 (Acocck, 2013). Comparing the

requirements for appropriate model fit indices with our data, we can see that (almost) all expectations are fulfilled. RMSEA (0.100), CFI (0.905) and SRMR (0.061) all indicate a good model fit. Only the TLI (0.887) did not indicate an adequate model fit. However, according to Mehmetoglu and Jakobson (2016), we can still regard our model as being significant given the fact that all of the other model fit indices acknowledge our model as being appropriate/significant.

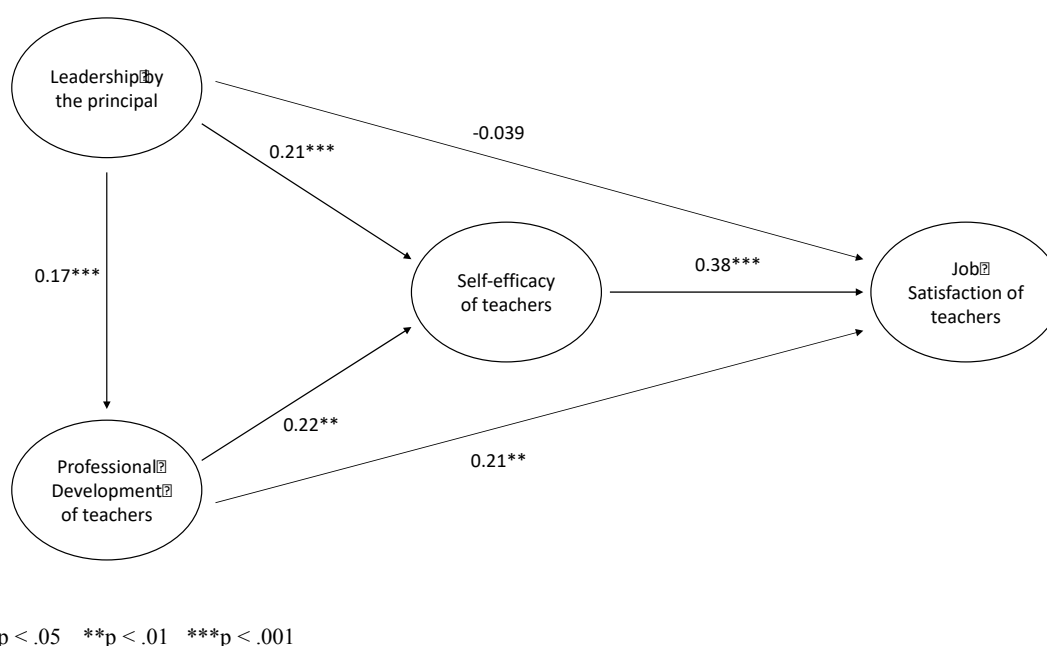


Figure 10: Structural Model

#### 4.2 Qualitative results: Interviews with OECD policy advisors

As explained in chapter 3.5, next to the quantitative results that have been extracted from the TALIS 2013 dataset, we will also gather qualitative data via interviews with experts from the educational policy field. In fact, six of eight researchers work for the OECD as educational policy advisors. The other two interviewees are the national project leader of TALIS of The Netherlands, and a public official from the Dutch Ministry of Education. In the following, I will analyse the qualitative interviews following the hypotheses that have been formulated in chapter 2.8.

#### 4.2.1 The relationship between principal leadership and teachers' professional development

In the first hypothesis, we examined the relationship between instructional leadership by the principal and professional development of teachers. Based on the theoretical insights that we presented in the second and third chapter, we expected a positive relationship between these two variables. The analysis of the quantitative data showed a significantly moderate positive relationship of 0.17 between principal instructional leadership and teachers' professional development.

When confronted with this result, none of the interviewees was actually surprised to see this relationship. Moreover, most of them even called it “*quite obvious*” (I2), “*pretty clear*” (I2) or commented it by saying “*this is what we see quite solid coming from the literature, also in practical cases*” (I1).

Interestingly, all of the interviewees focused on the role of instructional leadership for professional development of teachers in their explanation, even though it was only mentioned that there was a relationship, not a causality. During the interview, all interviewees agreed that good principals care about professional development of teachers and regard it as a highly important aspect of their work. Moreover, the interviewees did not only explain that good principals would care about their staff, but saw the opportunity to emphasize its importance:

It is highly important “*that leadership valorizes professional development!*”  
(I2)

“*the core of leadership is about improving teaching and learning that  
creates a totally different atmosphere.*” (I2)

“*One important aspect of leadership is setting strategic goals to say we need  
to improve in this and we have to develop action plans*” (I2)

Table 13: The importance of leadership for professional development

However, it is important to mention that leadership was not perceived equally by all participants. While some interviewees spoke about “*a school leader who pays a lot attention on school leadership*” (I7) or “*good leaders*” (I1) as individuals, one interviewee broadened

the focus of the question away from the leader as an individual towards emphasizing that *“the concept of leadership is not about one heroic school principal but is more about the whole culture in the school and the whole group of people”* (I2). Independent of the understanding of leadership as an individual’s task or as a communal concept, several interviewees emphasized that instructional leadership should not only focus on one task like providing professional development. In contrast, it should care about the creation of a *“collaborative nature”* (I1) and understand the *“school as a learning organization”* (I1). In this concept of the school as a learning organization, it is *“a core element of what a good school should be about. So that leaders... actually focus on the professional development of their staff”* (I1). Independent from the focus on shared leadership or a strong individual leader, the interviewees emphasized several challenges and barriers from a successful relationship between principal (instructional) leadership and professional development of teacher.

First, they emphasized in several interviews that the country and thereby the national politics and cultural understanding of the role of the principal has a strong influence on the quantity and quality of professional development that is provided for teachers. One interviewee even explained that *“if you look at the relationship country by country you won’t see a clear pattern”* (I5). The interviewees explain that there is huge difference whether the principal is in charge of developing the school or only supposed to manage its administration. In this regard, one interviewee explained:

*“We of course see that in many countries – i.e. Greece - where the role of a school leader is much more of an administrator and that is basically keeping the business in flow instead of really investing in the quality of teaching.”* (I1)

This is also recognized by another interviewee who describes the relationship between instructional leadership and professional development as *“somewhat complex”* (I5). He explained that *“it is complex because the working of principals in several systems is quite regulated. In certain systems, for principals it is really hard to go beyond administrative task by law because by law regulations, they have a series of issues that don’t really leave any time to enact the style of instructional leadership”* (I5).

Second, not only the role of the principal differs per country. In fact, several interviewees referred to differences in the attitude of politics regarding professional development of teachers.

They supported their argument by giving examples of countries like Denmark, Estonia, and Finland in which teachers receive a lot of support by their countries and contrasted them to the complicated circumstances of professional development in other countries.

*“So there are some countries where teachers are expected to fund their own professional development all by themselves on the other hand in countries like Estonia teachers are guaranteed five release days every year to follow a sequence of professional development.”*

*(I3)*

By describing these barriers, the interviewees take up again some of the challenges and barriers of successful professional development of teachers that have been presented in section 2.x.

While most interviewees primarily talked about the relationship between instructional leadership and professional development as a causal relationship originating from leadership, I was also interested in their ideas on the influence of professional development of teachers on the instructional leadership style of principals. In fact, this topic did receive a lot of interest from the interview partners. Some of the interviewees did even suggest further research on this topic:

*“I guess that’s something that definitely is interesting to follow... What happens after a group of teachers have been involved in a kind of intense professional development and what that means for the relations in the team and what the school needed particularly afterwards.” (I6)*

However, some interviewees tried to explain a possible influence of teachers’ professional development and a principal’s leadership.

*“I could imagine that after a lot of teachers followed professional development courses that that probably will change the relation because what I was saying is that those teachers come back and ask for other aspects of kind of job or want to develop also within the school there. In order to also have some leadership tasks. Probably it will change the whole team and the organization of a school.” (I6)*

Another interviewee, gave a more nuanced response by looking at the cultural dimension as a moderator of this relationship. According to him, there could be influence in some countries

like Germany and The Netherlands from the Western Culture in which “*as teachers build confidence and learn support to feel more confident, they might start taking on more of the leadership roles.*” (I1). However, he explains that in Asian cultures this might not happen due a different cultural understanding (f.e. of authority). “*I expect that there is a different impact ... probably it is not going to be a yes for all of them*” (I1).

Although this seems very interesting for further research, one interviewee mentioned that research would first need to “*disentangle the institutional aspect from cultural aspects*” (I5). Although there is this theoretical challenge, culture seems to be an important element in this relationship. Following the suggestion of an interviewee, one possibility for further research in this field would be to link the van Hofstede indicators of cultural dimensions with the TALIS dataset.

**Summary:**

- In the first reaction, the interviewees were not surprised by the positive relationship between principal instructional leadership and professional development of teachers.
- Their main explanatory focus was on the influence of a principal on PD activities.
- Good leaders/principals care about professional development of their staff
- Good leadership and professional development are part of the creation of the school as a learning organization
- However, there are some barriers like the political understanding of the role of the principal, and the opportunities for professional development of teachers.
- Professional development of teachers could also influence the leadership style of principals (but dependent on the cultural circumstances)

*Table 14: Summary instructional leadership - professional development*

#### 4.2.2 The relationship between PD and both self-efficacy and job satisfaction

As shown in the chapters two and three, the opportunities for teachers to develop professionally and participation in professional development activities have several positive outcomes such as teaching effectiveness, enhanced self-efficacy, increasing teacher attrition, and enhanced group cohesion (compare chapter 3). However, there are also several barriers and challenges towards professional development of teachers. The quantitative analysis of the relationship between professional development of teachers and their job satisfaction shows a significant, moderate positive relationship of .21. The qualitative analysis of the interviews supports these findings,

but also adds more nuances, and gives some concrete advices for the practice of teachers' professional development activities.

#### Professional development – A question of the right setup

During the interviews with the experts, it became clear that professional development of teachers is a highly important role in educational politics and is a pivotal factor for the success within the school context. In this regard, one interviewee explained that professional development is a *“huge topic not only in TALIS but in the OECD as an organization”* (I5). During the interviews, several interviewees gave statements like *“Professional development has a clear link with self-efficacy”* (I1) or *“the positive relationship is very obvious”* (I4). These experts explained this seemingly obvious relationship on the basis that professional development provides teachers with additional tools for their classroom and their teaching which again gives them more security and confidence in their teaching. One interviewee summarized her opinion on the outcomes of professional development as follows: *“you actually learn something in those development programmes that you can use in the classroom and that makes you more confident in your teaching.”* (I2).

However, in this specific statement she referred to positive professional development programmes. Nevertheless, she and all the other interviewees were very critical and nuanced on the implementation of professional development in practice. For example, one interviewee explained that professional development can *“either produce positive, no, or negative outcomes on both teachers' skill level, teachers' self-efficacy, teachers' job satisfaction and student outcomes.”* (I3). The reflection of the interviews showed that professional development is a highly complex topic and that several factors have to be taken into account in order to provide successful professional development activities. The interviewees identified several problems that impede successful setup of professional development activities for teachers:

First, there is a huge difference in the understanding of professional development programmes between countries. One interviewee explained: *“in our country studies, we find wide variability in terms of both what is expected and what is mandated by countries in their national policy frameworks in terms of professional development. Why are there different definitions of what actually is professional development and what the standards are for the quality of that professional development.”* (I3). In addition, he calls the empirical literature on professional development *“a mess”* (I3) and explains that from his experience *“the really rigorously designed studies of professional development ... generally don't find much in the way of positive impact of teacher practice, and even less for student outcomes.”* (I3). According to the

interviewee, there are not only large differences between countries in the understanding of PD but countries also do not support educational development enough financially, nor do they invest an appropriate amount of research into it: “countries tend to invest low portions of their educational budget on professional development in comparison to other industries.” (I3), and “I think in many cases there isn’t a really serious attempt to measure what the impact of those policies are.” (I3). These comments again refer to the barriers that have been shown in the previous section. Also regarding the outcomes of professional development, interviewees emphasized the problems such a lack of time, and teacher shortage influencing the outcomes of professional development activities.

Furthermore, several interviewees emphasized the importance of acknowledging the teachers’ needs, and develop individualized learning programmes for teachers rather than general training programmes (I2, I3, I1): “I would highlight especially the areas of individualized coaching of teachers. So I think generally, professional development when conceived of as a training that has run on a run-off basis or even a repeated training that has run over the course of the semester, is not tailored to the specific needs of teachers. Generally, maybe positively regarded by teachers but it is not necessarily what is critical to produce improvement in instructional practice.” (I3). This notion is supported by another interviewee who explained that there are large differences between the subjects regarding tools and techniques. The personal experience of one interviewee regarding these subject differences can be read in the attachments:

“I have two subjects – Math and English – and my teacher training was very different in the two subjects. In math, it was focusing on content knowledge for 99 percent so we were studying like high-level mathematics and basically no pedagogy or no pedagogical content knowledge so I didn’t really learn how to teach math. In English it was very different: we had a very intense teacher training in how to teach English and that actually made all the difference for me. When I was a beginner teacher right at the beginning I felt and made a difference in self-efficacy precisely. When I started to teach English, I felt pretty confident and I had a lot of tools in my hand. I knew how to manage a classroom, how to organise activities, how to plan a lesson, how to adapt at lesson plan during the class you know. And it was working well, everything was going okay. And then one year later I started to teach maths and I realized I had no idea what to do. And precisely how to engage students so in terms of terms of self-efficacy in student engagement in English I had a lot of tools. And the tools are just very different. I mean in English class you can talk about anything and then you have to know how to engage them, how to get them talk, small group work activities and so on. In maths it is very different you know? And I didn’t have the tools, I didn’t know how to engage students who are not motivated by themselves.” (I2)

Table 15: Practical example of teachers' professional development

However, not only does the subject require adapted professional development programmes but there are also differences between schools and motivation of students. One interviewee who

was also a former teacher illustrated this with a personal story: “[in] elite schools ... the students were hyper-motivated, hyper-clever and I didn’t have to do anything. I gave them exercises and they were happy to do them. And then I went to teach in a ‘normal’ school and they were not happy to do that because they didn’t care about mathematics and had no idea what to do” (I2). In this context, the interviewees again referred to the role of the principal in identifying the teachers’ needs and adapting the PD activities to the individual needs of the teachers. One interviewee drew importance of adapting the professional developing programmes constantly because of the constant changes in the educational field: “take in mind something like the current refugee crisis when teachers are facing a whole new student population, professional development becomes an imperative. There is the responsibility of the government to provide in an accessible manner the opportunities for teachers to update their skills and knowledge.” (I5).

However, in general, there were types of opinions inherited in the interviews. On the one hand, interviewees who saw a direct relationship between professional development activities and the practice of the new tools and techniques, and on the other hand interviewees who explained that the setup of professional development activities itself does not automatically cause a difference in practice.

Summary:

- Professional development is very important and can have several positive outcomes if it has the right setup
- Professional development gives teachers tools and techniques to feel more confident in the classroom (which again influences satisfaction of teachers)
- However, professional development is very complex, and the setup of successful programmes faces several challenges
- These challenges are among others to understand the importance of professional development programmes; to invest more research and money into its setup; to tailor the programs to the teachers’ needs; to eliminate administrative problems (lack of time, financial issues, etc.)
- Not only the setup of professional development activities is important, but also the transfer of these tools into practice.

Table 16: Summary professional development - self-efficacy - job satisfaction

#### 4.2.3 Relationship between principal instructional leadership and self-efficacy of teachers

As already presented in the second and third chapter, “[p]rincipals who take a strong role in instructional leadership emphasise high-quality instruction and develop policies that support student achievement, such as supporting the development of learning communities, giving instructional feedback to teachers, modelling effective instruction and supporting the use of assessment data in the classroom” (Rutkowski et al, 2013, p. 28). Therefore, we expected a positive relationship between principals’ instructional leadership and teachers’ self-efficacy. This hypothesis could be accepted with a significant moderate relationship of 0.21. During the interviews on this relationship, most interviewees again focused on the influence of PIL on self-efficacy of teachers and gave some interesting insights.

First, one interviewee mentioned that the term ‘instructional leadership’ would be misleading because of its traditional origin. As explained previously, the traditional term refers much more to an intervening style of leadership. However, in its traditional meaning *“it would undermine the autonomy of teachers”* (I2) rather than improving the feeling of self-efficacy. Therefore, in this relationship the terms ‘educational leadership or ‘leadership for learning’ would be more appropriate.

Second, in most interviews, the relationship was explained by using additional mediators and moderators instead of focusing on the direct relationship: One of these mediators was professional development. According to some interviewees, instructional leaders who focus on developing professional development activities who make sure that teachers receive the tools and techniques they need in order to manage their classroom and perform on a high level, then instructional leadership can be seen as a determinant of teachers’ self-efficacy. Furthermore, to see principals focusing on the needs of the teachers and care about the quality of the professional development system, already should have an influence on teachers’ self-efficacy (I2). Other mediators that the interviewees used to explain the relationship between instructional leadership and teachers’ self-efficacy were school climate, collaboration with colleagues, and teamwork. One interviewee explained that *“when teachers feel that they are supported, the confidence increases.”* (I5). Here, the school principals can play two roles. He is both a major factor in the creation of a good school climate, and he can be a supporter him- or herself and thereby provide guidance for the teachers.

Finally, the relationship between the principal’s instructional leadership and self-efficacy of teachers can be explained through the actions of the principal. These actions can be for example having a one-on-one conversation with a teacher or visiting his classroom lessons regularly. In this regard, one interviewee explained that *“if the teacher knows he/she from time to time can*

*approach the principal and talk about issues or he knows that the principal is concerned about this work, that can easily boost his confidence” (I5).*

Based on the fact that the interview partners used professional development as a mediator to explain the relationship between instructional leadership and self-efficacy, some of the insights of section ... can be easily applied here as well. Thereby, it is important to acknowledge the role of the principal as being responsible for the creation of high-quality professional development activities.

#### 4.2.4 Relationship between instructional leadership and job satisfaction

As shown in the third chapter, there are several studies who found a positive influence of principal's leadership style on the motivation of their teachers such their job satisfaction (Leithwood et al., 2008). Moreover, the meta-analysis of Cogaltay et al. (2016) has shown a strongly positive relationship between instructional leadership and job satisfaction. Therefore, in our fifth hypothesis, we expected that there was a positive relationship between instructional leadership of the principal and job satisfaction of teachers. However, this hypothesis could not be accepted. The quantitative analysis of the SEM showed that there was no significant direct relationship between instructional leadership by the principal and job satisfaction of teachers.

When confronting the interview partners with this result, almost all of them (all but one) were quite surprised in the beginning. Some of the interview partners did even question this results and its measurement because they would not agree with the result that principal instructional leadership and teacher job satisfaction were not significantly related. Accordingly, most reacted by asking how instructional leadership was operationalized (“when you say instructional leadership you take the index of instructional leadership from TALIS that relates to school leaders’ activities?”) or emphasized that their answers would be kind of a speculation based on taking the quantitative results for granted: *“I just want to clarify that I will comment on these relationships taking the results as given in the sense that I am not going to question the quality of the methodological approaches that you use to do this.” (I5).*

After this scepticism, in a second reaction, mainly two reactions were visible. While one part of the interviewees explained why they would disagree with the results, the other group tried to find alternative explanations. These alternative explanations concerned for example the complexity of the concept of leadership, and the emphasis on different mediators such as self-efficacy. Interestingly, those interviewees who did not agree with the results, actually used mediators to explain the relationship between instructional leadership and job satisfaction.

However, interestingly, the analysis of the quantitative results does not support this. In fact, there was no significant relationship found between principal instructional leadership and

teachers' job satisfaction. Nevertheless, this only refers to the direct relationship between these two variables. The quantitative data show that the relationship is positively mediated by self-efficacy and professional development.

In general, all interviewees agreed that leadership is a highly important topic in the educational context "I think that school leadership does make a difference" (I3). However, they also agreed that there might be different styles of leadership that have an influence in this regard. Two interviewees referred to distributed leadership as having a direct relationship with teacher job satisfaction: *"it is not instructional leadership that has a direct relationship on job satisfaction but that it can be distributed leadership"* (I2); *"I definitely think distributed leadership could be an element... I can certainly see this linked with job satisfaction"* (I5).

One interviewee also criticized the conceptualization of instructional leadership in the TALIS questionnaire. According to her, the concept of leadership might be too complex to measure it with five items. And that it would not capture other important tasks of principal leadership like *"giving feedback and generating dialogue and creating an open atmosphere... perhaps these softer elements may have a more direct influence on job satisfaction"* (I2). Furthermore, she summarized the ideas of several other interviewees by stating *"for me the most logical explanation is really that it has an indirect influence or its impact is mediated by a lot of factors to job satisfaction."* (I2). Other interviewees have been even more specific on these mediators. One mediator that was mentioned several times was the learning environment. According to the experts, *"the greatest catalyst that school leaders can provide in terms of ... the learning environment in schools is to focus specifically on ways in which teachers can create the professional learning community within the school where they all feel supported by each other. And that is probably the greatest indicator of overall job satisfaction. It is not actually so much whether your school's leader is him- or herself doing a fantastic job individually supporting you but whether they have created a culture in the school where people are supporting each other."* (I3). Another interviewee added that strong instructional leadership might even have negative effects: *"I think that teachers sometimes have a problem with strong instructional leadership because they feel they need their own personal space and they make their own decisions about what materials they use, what methods, etc. Some teachers really need to be the boss in the classroom."* (I4). One explanation why there is actually no direct relationship was based on the administrative and cultural circumstances. Again referring to different tasks that are assigned to leaders, one interviewee explained that *"you can be an instructional leader but if the salary is bad or not ideal that is going to influence things quite a lot"* (I1).

Summary:

- Leadership itself is highly important in the school context
- There might be other forms of leadership, like distributed leadership, that have an influence on teacher job satisfaction
- The relationship between instructional leadership and job satisfaction is probably mediated by several elements such as working environment, collaboration with colleagues, and feedback
- Cultural circumstances might hinder principal in some countries to perform instructional leadership to the degree that it has an influence on teachers' job satisfaction.

Table 17: Summary instructional leadership - job satisfaction

#### 4.2.5 Relationship self-efficacy and job satisfaction

The relationship between teachers' self-efficacy and their job satisfaction is not new to the literature. Also in the educational fields, several scholars have shown a positive relationship between these two variables. This positive relationship is supported by the analysis our quantitative data which showed a significant and strong positive relationship of .38. Thereby, it is the strongest relationship that has been found in our model. The qualitative insights support these findings very well because all of the interviewees strongly agreed with the results. Moreover, they gave some very interesting and important insights into this relationship, and supported the findings from their own teachings experiences.

During the interviews, the interviewees often explained that the ability to manage a classroom and support students is one of the most important aspects of the teaching profession.

*“One thing that we have seen about the instruction of teachers: there's a whole policy discussion about the working condition of teachers that has been I think somewhat monopolized the discussion of salaries. This does not mean that salaries don't matter. Of course, they matter. But it's not the only thing that teachers care about. They also care about having control of the classroom, having autonomy. That they feel they are professionals that have certain set of skills and knowledge and they can implement them. And I think that's the key element on confidence.” (I5)*

Therefore, the belief in the own ability to perform on a high level gives teachers the feeling to be good in their profession which again makes them satisfied in their job. One interviewee

explained from his own experiences as a teacher: *“If you really get students to value learning, if you see that you are having an impact, if you see them thinking critically... of course I am going to enjoy my job a lot more.”* (I1). Other interviewees gave similar comments often using phrases like *“of course”* (I1), *“very clearly related”* (I6), and *“this is quite obvious”* (I5) to describe the relationship. Some scholars also explained the applicability of this finding to other working fields, saying things like *“If you are not confident in your work, you are not satisfied.”* (I5). In addition, the interviewees talked about other factors moderating this relationship, namely level of stress (I6), and trust (I7). For the former, the negative moderating effect of stress on job satisfaction is explained as follows: *“many of those teachers feel that they are kind of short-coming against all other students they have because they want to give them individual attention and they know that they can’t give them that.”* (I6). Accordingly, stress has a negative influence on a teacher’s (perceived) ability to manage a classroom effectively. For the latter, one interviewee explained that the level of trust between teacher and students influences how smooth and easy the lessons are (I7). This again refers the ability of a teacher to create a good classroom climate. In addition, the interviewees showed that it is very important to keep in mind the consequences of a lack of self-efficacy of teachers. The interviewees identified among others higher levels of retention, and high absenteeism as consequences of low self-efficacy beliefs. One interviewee explained that *“[t]eachers like to change to another school if there was the possibility ... [which] is very likely to be the result if you have a bad classroom climate in that school.”* (I1). Furthermore, another expert explained: *“We see many teachers who are struggling with the school climate and the class climate, they have a high absenteeism.”* (I7). Finally, several interviewees emphasized the reciprocal influence of the two variables on each other. Unfortunately, the interview partners did not dig deeper into the influence of job satisfaction on self-efficacy. However, several mentions by the interviewees showed the importance to invest qualitative research into this causality as well.

Summary:

- The relationship between self-efficacy and job satisfaction is strongly significant
- The ability to manage a class is at the core of the teaching profession and therefore its perceived ability a key determinant for teachers' job satisfaction.
- The relationship is moderated by several other factors such as stress, and trust between teachers and students
- Missing self-efficacy can have enormous negative consequences like absenteeism or even retention of teachers
- There is both an influence of self-efficacy on teachers' job satisfaction, but also an influence from their job satisfaction on the level of teachers' self-efficacy

*Table 18: Summary self-efficacy - job satisfaction*

## 5. Discussion

Both the quantitative and qualitative analysis have shown interesting results about the relationship between principal instructional leadership, teacher professional development, teacher self-efficacy in classroom management, and their job satisfaction. In this chapter, we will discuss which implications these results can have for both research and policy-making.

### 5.1 Research implications

First of all, the study has shown that the TALIS dataset offers great opportunities for researching interrelations between several variables on a cross-country level. In this regard, the dataset offers a unique level of valid and reliable data that need to be used more extensively. This is also supported by the interviewees who called the it *“quite an underutilized dataset”* (I1). In addition, there needs to be more research on each of the variables. While one interviewee emphasized that *“it is important to keep on exploring what are the factors that can drive self-efficacy”* (I2) in order to make use of them in practice, also leadership and self-efficacy require more research. Although we have mentioned the importance of these variables for teacher job satisfaction, there is still no common agreement about how they should be designed in practice to cause positive outcomes. In this regard, one interviewee explained that *“it would be great to say to what it [the study] implies is that schools should invest more in professional development or invest more in school leadership. The truth is that we don’t know enough particularly on the policy level to be able to make ... sound decisions about what that would look like”* (I3).

In addition, the study has shown that there needs to be a much more holistic understanding of the school as a system. In this regard, the concept of a school as a learning organization can be very helpful in order to identify the key building blocks that have a positive impact and make use of them. This is supported by several interviewees who explained that *“the next step is for research to move to school level”* (I1) and to understand the *“school as a community”* (I4). By developing and working on this holistic concept, research would also start to unite the fragmented research: *“research is often quite fragmented because if we think about the unit of the students and the unit of the teachers, we are often not thinking about the unit of the school”* (I1).

Regarding the concept of leadership, research might also focus on other leadership styles such as distributed leadership. As shown in chapter 4.2.4, some interviewees expected a positive influence of distributed leadership on teachers’ job satisfaction.

Furthermore, the literature review and the interviews have shown that employees' job satisfaction is often seen in a direct relationship with their performance. Consequently, this role of teacher job satisfaction as being directly linked with their performance, and also the influence on student outcomes, should receive much more attention in research. Moreover, the OECD already has a large cross-country dataset on student outcomes with the PISA study. Accordingly, the OECD and other scholars should focus on making use of the opportunity of this data and relate them. In addition, the study has shown that culture could be an important element in the relationships that were analysed. As indicated previously, one interviewee suggested to use the van Hofstede indicators in this regard (I1). In conclusion, we can say that research is necessary to assess and evaluate certain educational concepts within the schools and thereby offers insights for public officials to make profound policy decisions.

## 5.2 Policy implications

One policy implication that became obvious during the study is directed to the understanding and practice of teacher professional development. In this regard, first, the setup of professional development is highly important in order to make a difference and influence both self-efficacy, and job satisfaction. The interviewees emphasized that *"Professional development is more than just giving tools to teachers' hands ... it has a larger impact."* (I2) and that *"we shouldn't reduce the message to giving more professional development and the teachers are going to be happier"* (I2). Some concrete advices from the interviewees were included that professional development should be more than a single workshop for all teachers but oriented on teachers' needs, enhance feedback, include collaborative aspect, and include the transfer of training into practice (I2). Given these requirements for successful professional development, policy needs to develop systems how professional development can be integrated in the schedule of teachers and how professional development can meet the individual needs of them.

Second, professional development is an organizational measure to solve encountering problems such as a lack of teachers and low-quality teachers. This is also explained by an interviewee: *"So providing quality professional development can be a good way to reduce teacher attrition, to keep teachers on the post, and especially to keep high-quality teachers in the job."* (I2).

Another important implications refers to the role of the principal. Even though instructional leadership does not seem to have a direct relationship with teacher job satisfaction, he is still in the role of facilitating processes, recognizing the needs of teachers, and managing the school.

The most important policy implication that became clear within this study was the role of policy itself. In contrast to playing a dominant role and making top-down standardized decision, the school itself should be in the focus. This was summarized by an interviewee as follows: *“the role that policy can play here is to support and guide professional development work and leadership development but not to overly prescribe or dictate” (I3)*. Furthermore, he explained that policy could initiate *“pilot projects that would attempt to better assess within country contexts the specific kind of [f.e.] professional development ... that makes a difference” (I3)*.

### 5.3 Future challenges

In relation to the policy implications, the interviewees also gave some insights into the biggest challenges they expect for the educational sector in the future. Thereby, they described mainly four challenges: (1) handling the digitisation, (2) political, socio-economic, and cultural challenges, (3) demographic challenges, and (4) labour market expectations.

Both nowadays and in the future, digitization is perceived an enormous challenge for society but also for education in order to prepare students for a digital future. However, the interviewees emphasized that one challenge that comes along is not to get too hyped by the digitization, and the *“danger ... to stress technology for technology’s sake” (I2)*. On the one hand, *“there are many other innovative technologies that can be very helpful to complement using digital devices or ICT or they can be as effective as other tools” (I2)*. On the other hand, again there needs to be professional development that is adapted to the teachers’ needs and helps them using the advantages of digital tools and technology: *“these techniques or technologies are not just enough as such. Teachers need to know what to do with them.” (I2)*.

Another challenge that is present today and is seen as challenging in the future as well is the political and socio-economic dimension of educational politics. One expert explained that often policy decisions are contrasting the theoretical knowledge in order to show fast and positive results in order to get re-elected (I1). In addition, these political interests create a tension between national necessities and local necessities, as well as local implementation. According to an interviewee, professional development programmes are not oriented on each single school and cause problems for schools with different needs. In this context, the interviewees emphasized the challenge of cultural differences between countries. In relation to previous explanations, these cultural differences make it extremely difficult to create a common understanding of educational concept.

Furthermore, countries will probably feel the consequences of demographic change, and thereby experience a lack of teachers in the future: *“We do have a little bit of a situation where the baby-boom generation is going to go out in the next ten years”* (I4). In order to deal with this challenge, countries (primarily Western European countries) would need to develop systems how to attract and retain teachers for the teaching profession (I4).

As a consequence of the constant development, and digitisation of the world, one interviewee expected *“a time where repetitive, low skilled tasks are going to disappear”* (I5) and where schools and teaching need to change in order teach *“high-level skills”* (I5).

## 6. Conclusion

The aim of this study was to explore the relationship between teacher job satisfaction, teacher professional development, teacher self-efficacy in classroom management, and principal instructional leadership in 34 OECD countries. Thereby, we conducted a mixed-methods approach by analysing the TALIS 2013 dataset with a Structural Equation Modeling, and conducting qualitative interviews with national educational experts and policy advisors from the OECD.

Within this study, we provided a literature review and definition of the main variables, and gave a theoretical explanation of their characteristics and relationship with the other variables. In our empirical analysis, we have shown that almost all variables are significantly and positively related with each other. Only the direct relationship between instructional principal leadership and teacher job satisfaction does not show significant results. However, instructional leadership influences other variables such as professional development, and teacher self-efficacy which again influence teacher job satisfaction.

This study was inspired by the severe current problem of teacher turnover which is present in several countries across the world. The interviews with the educational experts again emphasized that teacher job satisfaction can be an important measure to deal with this challenge and other challenges in the educational system. The study has shown that self-efficacy of teachers is the key determinant in the creation of teacher job satisfaction. Accordingly, it can be concluded that the stronger the beliefs of teachers in their own capabilities, the stronger is their job satisfaction. However, the interviews have shown that the concept of self-efficacy needs to receive a lot more attention by both scholars and practitioners. Neither researchers nor practitioners have developed concrete policy strategies yet to tackle self-efficacy directly. In this regard, this study can be seen as an important milestone. By showing the positive influence of both principal leadership and teacher professional development on teacher self-efficacy, we offer a first starting point how to approach teacher job satisfaction via self-efficacy. Furthermore, it can be concluded that the most important actor for creating teacher job satisfaction is neither politics nor public administration, but is the school itself. In fact, it is important to understand that policy-making should rather guide schools, and focus on the support of individualized and needs-oriented programmes than to create top-down generalized solutions. Their support should be oriented on the needs of teachers, principals and the school

itself. Furthermore, within the school, the principal takes on a key role as the one most knowledgeable person who identifies the needs of the school and the teachers and facilitates processes for better learning.

Finally, the research has shown that there are numerous future challenges for the educational sector and especially schools. In order to face these challenges, research is both necessary and highly important to develop effective school concepts. Thereby, it is necessary for research to unify its fragmented state, and develop a more holistic understanding of the school. In this regard, the concept of the school as a learning organisation is crucial for developing policies for the teacher job satisfaction and a successful school. In addition, the study has shown that the TALIS dataset offers great opportunities for future research, and should be used more effectively. Thereby, it could be linked to other variables such as student outcomes (by using PISA) or culture (using the van Hofstede indicators).

## Appendix

| Reference | Source                                       | Date       |
|-----------|----------------------------------------------|------------|
| I1        | OECD expert                                  | 25.05.2018 |
| I2        | OECD expert                                  | 05.06.2018 |
| I3        | OECD expert                                  | 11.06.2018 |
| I4        | National Project Leader<br>TALIS             | 12.06.2018 |
| I5        | OECD expert                                  | 12.06.2018 |
| I6        | OECD expert                                  | 15.06.2018 |
| I7        | Official from Dutch<br>Ministry of Education | 15.06.2018 |
| I8        | OECD expert                                  | 18.06.2018 |

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